INCREASING STUDENT ACADEMIC ENGAGEMENT THROUGH THE APPLICATION OF PROBLEM BASED LEARNING MODELS IN JUNIOR HIGH SCHOOL

Rahmad Agung Nugraha[1] and Asseline Wahyu Tri Ardyanti[2]
[1]Universitas Panca Sakti Tegal, Indonesia
[2]STIPAK Malang, Indonesia

ABSTRACT

Students' academic involvement has a role with students in activities and learning conditions. Academic involvement not only supports students, it is a predictor of student success in learning. This study was conducted to determine the increase in student academic involvement through the application of the Problem Based Learning (PBL) model in junior high schools. In this study, the model of Problem-Based Learning Implementation is expected to encourage collaborative and constructive learning so that students are more involved with problem-based learning processes that enhance better learning in learning. The application of the Problem Based Learning model in Junior High School is designed so that students always collaborate with other students, so that solving problems needed in collaboration between groups, when it can increase student academic involvement.

This study used a single subject research design with several baseline designs throughout the subject. Subjects in this study acted as research subjects who were intervened as well as control participants. Research subjects were selected based on the academic involvement scale instrument for elementary school students. Research data was collected through observation. Graph analysis is used in data analysis, analysis is included in the conditions and analysis between conditions. Analysis in conditions is an analysis used to analyze changes in one condition. While the analysis between conditions for analyzing changes from one condition to another is the baseline condition under intervention conditions.

The results of the graph and table analysis at the baseline showed stable engagement academic behavior was low, but in conditions of academic engagement intervention increased. Increased academic involvement in each student that occurs after intervention through the application of the Problem Based Learning model.

KEYWORDS: academic engagement, problem based learning, siswa sekolah menengah pertama

1. INTRODUCTION

Problem Based Learning as a learning model is designed by giving problems to be solved. Problem Based Learning is interpreted as learning which essentially presents a variety of authentic and meaningful problems. Application of Problem Based Learning is designed to help students to develop cognitive skills, and solve problems through various real or simulated situations in the

classroom. Collaboration of students in problem-based learning can encourage joint inquiry and dialogue, development of thinking skills and social skills (Arends, 2007).

Starting from a constructivist perspective, learning should contain the values of collaboration, personal autonomy, generativity, reflectivity, active engagement, personal relevance and pluralism. Problem-based learning contains a non-linear procedural sequence, learning tends to have no beginning and ending (Willis & Wright, 2000). Learning runs in a cycle of recurrent or recursive stages (Wilson & Cole, 1996).

Problem Based Learning was first applied to the medical education context (Barrows, 1996), but in the development process this learning model was applied to various scientific disciplines both natural and social science. Among the various disciplines that apply problem based learning are economics (Duch, et al., 1996) economics (Garland, 1995), educational leadership (Cunningham & Cordeiro, 2005), teacher's education (Oberlander & Talbert, 2004), psychology (Reynolds, 1997), history (Wiesemen & Cadwell, 2005), literacy (Jacobsen & Spiro, 1994), and language (Larsson, 2001; Elizabeth, MA & Zulida, A. K, 2012).

The steps for implementing Problem Based Learning according to Arends (2007) are: (1) orienting students to the problem, (2) organizing students to research, (3) helping independent and group investigations, (4) developing and presenting exhibit and artifacts, (5) analyzing and evaluating the problem solving process. With the application of Problem Based Learning, students can learn independently, solve problems, and students can behave more mature (Arend, 2007). In addition to the instructional effects obtained by students, Problem Based Learning also produces accompaniment effects which are commonly called nurturance effects. The Nurturance effect can be seen together with the instructional effect. In this case the nurturance effect that will be improved is academic engagement.

