

## Improving the Science Literacy Ability of Middle Level School Students Through Extracurricular Management of Science and Self-Efficacy



Suci Hidayati<sup>1</sup>, Nur Faizah<sup>2</sup>, Silmi Farichah<sup>3</sup>, Abdul Aziz<sup>4</sup>

<sup>1,3,4</sup>Maulana Malik Ibrahim State Islamic University Malang, Malang Indonesia

<sup>2</sup>Madura State Islamic College, Madura Indonesia

**ABSTRACT:** The basic premise of this article is the importance of extracurricular science activities for students and the self-efficacy that exists in each individual learner. Both can be important factors in achieving learning goals at school. Learning objectives can be achieved effectively if the school provides the best programs and curriculum according to the character development of its students, so teachers must play their role actively, creatively and competently in managing the learning process in the classroom. This research aims to determine the influence of school-programmed science extracurricular management and self-efficacy to improve scientific literacy skills in middle level students. The focus of the research lies in the level of influence of science management and self-efficacy in improving scientific literacy skills in Natural Sciences subjects using a quantitative approach to the field research model through interviews, observations and distributing questionnaires to students used as samples. The findings from the research results are (1) There is a significant influence between good science extracurricular management and increased scientific literacy in students, amounting to 0.005 with a confidence value of 5% (2) There is a significant influence between self-efficacy and increased scientific literacy of 0.002 with a confidence value of 5% and (3) The level of effectiveness of these two factors can be seen from the determination value Nagelkerke amounted to 83.4% and can be said to have a high level of effectiveness, while 16.6% there were other factors that were not included in this research.

**KEYWORDS:** extracurricular management, self-efficacy, science literacy.

### INTRODUCTION

The development of education currently continues to progress, this is shown by the various innovations carried out by developed countries in evolving to advance education in their countries. The educational challenge in facing 4.0 according to Guilford is the development of educational values in the form of educational values to train children to be able to learn while working, expand children's intelligence abilities, develop children's personalities to be dynamic, responsible, confident, independent and brave (Guilford, 1985). Teachers as facilitators and motivators must think and work hard to develop all existing educational values as a form of professionalism. The current generation is generation Z who is digitally savvy so information can be accessed from various sources. Students can learn and gain knowledge through fast and accurate information technology such as AI. The rapid development of digital technology, such as artificial intelligence, big data, cloud computing, Blockchain, and industrial internet, is able to change aspects of the traditional economy into a digital and intelligent economy which has become an important mechanism for educational institutions to innovate and develop sustainable education (Vial, 2019). Digital transformation has become an important pathway for education to improve the quality of education and has been widely researched by academics (Zhang et al., 2021).

Good management in schools still remains the fundamental basis for making changes and expressing new ideas to achieve educational goals that are optimally targeted. Change always begins with careful planning. It turns out that extracurricular activities at school can be a factor in the growth of new enthusiasm for students in learning and can motivate students to feel comfortable with their learning environment. One of the studies conducted on middle school students showed that the influence of extracurricular and disciplinary types was in the good category which had a significant effect on students' numeracy skills of 0.008 with an error rate of 5%. (Suci Hidayati, 2024). Not only that, another supporting factor is the school's seriousness in prioritizing students' literacy skills. Has been banned The article reviews the study of the importance of scientific literacy for

## Improving the Science Literacy Ability of Middle Level School Students Through Extracurricular Management of Science and Self-Efficacy

students in the era of revolution 4.0. It turns out that scientific literacy can have an influence and play a role in training students to achieve the competencies that students must have in this era. There are also many article studies on how to learn scientific literacy in Indonesia. One of them is the stages of literacy development that are echoed in this era which includes: dimensions of scientific literacy, media in scientific literacy and assessment in scientific literacy. (Rizki Agustina Maria, 2019)

