Journal of Biology Learning
Vol. 7, No. 1, March 2025, pp. 15-23
ISSN 2623-2243 (print), 2623–1476 (online)
http://journal.univetbantara.ac.id/index.php/jbl/index

Environmental Literacy Skills Based on Gender and Accreditation Among High School Students in Batu City

Diaz Candra Pratama [a,1], Abdulkadir Rahardjanto [a,2], H. Husamah [a,3,*]

[a] Department of Biology Education, Faculty of Teacher and Education, Universitas Muhammadiyah Malang, Malang, East Java 65144, Indonesia
[1] diazrafka1927@gmail.com; [2] abdkadir@umm.ac.id; [3] usya_bio@umm.ac.id*
* Corresponding Author

Received January 27, 2025; accepted March 10, 2025; published March 30, 2025

ABSTRACT

The increasing environmental challenges faced globally have highlighted the urgent need for an environmentally literate generation. Environmental literacy, encompassing cognitive, affective, and behavioral aspects, is essential for fostering awareness and concern for the environment among young people. As such, understanding the level of environmental literacy in students is crucial to effectively address these challenges. This study aims to determine the environmental literacy skills of high school students in Batu City based on gender and school accreditation. The study used a descriptive quantitative approach with a purposive sampling technique. The research sample consisted of 1,054 students from six high schools, including three public schools and three private schools. The instrument used was a validated Environmental Literacy Instrument for Students (ELIS) based on a questionnaire. The results indicated that, in general, students' environmental literacy skills were in the high category, with an average percentage of 78-80% across all dimensions. The Independent sampel t-test revealed a significant difference in environmental literacy skills based on gender, with female students demonstrating higher concern for the environment compared to male students. Additionally, a significant difference was found between schools with A and B accreditation, with A-accredited schools showing higher results. This study recommends emphasizing the importance of experiential learning, as well as considering gender and accreditation factors in the development of environmental literacy programs.

KEYWORDS

Environmental Literacy, Environmental Education, High School Students

1. Introduction

The environment is a system that sustains life through interactions between humans, other living things, and natural elements (Afrianda et al.). According to Law No. 32/2009, the environment includes all components that influence each other in maintaining the sustainability of life. However, public awareness to protect the environment is still low. Sustainable environmental management is essential to ensure tourism in Batu City, East Java remains attractive and can be enjoyed by future generations (Dewi et al., 2024).

Tourism development that is not accompanied by environmental awareness is often a hidden threat to the sustainability of local ecosystems. This is also the case in Batu City, where the rapid growth of the tourism sector has triggered various complex and diverse environmental problems (Santoso et al., 2021). The surge in the number of tourists has contributed to an increase in the volume of waste and pollution, which until now has not been handled optimally (Atikah et al., 2017). Tourism development must go hand in hand with environmental conservation efforts so that the negative impacts can be minimised. In this context, environmental literacy has a strategic role to shape the mindset and behaviour of tourists and industry players to be more ecologically responsible (Eufrasia et al., 2024).

In the face of increasingly complex environmental problems, environmental literacy is emerging as one of the strategic solutions that can encourage people to act responsibly and sustainably. This literacy

not only increases understanding of environmental issues, but also motivates tangible behavioural changes to address problems such as waste and air pollution (Trisnadewi, 2021; Huang & Hsin, 2023). Environmental literacy plays an important role in designing solutions to environmental problems that require specialised handling, such as waste management and air quality (Qodriyanti et al., 2022). In addition, wise literacy promotes the concept of sustainable utilisation of natural resources, with the aim of maintaining environmental quality for current and future generations to enjoy (Örs, 2022).

