Jurnal Pembelajaran Sains
VOLUME 6 NUMBER 2 , DECEMBER 2022

http://journal2.um.ac.id/index.php/
ISSN: 2527-9157

PRELIMINARY STUDY OF THE RELATIONSHIP BETWEEN CHEMISTRY LEARNING MOTIVATION AND SELF-REGULATION OF STUDENTS

Elmafiza 'Indillah*, Fithrah Auliya', Fitri Damayanti, Muntholib, Aulin Risyda Fahmia
Faculty of Mathematics and Natural Sciences, Universitas Negeri Malang, Indonesia

*Corresponding author's email: elmafiza.indillah.1903316@students.um.ac.id

Abstract
Chemistry is a science that seeks answers to questions about what, why, and how a natural phenomenon is closely related to a substance's composition, structure, and properties. This study aims to determine the level of learning motivation of students of SMA Islam Sabilurrosyad in Chemistry subject, the level of student self-regulation, and the relationship between learning motivation and student self-regulation. This non-experimental study used a quantitative correlational method, namely the Pearson correlation analysis technique or Product Moment correlation. The study results showed that most students learning motivation and self-regulation levels were in the moderate category, namely 66.67% of respondents who understood motivation and 63.89% who understood self-regulation. In addition, data processing using SPSS found a relationship between learning motivation and self-regulation.

Keywords*: Chemistry Subject, Learning Motivation, Self-Regulation*

Received: 19 November 2022 | Revised: 3 December 2022 | Accepted: 5 December 2022

INTRODUCTION

Chemistry is a science that seeks answers to questions about what, why, and how a natural phenomenon is closely related to a substance's composition, structure, and properties (Priyambodo & Sulistyani, 2014). Chemistry is a science that studies natural phenomena and laws based on matter and structure, characteristics, and energy changes related to several material modifications (Neiles & Bowers, 2020). Chemistry generally has five scopes: composition, properties, structure, and changes related to matter and energy. Chemistry is a complex science because it studies theory and requires conceptual understanding. In chemistry, students memorize and understand the existing concepts. Thus, chemistry is challenging to understand and less popular with students. In chemistry, students learn to solve problems and understand descriptions, such as chemical facts, rules in chemistry, and a lot of chemical material (Sari & Vebrianto, 2017). To understand abstract concepts in chemistry, students must be curious about the material. Several internal and external factors influence the chemistry learning process. Internal factors come from within the student, including learning motivation, student interest in learning chemistry, and curiosity about chemistry. External factors come from the surrounding environment, including the school environment, such as teachers' curriculum and learning models. In addition, external factors can come from the family environment (Narma et al., 2020).

Motivation is one of the internal factors that influences student success in learning chemistry. Motivation is a drive or desire, a person's need to do something specific. One thing that is no less important in determining student learning success is self-regulation. Therefore, motivation can also be defined as a force that drives direction and determination to work to achieve goals (Gaya et al., 2015). According to (Winarni et al., 2016), motivation comes from the word motive, which is a state within a person that drives people consciously or unconsciously to do something particular with a specific purpose. Motivation drives students to be enthusiastic about learning (Monika & Adman, 2017). Learning motivation plays an essential role in students' learning success. For someone who has high motivation in learning, then the achievement of their learning outcomes will also be maximized. This is because motivation within oneself will continue encouraging someone to achieve their targets very well and optimally (Andriani & Rasto, 2019). Learning chemistry is not only enough of curiosity but also requires high motivation to study a complex science like chemistry. This is because, after studying it several times, boredom will arise in understanding this science. Therefore, high motivation, both from within oneself and from the environment, plays a crucial role in supporting someone, especially students, in studying chemistry.