Another effort that teachers as teachers can make to improve students' scientific literacy skills is by developing the learning media used. Effective media can encourage the learning process effectively. This is in accordance with the view of (Suryadi, 2015), that learning media that supports the absorption of more information can become one of the needs in creating effectiveness in learning activities. This media is able to increase students' insight and literacy in learning. Literacy and media are important components in renewing and developing the learning process. According to the Association for Education and Communication Technology (AECT), media is any form used for a process of distributing information. It is from the media that students will get used to and learn to understand the information obtained, resulting in literacy skills that can be measured. In line with the opinion above (Miarso, 1989) believes that media is anything that can be used to channel messages that can stimulate students' thoughts, feelings, attention and ability to learn (Rohani, 2019).

Students' interest in the learning process will influence the quality of the knowledge they acquire and possess. Many students can read well but are not able to interpret correctly. From data from the Indonesian Central Statistics Agency (BPS) 2012, it has been noted that out of ten Indonesians aged over 10 years, they are more dominant in watching television than reading and there are only three people out of 20 citizens who intensively read newspapers, books and magazines. This fact is also compounded by the fact that every middle school student does not like to read textbooks that have been provided/lent by the school to each student according to their level. Taufiq Ismail, a national writer, once stated that in Germany students who want to graduate at each level are required to complete a number of courses that have been determined as a necessity and a rule that must be implemented by every educational institution there. In 1969-1972, students in Japan had to complete a minimum of 15 book titles, Malaysia 6 book titles (1976-1980), Singapore 6 book titles (1982-1983), and Thailand 5 book titles (1986-1991). However, in Indonesia since 1997 there has been no educational institution that requires students to complete 1 or 2 book titles as a condition for graduating from school. This means that there is no obligation for students to finish a single book title and this continues to this day. Therefore, the Indonesian government is trying to improve reading culture with the concept of literacy and numeracy guidance (Merta, 2020).

In relation to student learning outcomes, especially in the aspect of scientific literacy abilities, the OECD in PISA 2015 showed that "scientific literacy abilities for students at junior high school level in Indonesia reached an average score of 62 and 69, which is relatively low. Another result in 2018 was that Indonesian students obtained a score of 396, ranking 75th out of 80 countries. These two results can be a benchmark that the quality of science learning and scientific literacy in Indonesia is far below that of OECD member countries. This fact makes teachers continue to strive to improve their professionalism. With five competency standards that must be developed by teachers, one of which is pedagogical competency (classroom management and learning), it is hoped that it will be able to improve teachers' skills in managing the classroom well during the learning process. Teacher competence in understanding students' character and psychology can be called "self-efficacy" which is something that must be prioritized to pay attention to in this digital era. The influence of increasingly sophisticated technology greatly influences the character and learning responsibilities of today's students.

From the results of Ria Nur Fitriani's research, through statistical tests that have been carried out, it shows that self-efficacy influences mathematics learning outcomes and is perfectly correlated with mathematics learning outcomes at 65.3%. (Rina Nur Fitriani, 2021)

Self-efficacy can also be interpreted as one of the factors that can influence a person's performance to achieve certain goals (Robbins, 2003). In agreement with Rina, Sari et al (2019) who reveal that self-efficacy has an influence on learning outcomes because of students' beliefs. will not give up easily and always looks for a directed strategy. Several research results that support the importance of self-efficacy include research from Ayu Marddiyah regarding self-motivation and self-efficacy with the results that there is a positive and significant influence between self-efficacy and science learning outcomes for class VI MIN 14 AL Azhar Asy Syarif Indonesia students with the determinant coefficient value self efficacy and science learning outcomes of 30.36% (Marddiyah, 2019). In line with the research above (Merta, 2020) in his research, he found that the percentage of influence between the application of the guided discovery learning model on students' scientific literacy abilities was 48.2% in the medium category, 13.4% in the low category, and 34.8% in the very low category. which means that the guided discovery learning model and scientific literacy can improve student learning outcomes. However, there have been no previous studies that have conducted research on the effectiveness of extracurricular management and self-efficacy towards increasing capabilities middle level students' scientific literacy.

