

The Influence of Gender and the Level of Self-Directed Learning to Learning Outcome

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ABSTRACT

21st century is the era of rapidly developing information technology. Students and learners are faced with demands to take advantage of scientific and technological developments for all aspects of learning. The research question is whether there is an interaction between gender and the level of self-directed learning to (higher-order thinking skills). The research subjects were first year college's students, a total of 104. Data were analyzed with 2x2 ANOVA. The results obtained were that there was no interaction between gender and SDL level on learning outcomes. Successful learners in this century are those who have high self-directed learning.

Keywords: Gender, Self-directed learning, Higher order thinking skills.

INTRODUCTION

Research indicates that SDL should be fostered in education to prepare students for a changing world. Industry claims that graduates lack competencies, such as critical thinking, collaboration and creativity, when entering the 21st-century workforce. Transfer of Knowledge has been mentioned as a growing requirement for the 21st century, and the concept of deeper learning is gaining momentum. (van Ziel & Mentz, 2019). The demand for educational needs in the 21st century is to equip students with the skills and competencies so that students have the ability to solve authentic problems (Casner-Lotto & Barrington, 2006).

Education is intended to help learners master the ability to solve problems (Kuhn, 2007). Students do not simply accumulate knowledge, but can apply the knowledge they have to solve problems (Carnevale & Desrochers, 2003; Casner-Lotto & Barrington, 2006). Therefore educational institutions must have initiatives to facilitate students with the ability to solve authentic problems (Brian R. Belland, 2013). Students' abilities to face this era can be prepared through a learning process oriented to the formation of high-order thinking skills.

The 21st century is also called the information century. the ability of information literacy, media, and communication technology literacy and a valid, reliable information becomes students' need. (American Association of Colleges of Teacher Education, 2010). The information technology changes massively and increases rapidly, this phenomenon makes the process and the development of learners' self-directed learning characteristics important (Guglielmino, 2013). The era of information technology demands the changes in the learning process. The learning process uses information technology as a means and learning resource. This study aims to determine the effect of the level of self-directed learning (SDL) and gender on learning outcomes.

LITERATURE REVIEW

The roles transformation and students' activities in the information technology century are described as follows: from students who follow orders become students who organize their self-directed learning activities, from the process of learning to remember and to repeat become the process of inquiry, conducting investigations, integrating knowledge and presenting knowledge, from the students who listen and give comments a lot become students who communicate and take responsibility from the knowledge about facts, terms, and material content become the process of understanding and development, from theory to application, and from depending on teachers to being independent (Intel, 2003). The description of role transformation and student activity requires students to have high self-directed learning (SDL) abilities. According Knowles, SDL is a student initiative (with or without the help of others) in diagnosing learning needs, learning goals, determining learning resources, choosing and implement learning strategies, and evaluate learning outcomes (Manning, Geri. 2007). Students who have high SDL are described as people who are able to control the learning process, use various learning resources, have internal motivation and have the ability to manage the time (Guglielmino & Guglielmino, 1991). There for SDL as an important skill in the 21st century which must be mastered by students. (Fahnoe & Mishra, 2013; Zsiga & Webster, 2007).

The level of SDL is important and urgent to deal with changes in all aspects of life in the 21st century. It is a skill that is needed in an era of rapidly changing society (Bary & Rees, 2006). Individuals with a high level of SDL can definitely face the challenges of changes in life, knowledge and can manage their own learning to master the development of science (Chou, 2012). SDL can not only be used to support learning activities, but can be placed in efforts to aggregate information and communication and collaboration through social media for

further learning, (Kop and Fournier, 2010). SDL can occur in a variety of situations. It can occur in the learning environment or in the work environment. In the learning environment, the personal characteristics of students which include attitudes, values, and abilities are the determining factors in the ability to manage their own learning (Guglielmino, 2008). Student who have SDL are responsible for choosing their learning goals, learning activities, learning resources, as well as priorities and the level of energy expended.

MATERIALS & METHODS

Research Subject. The research subject is the second semester students of Nusantara PGRI university, who are having civics education subject. There are 104 subjects (39 men and 65 woman). **Research Procedure,** the research was conducted in 5 weeks (or 5 meeting). The first week used for pre-test to find out about the level of self-directed learning ability. After pre-test was carried out, the subject was given treatment by delivering lectures about the subject matter that must be studied, namely material about the rights and obligations of citizens, and about democracy. Second to fourth meeting, subject asked to learning material by self and done the task. Subjects were asked to study material from the internet as enrichment material. After 5 meeting had been done, the subjects were given post-test to measure the ability of high order thinking (learning outcome).

Research Instruments. To find out the students' self-directed learning used the Indonesian version of the Self Directed Learning Readiness Scale instrument adapted from Guglielmino SDLRS, with 38 items with a Likert scale model. The Indonesian version of the instrument has been tested for its validity and reliability (Islam & Puspitasari, 2011). To measure the learning outcome (HOTS) use an instrument was developed by the researcher. The instrument is a multiple choice test, the test items are 25 items with cognitive aspects levels C3, C4, and C5 (applying, analysing,

and assessing) that have been tested for validity and reliability. Research Question, is there an interaction between self-directed learning and gender towards higher-order thinking skills? The technique of data analysis used analysis of varians (Anova).

RESULT

There are 3 data obtained from this study. First, data regarding the gender of the subject of study. Divided into two, male and female. Second, the subject's SDL data. Which is divided into two, based on the scores obtained. If it exceeds the average, it is included in the high group. If it is below the average it is categorized as a low group. Third, the subject's high-level thinking learning data. The results of this study were obtained by giving a post exam at the fifth

meeting. A summary of the study results data can be seen in the table below.