In addition, self-regulation is another factor that is no less important in determining a person's success, especially students, in learning. Self-regulation is a person's effort to regulate themselves in a particular activity that involves metacognitive abilities, motivation, and active behaviour. Self-regulation can also be interpreted as the ability to produce ideas, feelings, and actions and plan them periodically or continuously until they achieve goals (Husna et al., 2014). Self-regulation allows one to move according to the right path according to standards, which always corrects oneself to keep oneself on the right track in achieving specific goals. One of them is the goal of learning. Self-regulation is very much needed in the learning process, where the ultimate goal of learning is learning outcomes or achievements. With self-regulation, a person can plan, organize, instruct, guide, and evaluate each activity to achieve excellent and maximum learning outcomes (Sulistiyani, 2012). Motivation and self-regulation determine students' success in learning, especially in learning chemistry, which is complex. This is because, in learning, students need high motivation to encourage themselves to be curious about the knowledge they want to learn. High motivation will have an impact on students' enthusiasm for learning. Someone with high enthusiasm will do everything to the maximum, one of which is studying. If a student has a high enthusiasm for learning, then the learning outcomes that will be obtained will also be maximized (Sjukur, 2012).

Islamic boarding school is a school that combines two social systems, namely the social system of the Islamic boarding school and the social system of the school (Nurochim, 2016). In addition to general learning, students learn about religion at the boarding school by reading books, participating in tahfidz programs, etc. Islamic boarding schools require their students to live in boarding schools. So, after doing general learning at school, students will learn about religion at the boarding school. This school not only requires students to be able to learn general lessons, but students can also learn at the boarding school. Therefore, the learning demands of Islamic boarding schools are greater than those at ordinary public schools, where these students need motivation and self-regulation. Sabilurrosyad Islamic High School is one of the boarding schools in Malang City. Therefore, we conducted a study, "P, Preliminary Study of the Relationship between Chemistry Learning Motivation and Self-Regulation of Students of Sabilurrosyad Islamic High School", to determine the level of learning motivation and self-regulation of students towards chemistry learning at Sabilurrosyad Islamic High School and the relationship between the two.

RESEARCH METHOD

This non-experimental study was conducted in November 2022 at SMA Islam Sabilurrosyad. This study was conducted to determine the level of student learning motivation and self-regulation, as well as to determine whether or not there is a relationship between student learning motivation and self-regulation in students of SMA Islam Sabilurrosyad class X, XI-IPA, and XII-IPA. This study uses a sampling technique called simple random sampling, which is the random drawing of sample members from a population without considering groups or strata in the existing population. The number of respondents who participated in this study was 36, consisting of 12 class X students, 14 class XI-IPA students, and 10 class XII-IPA students. This study used an instrument in the form of a questionnaire with a Likert scale of 2 pieces, namely the student learning motivation questionnaire and the student self-regulation questionnaire. Each questionnaire consists of 30 statements with 13 positive statement items and 17 negative statement items in the learning motivation questionnaire, 17 positive statement items, and 13 negative statement items in the self-regulation questionnaire. The procedure in this study was that students were given 15 minutes to fill out the questionnaire by choosing options on five scales: always, often, sometimes, rarely, and never from each statement.

The method used in this study was a quantitative correlational method. Quantitative research methods are research methods used to identify certain populations or samples, research tools used in data collection, and data analysis that is quantitative/statistical. The aim is to find out the results of testing the predetermined hypothesis (Sugiyono, 2016). The quantitative correlational method uses a statistical method that measures the influence of two or more variables (Cresswell, 2014). The data collected is then scored and processed using Microsoft Excel and SPSS applications.

The data obtained is then scored and processed using Microsoft Excel to determine the level of student chemistry learning motivation and self-regulation. The next step is to add up all the scores, find the average and standard deviation, and categorize them into low, medium, and high categories.

Pearson correlation analysis or Product Moment correlation is used to determine whether there is a correlation between learning motivation and self-regulation. The Pearson correlation analysis technique is intended to measure the closeness of the linear relationship between two variables with normal data distribution

(Duwi Priyatno, 2014); in this case, learning motivation and student self-regulation act as variables. The hypotheses in this study are as follows:

● H0: There is no relationship/correlation between chemistry learning motivation and student self-regulation in Sabilurrosyad Islamic High School Students

● H1: There is a relationship/correlation between chemistry learning motivation and student self-regulation in Sabilurrosyad Islamic High School Students

RESEARCH RESULTS AND DISCUSSION

The results of the study on the level of motivation to learn chemistry and self-regulation of students at SMA Islam Sabilurrosyad are presented in the Figure 1.