## Improving the Science Literacy Ability of Middle Level School Students Through Extracurricular Management of Science and Self-Efficacy

The aim of this research is to analyze how much influence and effectiveness science extracurricular management and self-efficacy have on increasing students' scientific literacy skills at the secondary level. From the research results obtained it is hoped that school will be a motor for education, bropeople and Science teachers are more creative and innovative in creating programs to develop the curriculum that is in accordance with the needs of students in the environment yes. As a follow-up, it is hoped that readers and academics can also collaborate in improving the scientific literacy skills of current students, especially in Indonesia, so that students will be able to compete in their scientific literacy globally.

### LITERATURE REVIEW

Management is a science or art that contains planning, organizing, implementing and controlling activities in completing all matters by utilizing all available resources through other people in order to achieve predetermined goals. (Fitri, 2013). Meanwhile, extracurricular activities are educational activities carried out at school, but they are carried out outside official class teaching hours. This means outside the lesson hours listed in the lesson schedule. There are two types of extra-class activities, namely extracurricular activities and co-curricular activities (Sulistiyorini, 2006). According to Mulyono, the management of extracurricular activities is all processes that are planned and carried out in an organized manner regarding school activities carried out outside the classroom and outside class hours (curriculum) to develop the human resource potential of students, both in relation to the application of the knowledge they have acquired and in terms of understanding. specifically to guide students in developing their potential and talents through mandatory and optional activities. The management of extracurricular activities in schools includes planning extracurricular activities, implementing extracurricular activities, evaluating extracurricular activities, and accountability reports for extracurricular activities. (Kompri, 2015). There are several things that need to be considered in managing science extracurricular activities, including (a) Increasing aspects of students' abilities, attitudes and skills that focus on the field of natural science, (b). Encouragement to channel students' interests and abilities in the field of natural sciences, (c). Determination of time, activity objects that are adapted to the local environmental culture, (d). The model of extracurricular activities carried out is of interest to students, and (e) the preparation of a science extracurricular program plan must have basic concepts according to the program at the school (Fathurrahman, 2016)

In the theory developed by Jean Piaget, children are born with several sensorimotor schemata, which provide a framework for the child's initial interactions with their environment. Piaget believes that we will all go through these stages, even though each stage may be passed at different times and ages. Everyone will experience a time when our brains are mature enough to allow us to accept new types of logic (Matt Jarvis, 2011 in Dewayani Sofie 2017). From this explanation, it can be interpreted that the learning experience obtained by each student will be different in terms of meaning. Currently, students need to be equipped with many of the skills needed for education and facing the world of work in this era. These skills have been put forward by many experts and organizations have defined and systematized these skills in a general framework. The Partnership for 21st Century Skills (P21, 2007) formulates three types of skills: learning skills (creativity and innovation; critical thinking and problem solving; communication and collaboration); literacy skills (information literacy; media literacy; ICT literacy); and life skills (flexibility and adaptability; initiative and self-direction; social and cross-cultural skills; productivity and accountability; leadership and responsibility). Meanwhile, the 21st Century Skills (ATC21S) international assessment and teaching formulates ten skills grouped into four categories: ways of thinking (creativity and innovation; critical thinking, problem solving and decision making; learning to learn and metacognition); how to work (communication; collaboration); tools for work (information literacy; ICT literacy); and living in the world (citizenship; life and career skills; personal and social responsibility) (van Laar et al., 2020).

