msceis 2015
October 17, 2015

Proceedings

International Seminar on Mathematics, Science, and Computer Science Education

Section

Biology and Biology Education

Published by:
Faculty of Mathematics and Science Education
Universitas Pendidikan Indonesia
Jl. Dr. Setiabudhi No. 226 Bandung, 40154, West Java, Indonesia
Official website: http://fpmipa.upi.edu

ISBN 987-602-95549-2-2

LIST OF ARTICLE

BIOLOGY EDUCATION

BIOLOGY

BIO-05108

The Profile of Biology Education Students, Universitas Terbuka, on Self Regulated Learning

Ari Widodo[1], Ucu Rahayu[1,2,*]

[1]Departemen Pendidikan Biologi, Universitas Pendidikan Indonesia, Jl. Dr. Setiabudi no 229, Bandung 40154, Indonesia
[2]Departemen Pendidikan Biologi, Universitas Terbuka Indonesia, Jl. Cabe Raya, Pondok Cabe, Tangerang Selatan 15417, Indonesia

Article info

Keywords:
self regulated learning,
biology education students,
distance education

Corresponding Author:
Ucu Rahayu
urahayu67@gmail.com

Abstract

Universitas Terbuka (UT) is the one of distance education institutions in Indonesia. The one of characteristics of distance education is that the students are separated physically from the teacher or tutors. It seems that in distance education environment, learners do not supervised regularly in regular bases. Therefore, distance learners are demanded to have high self regulated learning. This paper discusses about the study on profile of Biology education students' of Indonesia, Universitas Terbuka on self regulated learning. The purpose of the study is to determine the profile of UT biology education student's self regulated learning. The method used in the study is survey. The questionnaires are collected from 102 students where located in 10 regional offices. The results showed that self regulated learning of biology education students is at about middle level, especially the level for indicators of strategic planning, self controlling on strategic planning, metacognition, self observation on learning process, self evaluation, intrinsic interest and self efficacy are need more attention. In conclusion, it might need to do further study to enhance self regulated learning especially in the aspects of strategic planning, self controlling on strategic planning, metacognition, self observation on learning process, self evaluation, intrinsic interest and self efficacy.

INTRODUCTION

One of characteristics of distance education is physically separation among students and teacher (Moore & Kearsley, 2012; Simonson, Smaldino, Albright, & Zvacek, 2012). There is a limited opportunity for instructor and students to interact. Therefore, it needs technology to facilitate interaction among them and requires students who have ability to study independently. The students need to decide on their own how to self regulate their learning. To achieve students' success in distance education, students are demanded to have high students' self regulated learning. It means that students have to maintain their learning motivation, control their time and learning strategy or have initiative to study. The essence of distance education is student' self regulated learning (Simonson, et al. 2012).

At distance education, self regulated learning is one of factors that influence students' achievement (Darmayanti, 2005). This corresponds to the result study conducted by Tahar & Enceng (2006) that there is a positive relationship between students' self regulated learning and students' achievement. Furthermore, Daryono (2013) stated that factors affecting student attraction in distance education, in the case of Universitas Terbuka (UT), are that students have a lack of self regulated learning (33%) dan motivation (7%).

Ideally, students of distance education have high self regulated learning since its learning environments demands high students' self regulated learning. However, according to some studies, UT's students have a variation in the degree of readiness to self regulated learning. It categorized average tends to low level at students of Public administration (Darmayanti, 1993), above average level at students of Business administration (Tahar & Enceng, 2006) and high level at bidik misi students (Hendrayana, Thaib & Rosenenti, 2014). Unfortunaley, there have not been conducted study to measure the readiness of self regulated learning for biology education students. Therefore, this paper will discuss about self regulated learning of biology education students, Universitas Terbuka.

Self Regulated Learning

Zimmerman & Schunk (2001) determine self regulated learning as a process involving students' effort in managing and regulating complex learning activities to achieve academic goal. According to Zimmerman (1998), self regulated learning refers to the degree to which students actively use their metacognitive skills, motivational, and/or behavioral strategies in their learning process to attain their academic goals. In this situation, student act as an proactive participant and have responsibility to his learning process. In other words, self regulated learning refers to the degree of students' metacognitive, motivation and behavior. Pintrich (2005) stated that self regulated learning is an active and constructive process in which a student determines their own goal learning and then monitors, regulates, controls his cognition, motivation and behavior to achieve his goal. Based on the experts'statement in the above, self regulated learning is an active process of students in managing the learning processat the initiative ofthe students themselves in setting learning goals, monitor, control and evaluate cognition, motivation and behavior to achieve learning objectives.