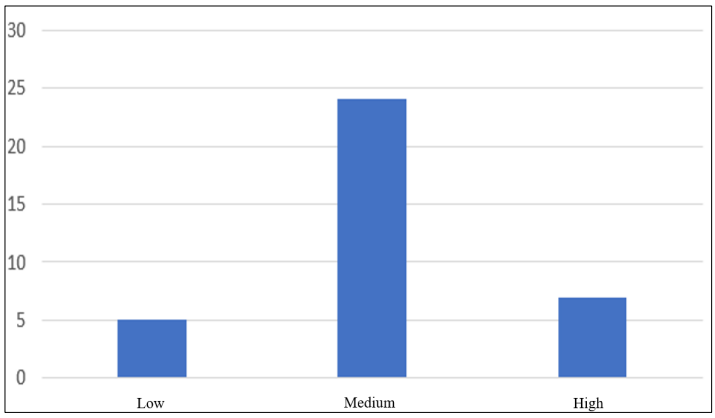

Figure 1. Graph of the Level of Motivation to Learn Chemistry of SMA Islam Sabilurrosya Students

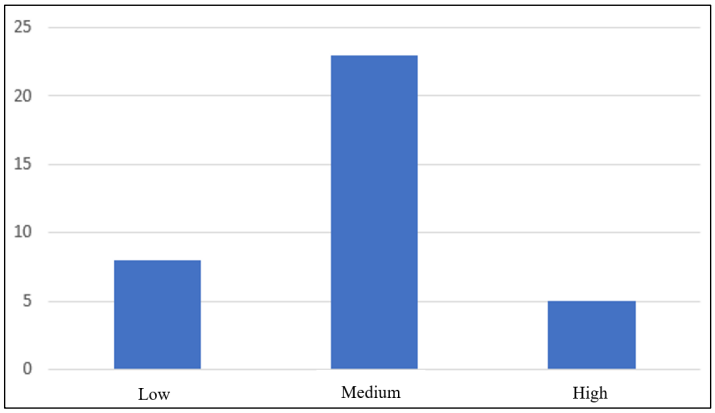

Figure 2. Graph of the Level of Self-Regulation of SMA Islam Sabilurrosyad Students

Based on the graph above, the results show that most SMA Islam Sabilurrosyad students are motivated to learn chemistry in the moderate category, scoring 61 - 82, or 66.67% of all respondents. Based on the graph above, the results show that most SMA Islam Sabilurrosyad students have self-regulation in the moderate category, scoring between 51 - 72, as many as 63.89% of all respondents. The results of data processing in finding the correlation between Students' Chemistry Learning Motivation and Students' Self-Regulation are presented in the following table:

Table 1. Pearson Correlation Analysis

Correlations

		Motivasi Belajar	Regulasi Diri
Motivasi Belajar	Pearson Correlation	1	.675**
	Sig. (2-tailed)		.000
	N	36	36
Regulasi Diri	Pearson Correlation	.675**	1
	Sig. (2-tailed)	.000	
	N	36	36

**. Correlation is significant at the 0.01 level (2-tailed).

Based on the output results of the Correlations table, the sig value (2-tailed = 0.01) <0.025 indicates that H0 is rejected and H1 is accepted, so it can be stated that there is a relationship or correlation between chemistry learning motivation and students' self-regulation in Sabilurrosyad Islamic High School Students. The Pearson correlation value obtained was 0.675, which can be interpreted as a strong relationship or correlation because the numbers obtained range between 0.60 - 0.799. This shows that the higher the students' chemistry learning motivation, the higher the students' self-regulation.

