

Learning Motivation in Biology: Based on Gender and Academic Abilities

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Abstract

Several factors influence student learning outcomes in Biology. One of them is learning motivation. This research is a descriptive and correlation study that aims to describe and analyze students' motivation in learning Biology based on gender and academic ability. The sample of this study was grade 10th students of senior high school in Kupang City, namely: SMAN 5, SMAN 4, and SMAN 1. The determination of school samples and class samples is done by random sampling. The research instrument used the MSLQ motivation questionnaire that was developed and validated by Duncan and McKeachie (2005), while the data of learning outcomes obtained from summative test scores. The results obtained that the average motivation (intrinsic and extrinsic) of students: 1) women are higher than male students, and 2) academic ability is higher than students with lower academic ability, and 3) extrinsic motivation has a very significant correlation with intrinsic motivation and learning outcomes, for gender and academic ability. The results of this study indicate that an appropriate learning strategy is needed to minimize gender differences and academic ability to foster student learning motivation, which ultimately impacts on learning outcomes.

Keywords: Gender, biology learning motivation, academic ability.

1. INTRODUCTION

Getting good learning achievement is not easy because many factors influence good achievement. According to Dalyono (2012), the success or failure of a person in learning is due to the factors that influence the achievement of learning objectives, namely external and internal factors. External factors include the family environment, school, community, and the surrounding environment, while internal factors include health, intelligence, and talent, motivation, interests, and ways of learning.

Learning motivation is one of the internal factors of students, which is quite instrumental in determining learning outcomes. According to Levpuscek & Zupancic (2008) motivation is an internal process, which is one of the main factors that determine

the level of student learning success. Hattie (2009) also revealed that motivation is important in improving student academic achievement. Furthermore, Djamarah (2008) added that the level of motivation possessed by students is determined by the level of meaningfulness in learning activities.

The learning process will succeed when students have motivation in learning. Teachers are required to be creative in generating student motivation To obtain optimal learning outcomes. Learning motivation according to Martin (2013), is the tendency, energy, and encouragement of students to learn, work effectively and achieve potential. Hakim (2006) also suggested that motivation is an impulse that causes someone to do an action to achieve a certain goal.

Growing student learning motivation is one technique in

developing the ability and willingness to learn. One logical way to motivate students in learning is to relate learning experiences to student motivation. Handoko (1992) revealed that the strength of one's learning motivation could be seen from the strength of the willingness to act, the amount of time available for learning, perseverance in doing the task, willingness to leave the task, or other obligations. How much motivation a person has will greatly determine the quality of the behavior displayed, both in the context of learning, working and in other lives.

This study aims to describe and analyze the factors involved in determining student learning motivation by taking measurements through the MSLQ (Motivated Strategies Learning Questionnaire) questionnaire (Duncan & McKeachie, 2005). In this study, measured are the internal and external motivation of students. Internal motivation refers to the general goals or orientation of students for overall learning. Intrinsic motivation shows the extent to which students view themselves to participate in assignments for reasons such as challenges, curiosity, and mastery (Garcia & Pintrich, 1995; Schunk et al., 2008), as well as perseverance in the performance of educational tasks (Froiland, 2015). Whereas extrinsic motivation, according to Pintrich et al. (1991) are described as the degree to which students consider themselves to participate in assignments for reasons such as grades, rewards, performance, evaluations by others and competition, and avoid failure (Kover & Worrell, 2010). Schraw et al. (1995) distinguish that students who are oriented to extrinsic motivation will prove their competence while students who are oriented to intrinsic motivation will increase their competencies.

Student's internal and external learning motivation were reviewed based on academic ability and gender. Academic abilities displayed by students have a close relationship with the level of intelligence they have. The study of academic differences is based on the results of research conducted by Yusuf (2013) and Komalasari & Irawan (2018), who reported that there is a relationship between learning motivation for academic achievement. On the other hand, gender differences in learning motivation are also important to study, because according to Desmita (2009), sex has an important role in a person's physical and mental development. Some psychological differences between men and women revealed by Mulyaningtyas et al. (2007) include men's interest in things that are intellectual and abstract, ratios are considered more important and can control feelings with reason. Conversely, women are more emotional and concrete.