Self regulated learning is a cyclical process that influenced by factors of person, behavior and environment (Zimmerman, 2005). Such adjustments are necessary because personal, behavioral and environmental factors are changing during learning and performance and must be observed or monitored. In other words, self regulatory process of a student is influenced not only by himself or his behavior but also greatly affected by his environment.

For example, a student ability to regulate his learning is not only influenced by his interest to accomplish a task but it is also affected by the environment that supported him, such as the help he gets from the instructor or peers.

According to Schunk and Ertmer (2005), self regulated learning refers to self thoughts, feelings and action that are planned and systematically adapted as needed to affect one's learning and motivation. Self regulated learning comprises of learning process conducted by students such as setting goal for learning, attending and concentrating on instruction, use effective strategy to organize, code and rehearsal information to remember, establishing a productive work environment, using resource effectively, monitoring performance, managing time effectively, seeking assistance when needed, holding positive beliefs about one's capabilities, the value of learning, the factors influencing learning, anticipated outcomes of action, and experiencing pride and satisfaction with one's efforts.

Based on social cognitive perspective, self regulatory as a cyclical process consists of three phase, namely forethought phase (before learning), performance or volitional control phase (during learning), and self reflection phase (after learning) (Zimmerman, 2008). The figure of phase and process of self regulated learning can be seen below.

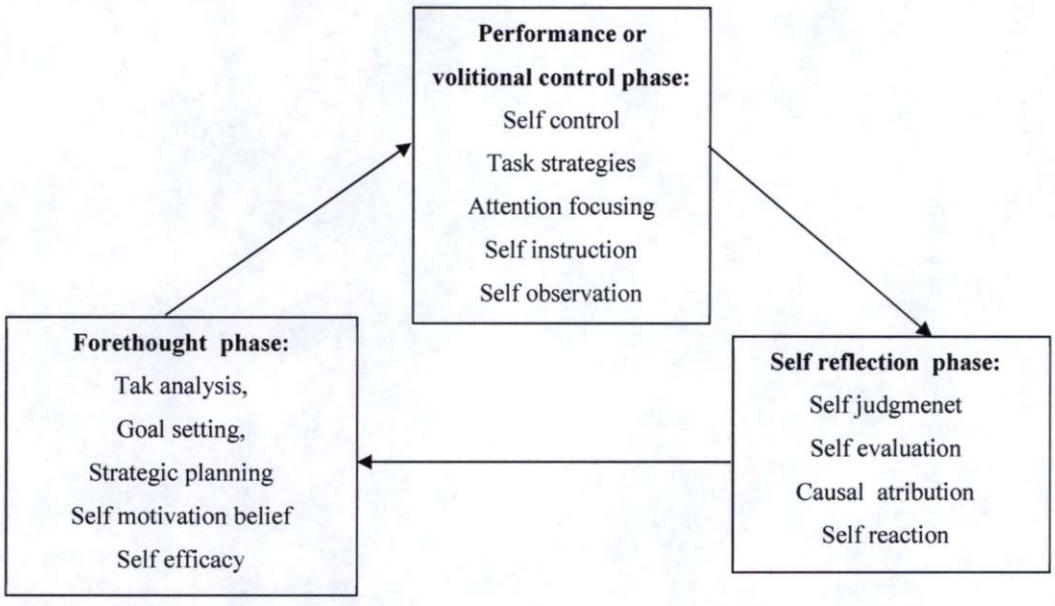

FIGURE 1. Phase and process of self regulated learning (Zimmerman, 2008)

Forethought phase focuses on students' action and belief that influence their learning preparation. This phase consists of task analysis and self motivation. Task Analysis consists of goal setting and learning strategies. Goal setting is an activity to set and to modify learning objective. A student who sets his learning objectives by himself, he'll get achievement better than who does not. To achieve his objective, a student should determine appropriate learning strategies. Planning strategy is strategy that is used to achieve the objective. A student is able to modify learning objective after monitoring learning achievement. During performance or volitional phase, student uses strategy to self control. This strategy includes self instruction, imagery, focusing attention, and strategy to achieve goals. Student involves self observation through self monitoring. Self monitoring technique includes diary note, or visual such as graphics. Third phase is self reflection. At this phase, student does self judgment and self evaluation (Zimmmerman, 2008).