Environmental literacy includes not only knowledge, but also attitudes and actions that show individual awareness in maintaining the balance of nature. This attitude reflects sensitivity and concern for the environmental conditions around us (Nasution, 2016; Novitasari et al., 2024). The main goal of environmental literacy is to form a young generation that not only has knowledge, but also a high concern for the environment, as well as the ability to find solutions to existing environmental problems (Ahmadi, 2022; Vaughn et al., 2021). Environmental literacy assessment involves three main aspects: cognitive, affective, and behavioural, which describe how a person understands environmental issues and acts to solve them (Liang et al., 2018; Maesaroh et al., 2021). Therefore, environmental literacy is a strategic step in education to create a young generation that not only knows, but also cares and is ready to play an active role in maintaining environmental sustainability.

Education has a very important role in creating an environmentally conscious society. Through education, the quality of environmental literacy can be improved, so that it can help people in overcoming various environmental problems. The importance of education can support the improvement of the quality of environmental literacy (Michael et al., 2017). The application of education can be considered as a tool to improve environmental literacy (Aminah et al., 2022; Banila et al, 2021). Education is the main key in improving environmental literacy, through education, people can improve skills, critical thinking, problem solving, and a sense of responsibility (Dwi et al., 2023; Munawar et al., 2019). The goal of education is to prepare people who are environmentally literate and have responsible actions in addressing environmental issues (Jannah et al., 2024).

Students as future leaders need to be equipped with a good understanding of environmental issues in order to be responsible for the sustainability of nature. Learners as the next generation of the nation are important to know environmental literacy, therefore environmental education needs to be developed in students to improve environmental literacy (Yulia & Syarifuddin, 2016). Because of their awareness and understanding, learners who have environmental literacy will be responsible for the environment, so this literacy is important in shaping characters who care about the environment (Novian & Sari, 2024). After having environmental literacy, students are expected to be responsible for conservation and aware of environmental problems (Aini et al., 2020).

Various studies have examined environmental literacy from the aspects of gender and continuing education. The results are mixed-some studies found differences based on gender (Gough et al., 2017; Anggraini & Nazip, 2022), while others showed no significant effect (Parwati et al., 2021; Santoso et al., 2020). Research also highlights the importance of hands-on learning experiences and the role of schools in shaping environmental literacy (Husamah et al., 2023; Huang & Hsin, 2023). However, few have examined the influence of school accreditation level on students' environmental literacy. In fact, data shows a gap between public and private schools in the achievement of environmental literacy (Tunjung A et al., 2023; Qodriyanti et al., 2022). Based on this, the purpose of this study is to fill the gap by examining the relationship between gender and school accreditation on students' environmental literacy in Batu city high schools.

2. Method

This research is ex-post facto associative research with a quantitative approach through a survey. This research was conducted in a number of public and private high schools with details of 3 public and 3 private high schools in Batu City in November-December 2024. The population in this study were students in public and private high schools in Batu City who had received learning related to the environment. The sample population that was successfully obtained based on the total number of

students obtained through school data was 3,135 students. The sampling technique used in this study is the Simple Random Sampling Technique with the minimum sample size based on the Slovin calculation with a tolerance level of 5% is 1,054 students. The following are the demographic details of each school after calculation through the Slovin equation, which will be presented in Table 1.

Table 1. Demographics of The Sample Population by School

School	*Number of students*			
	1st year	*2nd Year*	*3rd Year*	*Total*
State High School A	101	101	101	303
State High School B	97	97	97	291
State High School C	78	78	78	234
Private High School A	33	33	33	96
Private High School B	22	22	22	67
Private High School C	21	21	21	63
Total				**1054**