Problem Based Learning application collaboratively requires students to solve problems and be more engaged actively in a relatively long period of time (Arends, 2007). The results of Larsson's (2001) study confirms that the implementation of Problem Based Learning becomes a challenge when implementing problem-based learning in language learning (Elizabeth, M. A. & Zulida, A. K, 2012). Students' academic engagement is thought to increase with the implementation of problem based learning, so further testing is needed to ensure the outcomes. The problem of low academic engagement if not handled and improved will have a negative impact on the quality of personality and academic students. Students experience disaffection such as passivity, lack of hard work, and easy to surrender when encountering challenges (Skinner & Belmont, 1993) and consequently, students dropping out is the worst scenario (Reschlt & Christenson, 2006). Such conditions are of course very concerning and unfavorable for students, teachers and stakeholders, therefore an intervention is needed to improve student academic engagement by applying problem based learning model in learning.

After examining students' academic engagement problems and performing need analysis in order to improve academic engagement through the application of problem based learning, the problems to be answered in this study are: Does student academic engagement increased through the application of problem based learning models in junior secondary schools. Hence, according to problem formulation, this research objective is to improve student academic engagement through the application of problem based learning models in junior high schools.

2. LITERATURE REVIEW

a. Academic Engagement

The definition of academic engagement is a multi construct definition and it has developed over time. Initially Academic engagement is defined as "on-task" behavior. This definition arose from a study conducted by Natriello (Bardin & Lewis, 2011), further Natriello (1984) extends the definition of "on-task" and define that student engagement is student participation in certain activities as part of a school program. This definition implies that if students do not participate in school activities students perform no engagement.

The definition of student engagement and academic engagement of students has fundamental differences. Student engagement includes learning and non-learning activities, while student academic engagement focuses on student activities in learning only. While school engagement has a broader scope that is not just classroom learning, but includes all students, groups, classrooms, and school environments (Furlong, 2003).

According to Martella and Nelson (2003) academic engagement is the amount of time students participate actively in learning activities with teachers. Greenwood, et al (2002) also provide a definition of academic engagement behavior referring to the existence of specific behaviors in the classroom, such as writing, participating in assignments, reading aloud and slowly, discussing, asking questions and answering questions.

While Chapman (2003) defines academic involvement similar to the definition of student involvement. The similarity of the definition he put forward is the emphasis of learning activities carried out by students. Chapman's definition needs to be emphasized and redefined since numerous terminology related to engagement of students address different perspective of engagement, instead of academic engagement only.

According to Harper and Quaye (2009) student academic engagement is student participation in educational practices both in the classroom and outside the classroom, which leads to a variety of measurable results. Academic engagement occurs when students grow psychological feelings in

learning. Students strive to learn what the teacher teaches, students also feel proud not only in getting formal indicators of success, but also understanding the material internalized (Newman, 1992).

The definition of academic engagement in the National Student Engagement Survey (NSSE) is defined as the level of student participation in learning activities as a form of participation in several interactions and activities in the classroom and outside the classroom (Barkley, 2010), which causes students to be motivated to learn and complete tasks from teachers well (Libby, 2004). Academic engagement is a proof when individual has a sense of responsibility and commitment to the work (Inverson, 2008). Thus, the meaning of academic engagement is based on the context of learning in the class that is inseparable from the role of the teacher. Hence, in this study, academic engagement is interpreted as student involvement behavior actively in the classroom learning process which includes cognitive engagement, emotional engagement and behavioral engagement.

In the discussion of academic engagement scope, it was intended to cluster various polarization terminology related to academic engagement. This clustering is very important hence understanding the engagement is clearer and more targeted, considering the variety of uses of terms used interchangeably and yet having the same basic concept of engagement. The term engagement has developed a lot of polarization as proposed by Audas and Willms (2001); Connel and Wellborn (1991); Russell, Ainley, and Frydenberg (2005); Skinner and Belmont (1993); Skinner, et al (1990). Another term is engagement in schoolwork used by the National Research Council or Institute of Medicine (2004). In this term, involvement is an emotion and behavior that is connected by perceptions of competence and control (I can), value and purpose (I want to), and connectedness (I belong). This term is also used to describe student engagement in the entire learning environment, including participating students, curriculum design, classroom management and the school climate (Fletcher, 2005). They choose assignments to the extent of their competency, they also start actions when given the opportunity, and show persistent effort and concentration in carrying out learning tasks, and finally they also show positive emotions during the action, including enthusiasm, optimism, a sense of desire know, and interest (Skinner and Belmont, 1993). While indicators of students' lack of engagement included unreasonable class attendance, cheating on tests, and damaging school property (Chapman, 2003).