Each student has different level of self regulated learning. It depends on his learning motivation, his learning strategy, his learning methods, how he use of learning environment and social. Student who has low self regulated learning level tends to low achievement at school. The lowness of eslf regulated learning is caused by ineffectiveness technique that used at forethought phase and work control. Ineffectiveness can be caused by unstructured of goal setting, strategic planning and development performance (Zimmerman, 2008).

Furthermore, Zimmerman (2008) stated that other things that can influence student self regulated learning are: 1) lack of social learning experience. The one who reared at family environment that did not teach self regulated learning, he would get difficulty in doing self regulated learning; 2) lack motivation or apathy or disinterest; 3) mood disability, such as mania or depression; unhealthy; and 4) learning disabilities.

Universitas Terbuka as a Distance Education Institution

Distance education is a teaching and planned learning in which students and teachers are in a different place and sometimes in different time, so it requires a special institutional organization as well as communication through technology (Moore & Kearsley, 2012). Communication or interaction among students and instructors at distance

education can be facilitated by printed material, electronic technology or informatics technology. Universitas Terbuka (UT) is one of distance education institutions in Indonesia. In general, UT is intended to provide a wider access to higher education for high school graduates and practicing teachers who cannot attend conventional universities for various reasons, including demography, economic, geographic or time factors (Belawati, 2000; Zuhairi & Budiman, 2009).

The main learning material of UT is often called by module. The characteristics of module are *s*elf contentdan self instruction. It means that module is designed containing concepts and instruction so that it can be learnt independently by the students. Beside module, there are other supplement or supported learning materials in a form of non printed materials such as audio CD, audiographyc CD, video CD, interactive video CD, computer assisted instruction (CAI) and other online based enriched materials.

UT provides some learning support services such as face to face tutorial, tutorial online, tutorial through radio and television. Face to face and online tutorials deliver intensively, eight times per semester for each course. A tutor guides and leads a discussion at the learning process. Biology Education is one of study program at Faculty of Teacher Training and Educational Sciences. Its students are teachers of Senior or Junior High School who wants to continue study without left their duty.

RESEARCH METHODOLOGY

This study is a preliminary study. The method used in the study is survey. The questionnaires were collected from 102 students of Biology education- UT where located in 10 regional offices, those are, UPBJJ-UT Bandung, Jakarta, Serang, Surakarta, Surabaya, Bogor, Palembang, Medan, Palangkaraya, and Ternate. The students who fulfilled the questioners are students who take the second exam day of UT. Most of them are the first to eight semester students. The questionnaires consisted of 32 items with four options, those are, always, often, rarely, and never.

RESULTS AND DISCUSSION

1. The Scale of students' self regulated learning

The average score of students' self regulated learning is at middle level that is 80.62 (62.98%). Maximum score of self regulated learning that should be achieved by student is 128. The range score achieved by students is 50 (39.06 %) to 102 (79.69%) with deviation standard is 10.96. Of 102 students who fulfilled the questionnaire, 65% the score of self regulated learning is at the range 61 to 80, 33% is at the range 41 to 60 dan 2 % is at the range 21 to 40. **Figure 1** illustrates the degree of students' self regulated learning.

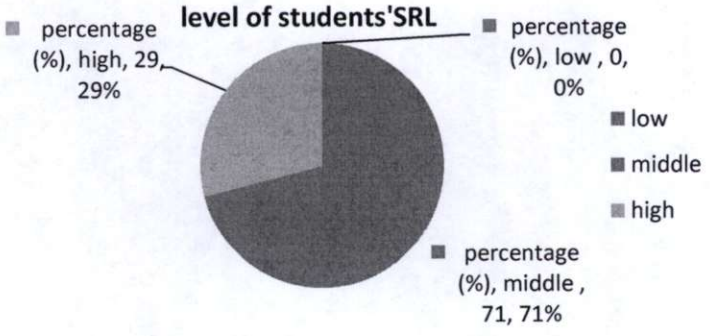

FIGURE 1. The degree of students' self regulated learning

Referring to this table, we can see that the most student (71%) has score of students' self regulated learning at the middle level. Only 29% of students have the degree of self regulated learning at the high level. However, the middle level of self regulated learning is not enough for distance education students, since the essence of distance education is student' self regulated learning (Simonson et al,, 2012). Distance education students are demanded to have high skill in self regulated learning. Therefore, this skill needs to be improved . Furthermore, the average score achieved by students for each aspect can be seen in Table 1.