Data collection techniques through tests by filling out forms distributed online. The data collection instrument is in the form of a form, consisting of 26 questions covering several dimensions, including: Ecological knowledge, Environmental hope, Cognitive skills, and Behavior; as similar research conducted by Husamah, (2022). The questionnaire presented to respondents is in the form of positive and negative statements which are then responded to by respondents based on a scale of 1-5 which shows the respondent's opinion on the statements presented in the questionnaire. The validity test of the Environmental Literacy instrument state that this instrument has been tested for validity and the results are valid. By showing that the mean value of the questionnaire items is between 3.26 and 4.44, with a standard deviation between 0.96 to 1.27. The Pearson Product Moment correlation coefficient is in the range of 0.385 to 0.931, with a significance level of 0.000 which is smaller than 0.01 (Husamah et al., 2022). Reliability test on respondents as many as 634 prospective science teachers. The results of the environmental literacy instrument (ELIS) indicate that the Cronbach's alpha value is 0.72-0.94, meaning that these values meet the criteria of ≥ 0.7, these results state that this instrument has been tested for reliability and the results are reliable (Husamah et al., 2022). ELIS follows the definition of the North American Association for Environmental Education (NAAEE) which includes knowledge, skills, behaviours and motivations (expectations) to solve environmental problems. These dimensions were adopted and developed from the ELIA instrument (Environmental Literacy Instrument for Adolescents) by Szczytko et al. (2019), and adapted to the context of spirituality in Indonesia, namely ecological knowledge, environmental expectations, cognitive skills, and behaviour.

The research data was analyzed by calculating the percentage of Elis for Student using statistical analysis with respondents analyzed by tables using descriptive SPSS. To provide an overview, the quantitative data in this study will be analyzed descriptively by utilizing the mean and standard deviation of Elis for Student on each element. To categorize by category, the maximum score must first be determined. Next, the mean value of the scores obtained was calculated. A frequency distribution table was then used to display the data, followed by categorization and presentation in percentage form. Score categorization was done using the following five categories: very low, low, medium, high, and very high (Sugiyono, 2019). There are criteria for scoring categories according to (Sugiyono, 2019) in the Table 2 as follows,

Table 2. Score Category

Score Interval	*Category*
81 – 100 %	Highest
61 – 80 %	High
41 – 60 %	Moderate
21 – 40 %	Low
0 – 20 %	Lowest

3. Results and Discussion

The research data was obtained from the data collection method, namely distributing questionnaires. The questionnaire was distributed so that researchers could obtain data used to analyse the data. Based on the descriptive test results (Table 3), it can be seen that public schools have the highest average of (28.36) while women have an average score of (35.76), these results indicate that students' understanding in responding to environmental issues is good.

Table 3. Descriptive Test Result

Enviromental Literacy	*N*	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Public schools	828	9	25	28.36	2.263
Private schools	226	7	35	19.84	3.253
Female	635	9	45	35.76	4.147
Male	429	5	25	20.07	2.392

Based on the results of the Homogeneity Test Variance (Levene's Test) (Table 4) shows that the variance between groups based on gender shows a value of 0.229 and school accreditation of 0.497 is greater than 0.05, so the data distribution is homogeneous.

Table 4. Homogenity Test

		Levene Statistic	*df1*	*df2*	*Sig.*
Gender	Based on Mean	1.477	2	535	.229
	Based on Median	.361	2	535	.697
	Based on Median and with adjusted df	.361	2	534.985	.697
	Based on trimmed mean	1.477	2	535	.229
Accreditation	Based on Mean	.701	2	535	.497
	Based on Median2	.302	2	535	.740
	Based on Median and with adjusted df	.302	2	534.991	.740
	Based on trimmed mean	.701	2	535	.497

Based on statistical analysis using the independent t-test (Table 5), it was found that there was a significant difference between the female group compared to the male group in A-accredited schools, while there was no significant difference between the male and female groups in B-accredited schools on environmental literacy skills.

Table 5. Independent t-test Based on Gender

		t-test for Equality of Means						
		t	*df*	*Sig. (2-tailed)*	*Mean Difference*	*Std. Error Difference*	*Lower*	*Upper*
Female	Equal variances assumed	-138.538	50	.000	-475.538	3.433	-482.433	-468.644
Male	Equal variances not assumed	-138.538	46.154	.355	-475.538	3.433	-482.447	-468.630

Table 6. Independent t-test Based On Accreditation

		t-test for Equality of Means						
		t	*df*	*Sig. (2-tailed)*	*Mean Difference*	*Std. Error Difference*	*Lower*	*Upper*
Accreditation A	Equal variances assumed	-24.259	50	.000	-107.577	4.434	-116.484	-98.670
Accreditation B	Equal variances not assumed	-24.259	27.928	.545	-107.577	4.434	-116.662	-98.492