There are various designations of engagement namely school engagement by Fredericks, Blumenfeld, and Paris (2004); Furlong, et al (2003); Jimerson, Campos and Gektif (2003). While student engagement by Chapman (2003); Yazze-Mintz (2007), student engagement in / with school by Mosher and MacGowan (1985); Clamps and Cornell (2004); Christenson and Anderson (2002). The term academic engagement by Libby (2004), student engagement in academic work by Marks (2000); Newmann (1992) with the term participation identification, although not specifically using the word engagement, but in its conceptualization there are many similarities with engagement used by Finn (1989, 1993).

The term engagement is an extension of student participation both in terms of academic activity and non-academic activities (Audas & Willms, 2001). Whereas Skinner & Belmont (1993) interpret it as the involvement of sustainable behavior in learning accompanied by positive emotions.

According to Kenny and Dumont (1995) student engagement in classroom activities or in school can be seen as an indicator of success in learning and is seen as a valuable outcome in school reform. Students who are involved when they feel they have ownership in their activities, always survive despite encountering challenges and obstacles, and the pleasure seen in completing their work (Schlechty, 1994). When individual has felt involved in the task, it will have more energy and courageous than others. When facing an obstacle in work thye will try a more persistent effort and they will make the best effort they have (Brown and Leigh, 1996).

Students engagement also refers to students' willingness, desires, and the need to participate, and strives to be successful. Student engagement is a term that can be used to recognize the complexity of cognitive engagement, behavioral engagement, and emotional engagement in learning (Chapman, 2003). Student engagement is often used to describe the willingness to participate in routine school activities, such as attending classes, submitting the necessary work, and following the teacher's direction in the classroom (Chapman, 2003). While according to Valehzaghard, et al (2013), academic engagement has a positive relationship with student academic success.

Pembahasan tentang engagementdan motivasi menjadi daya tarik tersendiri, meskipun perbedaan keduanya tetapdiperdebatkan(Appleton, dkk, 2008). Sebagai suatukonsep, motivasi berangkat dari termtujuan, intensitas, dan kualitas energi seseorang. Dalam hal ini,motivasi berkaitan dan mendasari proses psikologis, termasuk otonomi individu dan kepemilikan (Skinner, dkk, 1990). Sebaliknya, engagementdigambarkan sebagai "energi dalam tindakan"hubungan antara orang dan aktivitas. Engagementmencerminkan individu aktif terlibat dalam tugas atau kegiatan (Russell, dkk,2005). Motivasi dan engagement berbeda tapi tidak selalu dibedakan. Sebagai contoh dalam mengerjakan suatu tugas seseorang bisa memiliki motivasi, namun tidak selalu terlibat secara aktif atau engaged (Connell & Wellborn, 1991). Motivasi diperlukan, tetapi tidak cukup untukengagement.

The discussion about engagement and motivation attracts most educational scholars, although the differences between the two are still debated (Appleton, et al, 2008). As a concept, motivation departs from the term goals, intensity, and quality of one's energy. In this case, motivation relates to and underlies psychological processes, including individual autonomy and ownership (Skinner, et al, 1990). Conversely, engagement is described as an "energy in action" relationship between people and activities.E Engagement reflects individuals actively involved in tasks or activities (Russell, et al., 2005) .Motivation and engagement are different but not always distinguished. For example, when doing a task someone can motivated, but not always actively involved or engaged (Connell & Wellborn, 1991). Motivation is needed, but not enough for engagement.