From the description above, it is considered necessary for current students to be able to read well so that in the future they can become a young generation who are ready to face the challenges of the times, especially in the world of work internationally. Scientific literacy is the ability to know and scientific skills in identifying questions, acquiring new knowledge, explaining scientific phenomena, and drawing conclusions based on facts, understanding the characteristics of science, awareness of how science and technology shape the natural, intellectual and cultural environment, and the desire to be involved and able to take a stand on science-related issues (Rizki Agustina Maria, 2019). When students receive learning in the classroom, each student's literacy abilities are also different. This condition is also influenced by the situation or atmosphere of the environment where they study. The main elements contained in scientific literacy according to Harlen (2004) are: concepts or ideas, which help understand scientific aspects of the world around and which surroundings enable us to make new experiences by linking them to what we already know; processes, which are mental and physical skills used in obtaining, interpreting and using evidence about the world around to gain knowledge and build understanding; attitudes or dispositions, which indicate willingness and confidence to engage in inquiry, debate and further learning; understanding the nature (and limitations) of scientific knowledge. In line with the

# Improving the Science Literacy Ability of Middle Level School Students Through Extracurricular Management of Science and Self-Efficacy

elements above, Yuliati explains that apart from knowledge and understanding of science, being scientific means not just knowing science, but the ability to apply scientific principles in the real world (Yuliati, 2017).

Psychological encouragement and motivation within students can also have an influence on the learning process. Students' skills and emotional maturity will be able to provide stimulants and arouse students' attention and interest in learning. Self-efficacy support makes a significant contribution to students' current progress in improving their sanitary literacy skills. Bandura believes that self-efficacy is an individual's belief that he is able to control and regulate himself in carrying out tasks or actions to achieve certain results (Bandura A., 1982). "Good and correct management of human resources by maintaining mental health when studying in the classroom can actually improve students' literacy skills." Students will find it easier to express abstract ideas in a realistic form, because they can provide a concrete picture of the content of the material described in the information presented. (Hasan, 2023).

Achieving good student character values can be assessed from positive self-efficacy which is managed well. There are two influencing factors, namely internal factors and external factors. If these two factors can be accepted and controlled well, self-responsibility will arise, so that individuals will be able to become good, responsible, disciplined and accomplished individuals. Quantitative research conducted by Aziz et al with the title "Developing self-efficacy, mattering, and general well-being through community-based education in the rural area, explains that the formation of self-efficacy in students can be shaped by an environment that supports activities which has been programmed by the school. One of these activities is extracurricular and co-curricular activities (Aziz, 2021).

The temporary hypothesis ( $H_1$ ) is that there is a significant effect between science extracurricular management on increasing the scientific literacy of secondary level students if the significance value obtained is  $< 0.05$  alpha value so that the hypothesis can be accepted. Next ( $H_2$ ) is that there is a significant influence between self-efficacy on increasing the scientific literacy of secondary level students if the significance value obtained is  $< 0.05$  alpha value so that the hypothesis can be accepted. This research will analyze the data and prove whether the hypothesis is well accepted or rejected.

## METHOD

The approach in this research uses descriptive quantitative methods. The research objects were junior high school students in class 8 of private schools in the Singosari area, Malang Regency as respondents. The sample taken was 100 respondents consisting of five parallel classes consisting of classes 8A, 8B, 8C, 8D and 8E.

## INSTRUMENTS AND PROCEDURE

In this study, three variables have been determined to be studied, namely  $X_1$  (science extracurricular management),  $X_2$  (self-efficacy), and  $Y$  (Scientific Literacy). Sampling was carried out using consideration techniques that were adapted to the conditions and characteristics of students in the class. Considerations were conveyed by the (science) teacher who taught in the form of a questionnaire/questionnaire that used an assessment with a Likert scale of 1-5 as a reference in measuring the respondent's answers as a whole. Furthermore, the interpretation of the indicators of the variables being measured is obtained with an error level of 95% or the equivalent of 0.05 in decimal form.