This study used 3 grade levels from grade 10 to grade 12. The total respondents involved in this study were 1054 consisting of 429 male students and 635 female students. Based on the results of the study, it shows that the results of environmental literacy in high school students in Batu City obtained an average value of 28.36% which indicates that the value is in the good category with high average value results. This shows that most students have positive literacy and have high awareness in taking concrete actions to overcome environmental problems. This shows that most students have positive actions and have high awareness in taking concrete actions for environmental sustainability. The competence of action for environmental sustainability in students is influenced by various educational factors, especially through the application of participation education students can overcome environmental problems (Ririn et al., 2021). Schools play an important role as a place for education that functions to shape character, one of which is shaping environmental care behaviour. Schools are educational institutions that can create good behaviour, especially caring behaviour towards the environment (Aini et al., 2020). Learners' views on environmental conditions are strongly influenced by their level of understanding and awareness. When learners have the right perception of the importance of protecting the environment and understand the consequences of human activities on nature, they tend to be encouraged to take more responsible actions. Individuals with high environmental awareness will usually show positive behaviours that support environmental conservation efforts (Novitasari et al., 2024).

Based on the results of the study, an independent sample t-test was conducted to determine whether there are differences in environmental literacy between men and women. The results of the analysis showed that in the male group, a probability significance value of 0.355 > 0.05 was obtained, which means that there is no significant difference in environmentally friendly behaviour in the male subgroup. In contrast, in the female group, the probability significance value was 0.000 < 0.05, indicating a significant difference between gender and environmental literacy skills. This finding indicates that students' mindsets based on gender aspects show significantly different trends in public schools. Although the environmental literacy of female and male students are both in the good category, in detail female students show higher concern and sensitivity to the environment compared to male students (Novian & Sari, 2024). This condition is reinforced by research which states that gender can affect the level of knowledge, where women have higher knowledge expectations than men (Adinugraha et al., 2018). However, it should be noted that the main factor that determines learning outcomes is not gender, but the learning motivation possessed by individuals (Andriani & Rasto, 2019). Gender differences also affect the way individuals develop life habits and problem-solving approaches, where men and women usually have different characteristics (Sarkawi, 2017). The data obtained in this study shows that female students tend to have higher scores, which indicates that they are more careful in their actions compared to male students. In addition, female students are also more concerned about environmental issues, showing greater sensitivity than male students (Arora J & Sijapati, 2018). The results of this study reinforce the view that although gender affects environmental literacy, there are other factors such as learning motivation and social factors that also play an important role. In line with this study, Muslih (2021) also found that female students showed better levels of environmental literacy, especially in attitudes towards the environment.

The results of the independent sample t-test showed a significant difference between schools with accreditation A and accreditation B on students' environmental literacy skills. A-accredited schools obtained a probability value of 0.000 < 0.05, which indicates a significant difference, while B-accredited schools obtained a value of 0.545 > 0.05, which indicates that there is no significant difference. This result indicates that accreditation level A has a better relationship with environmental literacy skills. This finding is in line with the statement of Zulfahita et al. (2020) that school accreditation is not the only indicator in determining the high affective quality or overall quality of a school. However, the results of this study show that public schools with A accreditation have superior environmental literacy skills compared to private schools with B accreditation. This difference is thought to be influenced by several factors, such as differences in curriculum, implementation of the

education system, and learning strategies applied in each school (Sulastri & Wibowo, 2021). Teachers play an important role in choosing the right learning methods and models to improve students' understanding of environmental issues (Habibie, 2020). In addition, the availability of adequate facilities, infrastructure, and teaching materials also support the creation of a learning environment that encourages the strengthening of environmental literacy (Aini et al., 2020). Therefore, these findings are important for evaluation and consideration in designing more effective and equitable environment-based learning strategies at various levels of school accreditation.