Table 1: Description of Subjects Group and Mean of Learning Outcome

Gender	SDL	n	Mean	SD
Men	High	17	76,2353	10,146
	Low	22	66,5455	7,957
Women	High	31	75,4839	9,5634
	Low	34	63,4112	7,8243

Based on this table. The data obtained were 39 male and 65 female subjects. Total subjects were 104. Male subjects with high SDL 17 and low SDL 22. Female subjects in the high SDL category 31 and low SDL category 34. The average score of learning outcomes can be seen in the table. Furthermore, the data obtained were analyzed by analysis of variance.

Table 2: Analisis of varians 2x2

Tests of Between-Subjects Effects					
Dependent Variable: Learning Outcome (Hots)					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4316.302 ^a	5	863.260	12.533	.000
Intercept	106735.524	1	106735.524	1549.605	.000
Level of SDL	3607.817	2	1803.909	26.189	.000
Gender	.232	1	.232	.003	.954
Levelof SDL * Gender	10.056	2	5.028	.073	.930
Error	6750.160	98	68.879		
Total	517312.000	104			
Corrected Total	11066.462	103			

a. R Squared = .390 (Adjusted R Squared = .359)

The analysis test of one factor (main effect) with the gender independent variable (grouping variable) and the level of self-directed learning on the dependent variable of high order thinking skills after treatment (post test). The results of the analysis showed: 1). Level effects of Self-directed learning towards higher-order thinking skills, $F = 26,189$ with a probability of 0,000. Probability $0,000 < 0,05$, then H_0 is rejected. The average high order thinking ability is significantly different for different levels of self-directed learning. 2). The gender effect on high order thinking ability, $F = 0.003$ with probability 0, 954. Probability $0.954 > 0.05$, then H_0 is accepted. The average high order thinking ability between male and female students is the same or identical. 3). The Interaction between gender and self-directed learning

towards high order thinking skills, $F = 0.073$ with probability 0.930. Probability $0.930 > 0.05$, so H_0 is accepted. There is no interaction between gender, the level of self-directed learning and high order thinking skills.

DISCUSSION

The average high order thinking ability is significantly different for different levels of self-directed learning. Students with a high level of SDL can definitely face the challenges of changes in life, knowledge and can manage their own learning to master the development of science (Chou, 2012). SDL can not only be used to support learning activities, but can be placed in efforts to aggregate information and communication and collaboration through social media for further learning, (Kop and

Fournier, 2010). In the learning environment, the personal characteristics of students which include attitudes, values, and abilities are the determining factors in the ability to manage their own learning (Guglielmino, 2008). The students who have high level of SDL are responsible for choosing their learning goals, learning activities, learning resources, as well as priorities and the level of energy expended.

Hiemstra, R. (1994) makes a description of SDL with regard to the learner's responsibility for his learning efforts, with respect to the continuum of learner characteristics and learning situations. SDL is meaningless if students are isolated from others. SDL is related to the transfer of knowledge and skills from one learning situation to another. SDL includes a variety of learning activities and learning resources and the role of learners such as dialogue with students, providing learning resources, assessing learning outcomes, and improving critical thinking skills. SDL is associated with educational institutions that offer or open learning that supports SDL such as open learning programs. According to Knowles (1975) is described SDL as a process in which individuals take the initiative with or without the help of others, in diagnosing learning needs, formulating learning goals, identifying learning resources, choosing and implementing appropriate learning strategies and assessing learning outcomes.

SDL can be seen from several dimensions or perspectives, namely dimensions or perspectives as a learning process, learning context, and as a learner's attribute or character. According to Brockett and Hiemstra (1991) although Knowles' definition of SDL is a learning process or method, this understanding also contains elements of independent learning as a personal characteristic of the learner. In other words (Brockett and Hiemstra, 1991), SDL can be understood as a learning transaction and at the same time as a student characteristic. As a personal attribute about learning independence is described as SDL

related to moral, emotional and intellectual aspects. Meanwhile, in the process perspective on SDL is described (regulating or managing one's own learning). In the perspective of the context of SDL is described as an environment where the learning process occurs.

Garrison (1992) external dimension of SDL refers to control over the educational process. While the internal dimension refers to the responsibility of constructing the meaning of learning (critical thinking) rather than the personal attributes of the learner. Based on this, Brookfield (1988) views SDL as referring more to the problem of learning how to change our perspective, our way of thinking about the world with another way of thinking. Candy (1991), developed the concept of SDL two dimensions as a personal characteristic and as a process or learning method. Furthermore, Candy differentiates SDL into two categories, namely the goal category and the process category. The goal category consists of two aspects, namely SDL or the will and capacity to manage their learning activities and personal autonomy (personal character). The process category consists of student control in formal and self-taught learning activities, namely learning activities carried out by students individually while in society.

SDL can be used as the sole predictor of academic success. Learners with a high level of SDL will be more independent and responsible for their learning (Knowles, 1990). Students with high levels of SDL success in various learning contexts. The characteristics of students who have SDL (Pao-Nan & Wei-Fan, 2008) include students who can utilize learning resources and learning strategies to overcome difficulties encountered during the learning process and ultimately obtain good learning outcomes.

CONCLUSION

Learning success is not determined by gender differences. Learning success is determined by factors outside of gender.

Learning motivation, interest, persistence, time and energy devoted to learning, self-control, focus on objectives and so on. Students (women and men) will be successful in learning if they have high SDL. The success of learning strategies that give freedom in choosing learning methods and freedom in finding and choosing teaching materials is determined by the student's SDL level. Developing or enhancing a student's SDL is important. Moreover, in the era of information disclosure, students can access learning resources more easily than the internet (big data). Our students today cannot be separated from the internet and gadgets. All study materials are there. The problem faced by our students is how to use learning resources positively for educational purposes. Therefore, the development of digital literacy is an important part of the education program.

Declaration by Authors

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