The data source was obtained from a questionnaire with a Likert scale prepared by presenting 5 answer choices, namely  $S = \text{Always}$ ,  $SK = \text{Often}$ ,  $SL = \text{Occasionally}$ ,  $J = \text{Rarely}$  and  $TP = \text{Never}$ . For positive questions, the values are  $S = 5$ ,  $SK = 4$ ,  $SL = 3$ ,  $J = 2$  and  $TP = 1$ , while for negative questions the values are  $S = 1$ ,  $SK = 2$ ,  $SL = 3$ ,  $J = 4$  and  $TP = 5$ . When filling out the questionnaire, students fill in honestly and there are no misunderstandings in answering statements that are in accordance with their own beliefs. This research uses the SPSS 22 statistical tool for four stages of statistical calculation tests with the Ordinal Logistic Regression (RLO) test.

## ANALYSIS AND DISCUSSION

### 1. Data analysis

Observations and data collection in this research were carried out from October 2023 to January 2024. The first two weeks were used as initial observations and subsequent identification for research into the effectiveness of science extracurricular management and self-efficacy in secondary school students for science subjects.

# Improving the Science Literacy Ability of Middle Level School Students Through Extracurricular Management of Science and Self-Efficacy

## 1.1 Respondent Distribution Data

**Table 1.1. Distribution of Respondents**

Category	N	Marginal Percentage
Scientific Literacy Ability		
1	5	1.6%
2	7	3.2%
3	26	25.8%
4	41	53.2%
5	19	16.1%
Valid	100	100.0%
Missing	0	
Total	100	

Table 1.1. shows an overview of the validity of the answer distributed to 100 respondents with a distribution of 20 students in each class in classes 8A, 8B, 8C, 8D and 8E. Furthermore, the data obtained provides an overview of the distribution of answers from 100 respondents as a whole said to be valid with category 1 (Never) as many as 5 respondents, category 2 (Rarely) as many as 7 respondents, category 3 (Occasionally) as many as 26 respondents, category 4 (Often) 41 respondents, and category 5 (always) as many as 19 respondents. Next, a suitability test for the ordinal logistic regression model will be carried out which will be used in data analysis as in the following table

## 1.2 Model Fit

**Table 1.2. Model Fit**

	Chi-Square	Df	Sig.
Pearson	17,099	69	1,000
Deviance	17,929	69	1,000

Link function: Logit.

In table 1.2, the output data shows that the ordinal logistic regression model is suitable for use as a tool in data analysis with a Deviance (Df) significance value greater than the 5% error level. Next, check the availability for the influence of each variable, the following table of coefficient of determination values is used

## 1.3 Value of the Coefficient of Determination

**Table 1.3. Coefficient of Determination Value**

Cox and Snell	,752
Nagelkerke	,834
McFadden	,602

Link function: Logit.

Table 1.3 explains that in the RLO analysis the suitability of the model uses the coefficient of determination value. The most suitable one to use is the Nagelkerke model with a Pseudo R-Square value. Science extracurricular management and self-efficacy have provided influence. The significant impact on increasing students' scientific literacy skills at the secondary level was 83.4% and 16.6% was influenced by other variables not used in this research.

# Improving the Science Literacy Ability of Middle Level School Students Through Extracurricular Management of Science and Self-Efficacy

## 1.4 Wald Test

The next step is to carry out a Wald test as shown in the following table

**Table 1.4. Wald test**

	Estimate	Std. Error	Wald	Df	Sig.	95% Confidence Interval		
						Lower Bound	Upper Bound	
Thresholds	[Y=1]	8,809	3,604	5,974	1	,015	1,745	15,873
	[Y=2]	14,406	3,292	19,156	1	,000	7,955	20,858
	[Y=3]	20,736	4,036	26,391	1	,000	12,825	28,647
	[Y=4]	26,869	4,861	30,551	1	,000	17,342	36,397
Location	X1	1,997	,716	7,772	1	,005	,593	3,400
	X2	2,252	,725	9,633	1	,002	,830	3,673

Link function: Logit.