TABLE 1. the average score each indicator of students' self regulated learning

No	The aspects of self regulated learning	Average score	
		(in 4 scale)	(in %)
1	Goal setting	3.2	80
2	Strategic planning	2.0	50
3	Self efficacy	2.5	62.8
4	Goal orientation	3.6	90.3
5	Intrinsic interest	2.5	61.5
6	Self control	2.1	51.8
7	Metacognition	2.2	54.5
8	Self observation	2.3	58
9	Self evaluation	2.6	64
10	Motivation	2.8	69
	The average	2	63

Comparing to the other aspects of students' self regulated learning, the aspect of goal setting dan goal orientation have the highest of average score, that is, 80 % and 90.3 %. However, the aspect of strategic planning, self control, metacognition dan self observation have the average score of students' self regulated learning at below 60% and the aspect of intrinsic interest, self efficacy, self evaluation and motivation are in between 60 to 70%. (see **Table 2**)

The aspect of goal setting and goal orientation get the high score might be caused the most students of Biology education are teachers of junior and senior high school. They study at UT since they really want to improve their qualification (to be a sarjana). It relates to the score of aspect of motivation that they achieved, is about 69%. It means that they also have enough motivation to study. However, they do not have the capacity to regulate their learning. They might not have the strategy to achieve the academic goal and to maintain his learning control. It can be seen from the average scores of strategic planning, self control, metacognition and self observation of students are under 60%. Strategic planning is a skill that supposed to be conducted at forethought phase, before starting study. This skill seems not to be owned optimally by the students of Biology education. To improve this skill or attitude, a teacher or tutor can suggests or remains his students in order to change their learning strategy (Zimmerman, Bonner & Kovach, 1996).

The aspect of self control, self observation and metacognition are the aspects of self regulated learning at volitional phase. These skills have not been owned by students optimally, though the most intakes of biology educations students are from D3. It corresponds to the result study conducted by Kristanti and Islam (2003), that there is no different significantly, the level of self regulated learning among UT students who graduated from SMA, D1, D2, D3 or S1.

The students that domicile at 10 of 39 regional offices fulfilled the questioner. The number of students per each regional offices who fulfilled the questioners is variation. Based on the average score of students self regulated learning, the level of students' self regulated learning each regional offices is not significantly different. Students of UPBJJ-UT Surabaya has the highest score of students' self regulated learning, that is 65.55%. It is followed by the students of UPBJJ-UT Surakarta (65.5%), Bandung 63.2%, Palembang 62.5%, Medan 61.9%, Ternate 61.7%, Jakarta 61.6 %, Bogor 61.1%, and the lowest is Palangkaraya 51.3%. (see **Figure 2**).

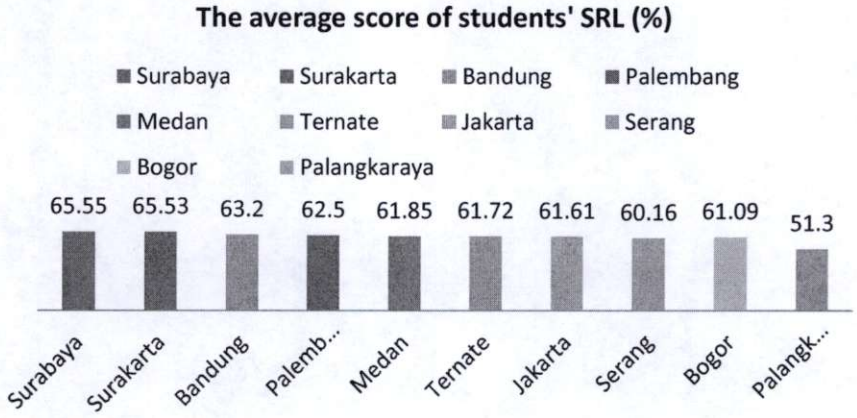

FIGURE 1. the average score of students' SRL per regional offices

CONCLUSIONS

Most self regulated learning of biology education students of Universitas Terbuka is at about middle, however, there are some aspects that have to be improved, such as strategic planning, self controlling on strategic planning, metacognition, self observation on learning process, self evaluation, intrinsic interest and self efficacy. Therefore, we'll continue to study on how to improve this skill so can improve students' achievement and students' commitment to accomplish their study.