4. Conclusion

This study shows that students' environmental literacy in six senior high schools in Batu city is in the high category. There is a significant difference based on gender, where female students are more concerned about the environment than male students. Although there is a difference between A and B accredited schools, on environmental literacy. The implications of this study emphasise the importance of curriculum development based on direct experience with the environment. Teachers and schools need to strengthen environment-based learning with interactive methods and pay attention to supporting facilities. Curriculum development that is consistent and relevant to environmental issues can improve environmental literacy in schools.

Acknowledgment

We would like to thank the Batu City Education Office and the extended family of public and private schools that have helped in research activities, so that the observation and data collection process can run smoothly without significant obstacles.

References

Adinugraha, H. H., Maulana, A. S., & Sartika, M. (2018). Kewenangan Dan Kedudukan Perempuan Dalam Perspektif Gender: Suatu Analisis Tinjauan Historis. *Marwah: Jurnal Perempuan, Agama Dan Jender*, *17*(1), 42. https://doi.org/10.24014/marwah.v17i1.4515

Afrianda, R., Yolida, B., & Marpaung, R. R. T. (2019). Pengaruh Program Adiwiyata Terhadap Literasi Lingkungan dan Sikap Peduli Lingkungan. *Jurnal Bioterdidik*, *7*(1), 33–42. https://jurnal.fkip.unila.ac.id/index.php/JBT/article/view/17117

Ahmadi, Z. S. (2022). Review Article : Peningkatan Literasi Lingkungan Siswa di Sekolah. *Educatoria : Jurnal Ilmiah Ilmu Pendidikan*, *2*(3), 175–180. https://doi.org/10.36312/ejiip.v2i3.105

Aini, N., Muhdhar, M. H. I. Al, Rochman, F., Sumberartha, I. W., Lely, Mardiyanti, & Wardhani, W. (2020). Analisis tingkat literasi lingkungan siswa pada muatan lokal pendidikan linkungan hidup. *Jurnal Pendidikan Biologi*, *12*, 40–44. https://doi.org/10.17977/um052v12i1p40-44

Aminah, H., Iskandar, I., & Sulman, F. (2022). Environmental Literacy Investigation Biology Education Students at Islamic Colleges Based on Gender and Parents' Occupation in Jambi Province. *PALASTREN: Jurnal Studi Gender*, *15*(2), 335. https://doi.org/10.21043/palastren.v15i2.14601

Andriani, R., & Rasto, R. (2019). Motivasi belajar sebagai determinan hasil belajar siswa. *Jurnal Pendidikan Manajemen Perkantoran*, *4*(1), 80. https://doi.org/10.17509/jpm.v4i1.14958

Anggraini, N., & Nazip, K. (2022). Kemampuan Literasi Lingkungan Mahasiswa Pendidikan Biologi Menggunakan Skor Nela. *Journal of Education Action Research*, *6*(4), 552–557. https://doi.org/10.23887/jear.v6i4.46975

Arora J, S., & Sijapati, B. B. (2018). Disciplining Gender in Environmental Organizations: *Gender, Work and Organization*, *25*(3), 309–325. https://doi.org/10.1111/gwao.12195

Atikah, S., Agustin, I. W., Meru, D., Jurusan, U., Wilayah, P., & Kota, D. (2017). Karakteristik Dan Perjalanan Wisata Di Kota Batu. *Planning for Urban Region and Environment Journal (PURE)*, *8*(3), 87–96. https://purejournal.ub.ac.id/index.php/pure/article/view/319

Banila, L., Lestari, H., & Siskandar, R. (2021). Penerapan blended learning dengan pendekatan STEM

untuk meningkatkan kemampuan literasi sains siswa pada pembelajaran biologi di masa pandemi covid-19. *Journal of Biology Learning*, *3*(1), 25-33. https://doi.org/10.32585/jbl.v3i1.1348

Dewi, P. M., Septiningsih, I. (2024). Permasalahan Lingkungan Hidup Dan Hukum Yang Ditegakkan Terhadap Lingkungan Di Indonesia. *Journal of Rural and Development*, *12*(1), 7–14.