Table 1.4. The parameter estimation test using the Wald test produces an ordinal logistic regression equation as follows:

$$\text{Logit}(Y_1) = 8,809 + 1,997X_1 + 2,252X_2$$

$$\text{Logit}(Y_2) = 14,406 + 1,997X_1 + 2,252X_2$$

$$\text{Logit}(Y_3) = 20,736 + 1,997X_1 + 2,252X_2$$

$$\text{Logit}(Y_4) = 26,869 + 1,997X_1 + 2,252X_2$$

Wald test results obtained that is, there is an influence with a significance value for science extracurricular management ( $X_1$ ) of 0.005 and self-efficacy equal to ( $X_2$ ) 0.002. The significance value of the two variables studied has a value smaller than the error level of 0.05, which means that the two factors have a significant and effective influence on increasing students' scientific literacy skills at the secondary level.

## 2. Discussion

The next Wald Test results are to determine the level of students' scientific literacy abilities which are based on the Odds ratio value science extracurricular management is ( $X_1$ ): . where the opportunity to implement science extracurricular management is 5.428 times higher compared to students who do not take part in science extracurricular activities to increase their scientific literacy abilities. For the Odds ratio self-efficacy value  $\Psi = e^{1,997} = 5,428$ . ( $X_2$ ) 6.121. This shows that it is self-efficacious  $\Psi = e^{2,252} = 6.121$  it is good to improve scientific literacy skills yes amounted to 6.121 times compared to self-efficacious students is not good

There is influence between science extracurricular management and self-efficacy towards increasing students' scientific literacy skills at the secondary level in science learning provides evidence that the hypothesis in the research is correct and can be accepted. Students who take part in science and self-efficacy extracurricular activities is good and apparently has high scientific literacy skills. Artinya that the research results The results obtained have been supported by the concept of achievement Dimensions of scientific literacy popularized by Rubba & Anderson include: (1) Understand scientific matters, (2) Can apply scientific concepts, principles and theories in daily activities appropriately, (3) Can solve problems scientifically, (4) Can draw conclusions about natural phenomena that occur, (5) Use science as a basis for interaction, (6) Understand science and technology, (5) Have a broad view of science, and (6) Be creative about scientific technology which is growing.

The research results also show that there is an influence yang significant between self-efficacy towards increasing scientific literacy skills in middle level students with a value higher than the significance value of science extracurricular management of 6.121 times higher. This strengthens Bandura's theory which believes that every individual has the ability to master the situation within himself to obtain positive results (Bandura A., 1982). A positive result in this case is increased scientific literacy skills. Bandura also stated that each individual's self-efficacy can be an indicator of their ability in terms of the ability to organize and carry out a job so that it performs optimally according to expectations. (Regaldo, 2024). Self-efficacy in students who grow well is able to have a positive influence on the activities/work they do.

# Improving the Science Literacy Ability of Middle Level School Students Through Extracurricular Management of Science and Self-Efficacy

## CONCLUSION

The conclusion of this research is that there is a significant influence between science extracurricular management and self-efficacy on increasing students' scientific literacy skills at the secondary level with a significance value of 0.005 and 0.002, which is smaller than the error level of 0.05 or equivalent to 5%. The level of effectiveness of science extracurricular management and self-efficacy in increasing scientific literacy skills can be measured from the Determination coefficient value of 83.4% which is in the high category. From the quantitative analysis, the results showed that the self-efficacy factor had a higher influence on increasing scientific literacy skills compared to the students' science extracurricular management factor. This is because not all schools have good extracurricular management, so in the future there is a need for it curriculum development, especially for an ideal science extracurricular activity program so that it can support the scientific literacy abilities of the majority of students at secondary level schools.