Based on the study's results, it was obtained that the variable X1, namely learning motivation, with X2, self-regulation in chemistry subjects, had a significant relationship with students of SMA Islam Sabilurrosyad with a percentage of 66.67% for student learning motivation. Meanwhile, 63.89% of the cases were the self-regulation factor influenced 63.89%. In addition, the results of the correlations table output amount to 0.675, which can be interpreted as the higher the student's motivation, the higher the student's regulation. The findings of this study indicate that students with high learning motivation can see their physical attributes, such as general appearance, body size, figure and shape, health level, and physical attractiveness, as vital aspects of education. Who they are. and can express their evaluations, including people's most profound thoughts, feelings, and reactions towards themselves, along with the individual's views regarding their social function in the community and society.

Self-concept generally encompasses all aspects of an individual's personality based on the views, perceptions, thoughts, and feelings of the individual's beliefs about themselves. This self-confidence gives birth to the appreciation and acceptance they receive—one of the psychological factors that play a role in encouraging individuals to carry out the desired activities. In chemistry subjects, student learning motivation is very influential so students can understand chemistry material. For every activity carried out, the need to achieve and direct actions to support behaviour and select individual actions that are oriented towards success

If a student knows who he is, self-regulation is needed, namely the ability to regulate his behaviour by creating support. According to Tri Wibowo (2011:445), Self-regulation is thoughts, feelings, and actions that arise from within oneself that are planned and adjusted to achieve personal goals. Self-regulation is an essential component in the learning process that can control emotions within oneself and avoid obstacles from outside oneself (Bandy & Moore, 2010, p. 23).

Self-regulation in learning will help students control external feelings, drives, and desires to achieve their goals. Self-regulation can control individual motivation in learning even though social conditions have a less-than-good influence. According to Pintrich & Groot (1990:33), there are various types of self-regulation. Three components can be measured and observed: 1) metacognitive ability to plan, monitor, and modify ways of thinking. 2) self-management and interest in completing academic tasks, such as complex tasks. 3) cognitive strategies used by students to learn, remember, and understand. Students can achieve These three goals by showing that they can regulate their behaviour to spend time for work, study, and other activities. Given that the primary purpose of

cognition is to control human behaviour in general, the cognitive domain is an essential area for the concept of self-regulation. According to Schunk & Zimmerman (2007:7-25), three aspects of self-regulation must be possessed: 1) Metacognition: the individual's ability to plan, organize or regulate, instruct themselves, monitor and evaluate their activities. 2) Motivation: a driving force within an individual that includes self-efficacy, competence and autonomy in carrying out activities; 3) Behavior: an individual's effort to regulate themselves, select and utilize an environment that supports their activities. Given this, based on internal and external reinforcement. Cognition is essential in controlling and educating individuals and evaluating their behaviour. Cognition controls factors outside the individual, and motivation develops within the individual so that their behaviour is consistent with their motivation. Individuals are inspired by cognition to be motivated and show behaviour. By focusing on many goals, the three aspects of self-regulation mentioned above can help control and condition this tendency.

CONCLUSION AND RECOMENDATION

A. Conclusion

The results of this study show a strong and significant correlation or relationship between students' chemistry learning motivation and student self-regulation; namely, the higher the students' learning motivation, the higher the students' self-regulation.

B. Recomendation

The author's recommendation regarding this research is to re-evaluate the learning process in schools to find the right and best learning strategies to develop motivation to learn chemistry and improve student self-regulation.

REFERENCES

Andriani, Rike, and Rasto Rasto. 2019. "Motivasi Belajar Sebagai Determinan Hasil Belajar Siswa." Jurnal Pendidikan Manajemen Perkantoran 4(1):80. doi: 10.17509/jpm.v4i1.14958.

Bandy, T., & Moore, K., A. (2010). Assessing self - regulation: A guide for out-of-school time program practitioners. Journal Research to result trends child.

Gaya, Cleopatra-Pengaruh, Hidup Dan … -168 -, and Maria Cleopatra. 2015. Pengaruh Gaya Hidup Dan Motivasi Belajar Terhadap Prestasi Belajar Matematika. Vol. 5.