Dwi, E., Silvia, E., & Tirtoni, F. (2023). Implementasi kurikulum merdeka belajar berbasis pendidikan karakter peduli lingkungan di sekolah adiwiyata. *Journal Visipena*, *13*(2), 130–144. https://ejournal.bbg.ac.id/visipena

Eufrasia, J., Purnama Ningsi, G., Raga,. (2024). Transformasi asesmen di SMA: Memperkuat literasi sains dan lingkungan untuk siswa kelas X. *Jurnal Pendidikan Biologi*, *11*(N), 139–151. https://ejournal.undiksha.ac.id/index.php/JJPB

Gough, A., Russell, C., & Whitehouse, H. (2017). Moving gender from margin to center in environmental education. *Journal of Environmental Education*, *48*(1), 5–9. https://doi.org/10.1080/00958964.2016.1252306

Habibie, A. (2020). Peran pendidikan lingkungan dalam membentuk karakter peduli lingkungan peserta didik. *Jurnal Ilmu Pendidikan dan Humaniora*, *8*(1), 14–21. https://doi.org/10.23887/jiph.v8i1.30127

Huang, H., & Hsin, C. Te. (2023). Environmental Literacy Education and Sustainable Development in Schools Based on Teaching Effectiveness. *International Journal of Sustainable Development and Planning*, *18*(5), 1639–1648. https://doi.org/10.18280/ijsdp.180535

Husamah, H., Rahardjanto, A., Hadi, S., Lestari, N., & Ummah BK, M. K. (2023). Spirituality-based environmental literacy among prospective biology teacher in Indonesia: Analysis based on gender, accreditation, and semester-level aspects. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, *9*(3), 418–432. https://doi.org/10.22219/jpbi.v9i3.29500

Husamah, H., Suwono, H., Nur, H., & Dharmawan, A. (2022). The development and validation of environmental literacy instrument based on spirituality for prospective science teachers. *Eurasia Journal of Mathematics, Science and Technology Education*, *18*(12). https://doi.org/10.29333/EJMSTE/12732

Jannah, R., Manalu, K., & Jayanti,U. (2024). Peningkatan Karakter Peduli Lingkungan Melalui Gerakan Literasi Lingkungan: Peran Guru Pendidikan Biologi. *Pedagogika: Jurnal Ilmu-Ilmu Kependidikan*, *4*(1), 1–9. https://doi.org/10.57251/ped.v4i1.1390

Liang, S. W., Fang, W. T., Yeh, S. C., Liu, S. Y., Tsai, H. M., Chou, J. Y., & Ng, E. (2018). A nationwide survey evaluating the environmental literacy of undergraduate students in Taiwan. *Sustainability (Switzerland)*, *10*(6), 1–21. https://doi.org/10.3390/su10061730

Maesaroh, S., Bahagia, B., & Kamalludin, K. (2021). Strategi Menumbuhkan Literasi Lingkungan Pada Siswa. *Jurnal Basicedu*, *5*(4), 1998–2007. https://doi.org/10.31004/basicedu.v5i4.1048

Mardiani, N. D., Husamah, H., Fatmawati, D., Miharja*, F. J., & Fauzi, A. (2021). Environmental Literacy of Students in Al-Rifa'ie Modern Islamic Boarding School, Malang Regency-Indonesia Based on Gender Differences and Parents' Occupation. *Jurnal Pendidikan Sains Indonesia*, *9*(2), 317–328. https://doi.org/10.24815/jpsi.v9i2.19316

Nuneza, M. B., & Clores, M. A. (2017). *Environmental literacy of K–10 student completers*. http://creativecommons.org/licenses/by/4.0/

Munawar, S., Heryanti, E., & Miarsyah, M. (2019). Hubungan Pengetahuan Lingkungan Hidup Dengan Kesadaran Lingkungan Pada Siswa Sekolah Adiwiyata. *LENSA (Lentera Sains): Jurnal Pendidikan IPA*, *9*(1), 22–29. https://doi.org/10.24929/lensa.v1i1.58