## REFERENCES

- 1) 'Article - School Literacy Movement' <jabarprov.go.id>
- 2) Alfa Dadi Putra (2021). The Influence of Interactive Media in the Development of Learning Activities in Educational Institutions. *Journal of Curriculum Innovation* <https://ejournal.upi.edu/index.php/JIK>
- 3) Aziz, et al. 2021. Developing self-efficacy, mattering, and general well-being through community-based education in the rural area. *International Journal of Evaluation and Research in Education (IJERE)* Vol 11, No.1, <http://doi.org/10.11591/ijere.v11i1.21948>
- 4) Ayu Marddiyah (2019). The Influence of Self-Efficacy on Science Learning Achievement of Class VI Students at Al-Azhar Elementary School. *Tarbiyah Journal of UIN Syarif Hidayatullah Jakarta*
- 5) Bandura (1998) *Self-Efficacy In Vs Ramachaudran* Ensilcopedia of Human Behavior. New York. Academic Press
- 6) Dewayani, Sofie. 2017. *Bringing Literacy to Life in the Classroom*. Yogyakarta: Publisher PT Kanisius.
- 7) Fauziyah and Karim. The Challenges of Islamic Education in The Industrial Era 4.0 in *Proceedings of the International Conference of Islamic Education: "Information Technology and Media: Challenges and Opportunities"* Faculty of Tarbiyah and Teaching Training Maulana Malik Ibrahim State Islamic University Malang November 23-24, 2018 Volume: 3
- 8) Fisher, Douglas, et al. 2019. *This is Balanced Literacy*. Thousand Oaks: Corwin.
- 9) Fitri, Agus Zainul (2013). *Islamic Education Curriculum Management*. Bandung: Alfabeta, edition 01.
- 10) Gagne, R., 'Robert Gagne's Learning Theory (1916-2002)', 2010 <<https://www.rianawuri.blogspot.com>>
- 11) Guilford, J. P. (1985). The structure-of-intellect model. In B.B. Wolman (Ed.), *Handbook of intelligence: Theories, Measurement, and Applications* (pp. 225–266). New York: Wiley.
- 12) Harlen, W. 2004. *The Teaching of Science*. London: David Fulton Publishers.
- 13) Imam Ghazali, *Multivariate Analysis Applications Using the IBM SPSS Program* (semarang: UNDIP, 2013)
- 14) Jamaludin, 'Children's Education Methods', *Saintech Journal*, vol. 8, no. 4
- 15) Kompri, *Education Management* (Yogyakarta: Ar-Ruzz Media, 2015), 223-246.
- 16) Latifa Fitriani et al (2023) *Robotic Extracurricular Management in Developing Student Creativity in the Era of Social Society 5.0*. *Ar-Roshiun Journal. ARJMPI* Vol 2 No.3 <https://doi.org/10.18860/rosikhun.v2i3.18566>
- 17) McGraw-Hill Reading Wonders. 2014. *Balanced Literacy Guide*. New York City: McGraw Hill Education.
- 18) Mubarak, Ahmad, and Lili Maslukha, 'The Influence of Inquiry Learning Learning Strategies on PAI Learning Outcomes for Class VIII Students at SMPN 02 PURWOSARI', *Jurnal Mu'allim*, 4.1 (2022), 119–31 <<https://jurnal.yudharta.ac.id/v2/index.php/muallimVol.4No.1MonthJanuary2022>>
- 19) Mundir, Abdillah, and Anita Agustining Raharyu, 'The Influence of the 4p Marketing Mix (Product, Price, Place, Promotion) and Sharia-Based Service Quality on Consumer Decisions to Purchase at the Yunika Jabon Sidoarjo Store', *Journal of the Faculty of Islamic Religion*, 4.1 (2022)
- 20) Muhammad Hasan, et al (2023). *Project-Based Learning in Economics Learning: Can it Improve 21st Century Skills Through Online Learning?* *Journal of Pedagogika/ Pedagogy*. ISSN 2029-0551 <https://doi.org/10.15823/p.2023.152.1>
- 21) PISA. 2010. *Assessing Framework Key Competencies in Reading, Mathematics, and Science*. OECD Publishing (Online)
- 22) Regalado, A. R. (2024). *Academic Stress and Coping Self Efficacy Students of Distancing Learning Covid-2*. *Malaysian Journal of Learning and Instruction (MJLI)*. Vol 21 No.1 DOI:<http://doi.org/10.32890/mlji2024.21.1.2>
- 23) Robbins, S. P. (2003). *Organizational Behavior Volume 1*. Gramedia Group Index.
- 24) Sandi and Silvi, 'Building a Reading Culture by Making Use of It', *UIN Ar-Raniry Aceh Daily Journal*, 2016
- 25) Sari, NR, Hidayat, W., & Yuliani, A. (2019). *Analysis of Mathematics Learning Results of Class X High School Students on*