ACKNOWLEDGMENTS

We thank to head of UPBJJ-UT Surabaya, Surakarta, Bandung, Palembang, Medan, Ternate, Jakarta, Serang, Bogor and Palangkaraya who helped us to distribute the questioners to the students.

REFERENCES

[1]. Belawati, T. (2000). Enhancing learning in distance education through the World Wide Web. *Jurnal Pendidikan Terbuka dan Jarak Jauh, 1 (1), .*

[2]. Darmayanti. (2004). *Efektivitas intervensi keterampilan self-regulated learning dan keteladanan dalam meningkatkan kemampuan belajar mandiri dan prestasi belajar mahasiswa pendidikan jarak jauh.* (Disertasi). Pascasarjana, Universitas Indonesia, Jakarta.

[3]. Daryono. (2013). Factors Affecting Student Attrition and Success in Distance Education (Case of Universitas Terbuka, Indonesia). *Presented at Dies Natalis UT 29th , September 4th 2013.* Jakarta: Universitas Terbuka.

[4]. Hendrayana, A. S., Thaib, D. & Rosnenty, R. (2014). Motivasi belajar, kemandirian belajar, dan prestasi mahasiswa beasiswa bidikmisi di UPBJJ-UT Bandung. *Jurnal Pendidikan Terbuka dan Jarak Jauh. 15 (2)*, pp. 81-87.

[5]. Kristanti, A. & Islam, S. (2003). Kesiapan belajar mandiri mahasiswa dan calon potensial mahasiswa pada pendidikan jarak jauh Indonesia . *Jurnal Pendidikan Terbuka dan Jarak Jauh 4(1)*, pp.16-31.

[6]. Moore, M. G. & Kearsley, G. (2012). *Distance Education: a System View of Online Learning.* (third Edition). Belmont: Wadswoth Cengage Learning.

[7]. Pintrich , P. R. (2005). The role of goal orientation in self regulated learning". In M. Boekarts, P. Pintrich, & M. Zeidner (Eds.), *Handbook of self regulation* (pp. 451-502). San Diego: Academic Press.

[8]. Schunk, H. & Ertmer, P.A. (2005). Self regulation and ac ademic learning: Self efficacy enhancing intervention. In M. Boekarts, P. Pintrich, & M. Zeidner (Eds.), *Handbook of self regulation* (pp. 631-646). San Diego: Academic Press.

[9]. Simonson, M., Smaldino, S., Albright, M. & Zvacek, S. (2012). *Teaching and Learning at a Distance: Foundation of Distance Education.* (5th edition). Boston: Allyn & Bacon.

[10]. Tahar, I. and Enceng. (2006). Hubungan kemandirian belajar dan hasil belajar pada pendidikan jarak jauh. *Jurnal Pendidikan Terbuka dan Jarak Jauh, 7 (2)*, pp. 91-101.

[11]. Zimmerman, B. J. & Schunk, D. H. (2001). *Self regulated learning and academic achievement: theoretical perspectives* (second edition). Mahwah, NJ: Lawrence Erlbaum Assosiates, Inc.

[12]. Zimmerman, B. J. (1998). Developing self regulation cycles of academic regulation: An analyses of exemplary instructional model. In B.J. Zimmerman & D.H. Schunk (Eds.), *Self regulated learning and academic achievement: From teaching to self reflected practice* (pp. 1-25). New York: Guilford.

[13]. Zimmerman, B. J. (2005). Attaining self regulation: A social cognitive perspective. in M. Boekarts, P.Pintrich, & M. Zeidner (Eds.), *Handbook of self regulation* (pp. 13-139). San Diego: Academic Press.

[14]. Zimmerman, B. J. (2008). Investigating self regulation and motivation: Historical background, methodological development, and futre prospects. *American Educational Research Journal, 45 (1)*, pp.166-183.

[15]. Zimmerman, B. J., Bonner, S. & Kovach, R. (1996). *Developing self regulated learners: beyond achievement to self efficacy.* Washington, D.C: American Psychological Association.

[16]. Zuhairi, A. & Budiman, R. (2009). *Universitas Terbuka: 25 years of making higher education open for all Indonesian.* Jakarta: Universitas Terbuka.