Sugiyono. (2016). Metode Penelitian Kuantitatif, Kualitatif, dan R&D. Bandung: PT. Alfabet

Creswell, J. W. (2014). Research Design: Pendekatan Kualitatif, Kuantitatif, dan Mixed. Yogyakarta: Pustaka Pelajar

Priyatno Duwi. (2010). Teknik Mudah dan Cepat Melakukan Analisis Data Penelitian dengan SPSS. Yogyakarta: Gava Media

Husna, Aftina Nurul, Frieda N. R. Hidayati, and Jati Ariati. 2014. Regulasi Diri Mahasiswa Berprestasi. Vol. 13.

Monika, M., & Adman, A. (2017). Peran Efikasi Diri dan Motivasi Belajar dalam Meningkatkan Hasil Belajar Siswa Sekolah Menengah Kejuruan. Jurnal Pendidikan Manajemen Perkantoran, 1(1), 110-117.

Narma, Rahmanpiu, and Dahlan. 2020. "ANALISIS FAKTOR-FAKTOR YANG MEMPENGARUHI KESULITAN BELAJAR KIMIA MATERI LARUTAN PENYANGGA." Jurnal Pendidikan Kimia FKIP Universitas Halu Oleo 5(1):35. doi: 10.36709/jpkim.v5i1.13115.

Neiles, KY, & Bowers, RA (2020). Kurikulum Kimia Umum Berfokus pada Pengembangan Keterampilan Profesional dan Akademik. Dalam Mengintegrasikan Keterampilan 21 Profesional ke dalam Kurikulum Sarjana Kimia (hlm. 105-146). Masyarakat Kimia Amerika.https://doi.org/ 10.1021/bk-2020-1365.ch007

Nurochim, N. (2016). Sekolah berbasis pesantren sebagai salah satu model pendidikan Islam dalam konsepsi perubahan sosial. Al-Tahrir: Jurnal Pemikiran Islam, 16(1), 69-88.

Pintrich, P. R., & De Groot, E. V. (1990). Motivational and Self-Regulated Learning Components of Classroom Academics Performance. Journal of Educational Psychology, Vol. 82, no. 1, 33-40.

Priyambodo, E., & Sulistyani. (2014). The Effect of Multimedia Based Learning in Chemistry Teaching and Learning on Student' Self-Regulated Learning. Journal of Education and Learning, 8(4), 363-367.

Sari, N. D., & Vebrianto, R. (2017, May). Pengembangan multimedia interaktif pembelajaran kimia materi koloid terintegrasi nilai-nilai keislaman: studi literatur. In Seminar Nasional Teknologi Informasi Komunikasi dan Industri (pp. 696-702).

Schunk, D. H., & Zimmerman, B. J. (2007). Influencing children's self-efficacy and self-regulation of reading and writing through modeling. Reading and Writing Quarterly, 23, 7-25

Sjukur, S. B. (2012). Pengaruh blended learning terhadap motivasi belajar dan hasil belajar siswa di tingkat SMK. Jurnal pendidikan vokasi, 2(3).

Sulistivani, N. W. (2012). Hubungan konsep diri dan regulasi diri dengan motivasi berprestasi. Psikostudia: Jurnal Psikologi, 1(2), 118-126.

Tri Wibowo. (2011). Manajemen Kinerja. Jakarta: PT. Raja Grafindo Persada.

Winarni, M., Anjariah, S., & Romas, M. Z. (2016). Motivasi Belajar Ditinjau Dari Dukungan Sosial Orangtua Pada Siswa SMA. Jurnal Psikologi, 2(1).

Tri Wibowo. (2011). Manajemen Kinerja. Jakarta: PT. Raja Grafindo Persada.

Pintrich, P. R., & De Groot, E. V. (1990). Motivational and Self-Regulated Learning Components of Classroom Academics Performance. Journal of Educational Psychology, Vol. 82, no. 1, 33-40.

Bandy, T., & Moore, K., A. (2010). Assessing self - regulation: A guide for out-of-school time program practitioners. Journal Research to result trends child.

Schunk, D. H., & Zimmerman, B. J. (2007). Influencing children's self-efficacy and self-regulation of reading and writing through modeling. Reading and Writing Quarterly, 23, 7-25