Based on observations and interviews with Biology teachers in several Senior High School in Kupang City, it is known that the majority of students' biology learning outcomes are still low (below the minimum completeness criteria). Student attention to the subject matter is presented very low and not enthusiastic. These characteristics indicate that students' motivation to learn biology is low. For this reason, this research is expected to obtain information about students' biology learning motivation in high school so that later, certain ways can be sought to improve student learning motivation, which in turn can have an impact on improving student biology learning outcomes. On the other hand, by knowing students' internal and external motivations based on gender and academic ability, the teacher can

determine the right steps in growing and arousing student motivation. If student learning motivation increases it is expected to have an impact on increasing student learning outcomes, especially for students with lower academic abilities, because based on research results Yusnaeni et al. (2017) it was revealed that students with lower academic abilities could improve their academic abilities when teachers and students used the right strategy.

2. RESEARCH METHOD

This type of research is descriptive and a correlation study between motivational variables (extrinsic and intrinsic) with gender and academic ability variables. The population was high school students in the city of Kupang. The research sample was students of Class X Natural Sciences at State High Schools 1, 4, and 5 in Kupang City, East Nusa Tenggara. Samples were obtained through 104 students using a random sampling technique. The instrument used in this study was adapted from the MSLQ questionnaire (Duncan & McKeachie, 2005), compiled using a Likert scale, where students assess statements about their intrinsic and extrinsic motivation orientation in learning from number 1 (strongly disagree) up to 5 (strongly agree). Extrinsic motivation consists of 4 items, namely: 1) getting a good grade in this class is the most satisfying thing for me right now, 2) the most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade, 3) if I can, I want to get better grades in this class than most of the other students, and 4) I want to do well in this class because it is important to show my ability to my family, friends, employer, or others.

While intrinsic motivation also consists of 4 items, namely: 1) in a class like this, I prefer course material that challenges me so I can learn new things. 2) in a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn. 3) the most satisfying thing for me in this course is trying to understand the content as thoroughly as possible. 4) when I have the opportunity in this class, I choose course assignments that I can learn from, even if they don't guarantee a good grade.

In addition to learning motivation data, learning outcomes data are also obtained from summative test results. Academic determination high and low academic refers to Suratno (2010) and Yusnaeni (2017). The data obtained were analyzed statistically descriptive and inferentially with SPSS for windows-18.

3. RESULTS AND DISCUSSION

The results of descriptive analysis of student learning motivation based on differences in gender and academic ability can be seen in Figure 1.

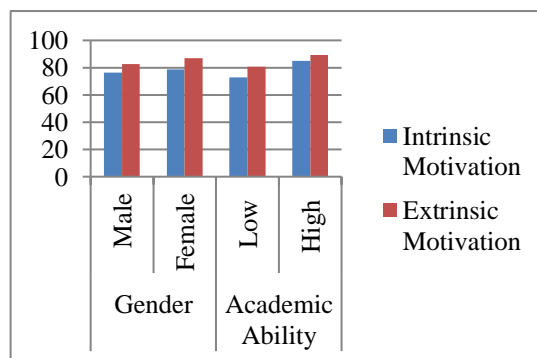


Figure 1. The Graph of Average Learning Motivation Student Based on Differences in Gender and Academic Ability

Figure 1 shows that the average intrinsic motivation of students is lower than the average extrinsic motivation, both by sex and by academic ability.

Learning motivation (extrinsic and intrinsic) female students are higher than male students, with successive grades of 3.02% and 5.07%. Both extrinsic and intrinsic values, respectively, 14.35% and 9.47%, while the average student motivation to learn higher academic ability higher than lower academic ability students.