## Improving the Science Literacy Ability of Middle Level School Students Through Extracurricular Management of Science and Self-Efficacy

- SPLTV Material in View of Self-Efficacy. UNION: Scientific Journal of Mathematics Education, 7(1), 93.
- 26) Singgih Santoso, Complete Guide to Mastering Statistics with SPSS. (Jakarta: Elex Media Komputindo, 2009)
  - 27) Slavin, 'Understanding Learning Theory', 2002 <<https://slavin.wordpress.com/theory-belajar/>>
  - 28) Sugiyono, Quantitative, Qualitative and R&D Research Methods (Bandung: Alfabeta, 2013)
  - 29) Suci Hidayati, et al (2023)The Influence of Extracurricular Types and Discipline of Madrasah Tsanawiyah Almaarif 02 Singosari Students on Post-Covid-19 Learning Achievement. Ar-Roshiun Journal. ARJMPI vol 2 no.2<https://doi.org/10.18860/rosikhun.v2i2.18971>
  - 30) Hidayati, S., Mustaghfiroh, YN., & Sriharini. (2024). The Influence of Types of Extracurriculars and Discipline on Calculating Skills of Madrasah Tsanawiyah Almaarif 02 Singosari Students. Indonesian Journal of Multidisciplinary Educational Research, 1(2), 191–201. <https://doi.org/10.30762/ijomer.v1i2.1388>
  - 31) (Sulistiyorini 2006). Islamic Education Management. Surabaya: eLKAF Publisher, p. 80.
  - 32) (Suryadi, 2015)The Role of Development of Information and Communication Technology in Activities and Communication in Learning Activities. Journal of Information Technology Vol pp 9-19
  - 33) Suyadi. (2020) Diagnosis of Dyscalculia Generation Alpha EDUMASPUL Education Journal Vol.4 No.1, pp. 104-112 DOI:<https://doi.org/10.33487/edumaspul.v4i1.278>
  - 34) Suharmini, T. (2015). Psychological Aspects of Dyscalculic Children. Jpk: Journal of Special Education, Volume 1 No. (2).<https://doi.org/https://doi.org/10.21831/jpk.v1i2.6014>
  - 35) Suharsimi Arikunto, Organization and Technology and Professionalism (Jakarta: Rajawali, 1989)
  - 36) Shah Muhibbin. (2010) Educational Psychology. Bandung: PT Teen Rosdakarya
  - 37) Vial, G. (2019). Understanding digital transformation: A review and a research agenda. The Journal of Strategic Information Systems, 28(2), 118–144. <https://doi.org/10.1016/j.jsis.2019.01.003>
  - 38) YUNIADHI AGUNG, 'Reading is a window to the world'<http://print.kompas.com/baca/opini/jajak-pendapat/2015/10/27/Membaca-jadi-Jendela-Dunia>
  - 39) Yuliati, Yuyu. (2017). Scientific Literacy in Science Learning. Pendas Cakrawala Journal Vol. 3 No. 2: 21-28
  - 40) Zhang, J., Long, J., & von Schaewen, A.M. (2021). How does digital transformation improve organizational resilience? findings from pls-sem and fsqca. Sustainability (Switzerland), 13(20). <https://doi.org/10.3390/su132011487>



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.