Furrer, et al. (2006) noted the importance of seeing engagement in a motivational framework. Engagement can change through reciprocal interactions with contextual variables and the influence of academic, behavioral, and social outcomes as products of contexts that are influenced by changes in engagement. Skinner, et al. (2009) also have the same view, namely engagement as a conceptualization of motivation. In practice engagement includes the initiation of the actions of someone who is motivated but at the same time contains a person's resistance in facing various difficulties that arise. In learning activities, engagement is very important for students' academic success (Saeed & Zyngier, 2012)

Thus academic engagement is always based on the context of constructivism in classroom learning, there is interaction between teacher and students in the learning process.

b. Problem Based Learning

Problem-Based Learning is a learning model that is oriented to solving problems (Arends, 2007). Problem-Based Learning as a learning model that seeks to present a variety of authentic and meaningful problematic situations to students, which can be used in conducting investigations. In the process of problem-based learning is done collaboratively, where students learn in small groups that are facilitated as they work individually (McHarg, Kay, & Coombes, 2011).

According to Silver (2004) Problem-Based Learning is learning that aims to help students develop flexible knowledge, effective problem solving skills, independent learning, effective collaborative skills, and intrinsic motivation. While Barrow in (Smith et al., 2005) explained 6 specific characteristics of problem-based learning namely (1) student-centered learning, (2) learning takes place in small groups of students, (3) teachers act as facilitators, (4) problems are the focus and stimulus in learning, (5) problem is a way to develop clinical problem solving abilities, and (6) new information is obtained through self-directed learning.

3. METHOD

This study uses an experimental design single-subject design. So that each subject functions as a control over himself. The single-subject design type used in this study was multiple across subject design. This design was chosen because it allows giving interventions to each subject simultant with a record that the environment must be identical (Fraenkel & Wallen, 2006). This research is suitable to be used in changing behavior, in order to improve students' positive behavior (Lodico et al., 2010; Barlow & Hersen, 1984; Creswell, 2012; Campbell, & Stanley, 1966). This method is used because to reduce negative behavior and increase positive behavior in students. Single-subject design studies were also conducted to test the efficacy of the conditions of research interventions (Johnson & Christensen, 2004).

The data collection instrument consisted of 2 types, namely the student academic engagement scale instrument, and the data recording format for the frequency of academic engagement. The data

analysis technique in this study uses graphical visual data analysis. Analysis by reading a chart to determine whether there is a change in the intervention before and after. Visual graphic data analysis was conducted to evaluate the results of the research design in each case, so as to be able to describe the changes that occurred in the subject of the study.

4. CONCLUDING REMARKS

The results of the study showed that the academic engagement of students increased through the application of the PBL model in junior high school students. This increase occurred in several research subjects. Improvement can also be seen from the average value of each academic engagement behavior, namely starting from behavior (a) answering questions or challenges from other teachers / students explicitly, (b) collecting assignments before the deadline, (c) expressing ideas / alternative solutions when working in groups or in class, (d) raising hands to ask questions or opinions, (e) expressing arguments in groups or classes, (f) smiling after expressing opinions or listening to the opinions of others, (g) looking at the teacher or friend who argue, (h) help or receive assistance from other students, (i) ask questions to the teacher or friend, (j) state the idea for the first time, (k) see and hear while recording the teacher's explanation, (l) bring the textbook and read it .

Each research subject has a different tendency in each academic engagement behavior that appears, so the highest average value in each behavior is also different. Not all the highest average values for each behavior were obtained by the same research subject.

Based on the research findings in this study the need for training or workshops related to the application of Problem Based Learning to teachers as a whole by paying attention to students to choose in their assignments, explaining the purpose and relevance of each task, allowing students to work together in assignments, open to negotiating about deadlines, so students become realistic, ensure students have understood all the components in the task, ensure students have been taught the knowledge and skills or strategies needed to successfully complete the task and provide constructive and detailed feedback. The next researcher is suggested to be able to try to apply the Problem Based Learning model at a higher level of education, apply Problem Based Learning by using other research designs such as experiments with control groups or surveys, and develop various strategies that can improve student academic engagement aside from problem based learning model.

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