The intrinsic motivation of students is lower than extrinsic motivation, indicating that external factors more dominate students' motivation to learn. In this case, the drive to learn within students is there but will be more motivated when encouraged outside, for example, driven by appreciation or other things that can create positive emotions within students. Intrinsic motivation occurs when a person acts without clear external rewards. Someone enjoys an activity or sees it as an opportunity to explore, learn, and actualize our potential. When someone pursues an activity for pure pleasure, what is done is intrinsically motivated. But when a person's motivation to engage in a behavior arises from the inside out of a desire to get some external rewards such as a gift, money, or praise, then this motivation called external motivation. Legault (2016) revealed that intrinsic motivation refers to involvement in satisfying or pleasant behavior, in other words, natural human tendencies will actively struggle to do things that they find interesting or unpleasant, and extrinsic motivation arises from externally created reasons.

The findings in this study also revealed that female student is more extrinsically motivated than male students. This result indicates that women have also been able to prove their identity in the field of education. High competency in women is one indicator of extrinsic motivation, as revealed by Schraw et al. (1995) that

students who are oriented to extrinsic motivation will prove their competence while students who are oriented to intrinsic motivation will increase their competency. The same thing was also revealed by Koseoglu (2013) that there were significant differences between male and female students in academic motivation, where female students were more intrinsically and extrinsically motivated than men. Becirovic (2007) and Thompson et al. (2010) also revealed that girls' motivations often outperformed boys' motivations.

Research findings on differences in academic ability also revealed that both intrinsic motivation and extrinsic motivation of students with higher academic ability than students with lower academic ability. This result indicates that differences in academic ability also determine student motivation in learning. Academic ability correlates with one's intelligence. Students with high academic ability tend to be more diligent, have high initiative, and are more skilled in completing their assignments. These findings are supported by the findings of Momanyi (2015), who revealed that when students have high academic levels, they concentrate more in the classroom, have better study habits, more persistent, exert more effort, and as a result, they perform better in exams.

Table 1 presents the results of the correlation analysis between the two motivational variables with learning outcomes based on differences in gender and academic ability.

Tabel 1. Matrix of Motivation Variable Based on Differences in Gender and Academic Ability with Learning Outcomes

Variables	IM	EM	LO
IM	1		
EM	.374**	1	

Gender	LO	.361**	.166	1
	Mean	77.782	85.199	79.3654
	SD	13.363	16.799	5.64837
A.A	IM	1		
	EM	.459**	1	
	LO	.513**	.198	1
	Mean	78.919	84.871	79.6667
	SD	11.719	17.044	6.69454

IM = Intrinsic Motivation

EM = Extrinsic Motivation

LO = Learning Outcomes

SD = Standard Deviation

AA= Academic Ability

Table 1 shows that for gender, extrinsic motivation correlates very significantly with intrinsic motivation and learning outcomes, as well as academic ability. These results indicate that the biggest encouragement in students in learning comes from external factors such as the desire to get better grades from other friends and the desire to show identity to the family and others. Extrinsic motivation can be a major driver and encourage intrinsic motivation for students to learn. Extrinsic motivation has great power to stimulate student interest and participation. Appreciation and the desire to get recognition from others can encourage someone to be more intrinsically motivated. External motivation can be a good driver for someone to do work. The statement is in line with the opinion of Reena & Ahmed (2009) that relevant external motivations, such as appreciation or recognition, can improve one's productivity and performance.

The implication of the results of this study in learning is that teachers are very concerned with the problem of motivation. Therefore, teachers should try as much as possible to arouse learning motivation, especially for students who have difficulty in learning (students with lower academic abilities). Such efforts include clarifying the objectives to be achieved, creating a pleasant atmosphere in learning, using a variety of interesting presentation

methods, as well as giving fair praise/comments and assessments for each student's success. With motivation, students can develop activities, initiatives, and maintain perseverance in conducting learning activities.

4. CONCLUSIONS

Based on the results it can be concluded that: 1) Motivation of learning (extrinsic and intrinsic) female students is higher than male students, with successive grades 3.02% and 5.07%. While the average student motivation for high academic ability is higher than for students with low academic ability, both extrinsic and intrinsic with values of 14.35% and 9.47%, respectively. 2. Extrinsic motivation has a very significant correlation with intrinsic motivation and results learning, for gender and academic ability.

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