Muslih, M. (2021). Gender and Environmental Literacy on Islamic-based High School Students Under Spiritual Values. *Muwazah*, *13*(1), 41–60. https://doi.org/10.28918/muwazah.v13i1.3427

Mutakin, A. (2018). Apa lingkungan itu. *Jurnal Georea*, *1*(2). https://ejournal.unibba.ac.id/index.php/Geoarea/article/view/147

Nasution, R. (2016). Analisis Kemampuan Literasi Lingkungan Siswa SMA Kelas X di Samboja dalam Pembelajaran Biologi. *Seminar Nasional XIII Pendidikan Biologi FKIP UNS 2016*, 13(1), 352–358. https://www.neliti.com/id/publications/172846/

Novian, T., & Sari, I. (2024). Pemetaan literasi lingkungan siswa sma dalam pembelajaran biologi ditinjau dari perbedaan gender. *Jurnal Pendidikan dan Pembelajaran Sains Indonesia*, 7(2), 87–98. https://doi.org/10.23887/jppsi.v7i2.78912

Novitasari, A., Sholehah, R., & Nur. (2024). Pengaruh Penerapan Metode Outdoor Learning terhadap Literasi Lingkungan Siswa Kelas X SMA The Effect of Applying Outdoor Learning Methods on the Environmental Literacy of Class X High School Students. *Jurnal Pendidikan Sains & Biologi*, *11*(1), 109–118. https://doi.org/10.33059/jj.vl11i1.9826

Örs, M. (2022). A Measurement of the Environmental Literacy of Nursing Students for a Sustainable Environment. *Sustainability (Switzerland)*, *14*(17). https://doi.org/10.3390/su141711003

Parwati, N. P. A., Redhana, I. W., & Suardana, I. N. (2021). Effect of Gender on Environmental Literacy of High School Students in Bali, Indonesia. *Proceedings of the First International Conference on Science, Technology, Engineering and Industrial Revolution (ICSTEIR 2020)*, *536*(Icsteir 2020), 332–336. https://doi.org/10.2991/assehr.k.210312.055

Qodriyanti, A., Yarza, H. N., Irdalisa, I., Elvianasti, M., & Ritonga, R. F. (2022). Analisis Sikap Peduli Lingkungan Siswa di Salah Satu MAN pada Materi Pelestarian Lingkungan. *Jurnal Eksakta Pendidikan (Jep)*, *6*(1), 111–116. https://doi.org/10.24036/jep/vol6-iss1/643

Santoso, R., Roshayanti, F. (2021). Analisis literasi lingkungan siswa SMP. *JPPS (Jurnal Penelitian Pendidikan Sains)*, *10*(2), 1976–1982. https://doi.org/10.26740/jpps.v10n2.p1976-1982

Santoso, R., Sugandi, K., Sukmawati, I., Ratnawati, R., Haryanto, E., & Khazali, I. (2020). Environmental Literation Profile Based on Gender of Students of Senior High Schools in Pemalang District. *JPPIPA (Jurnal Penelitian Pendidikan IPA)*, *5*(1), 19–22. https://doi.org/10.26740/jppipa.v5n1.p19-22

Sari, E., Awal, R., Pandia, A., & Lancang Kuning. (2023). Profil literasi lingkungan peserta didik sman 3 adiwiyata dan sman 16 non adiwiyata di rumbai. *Jurnal Pendidikan Biologi*, *10*(2), 265–272. https://journal.unilak.ac.id/index.php/

Sarkawi, D. (2017). Pengaruh Jenis Kelamin Dan Pengetahuan Lingkungan Terhadap Penilaian Budaya Lingkungan. *Jurnal Ilmiah Pendidikan Lingkungan Dan Pembangunan*, *16*(02), 101–114. https://doi.org/10.21009/plpb.162.03

Sugiyono. (2019). metode penelitian kuantitatif, kualitatif dan R & D. *Sustainability (Switzerland)*, *11*(1), 1–14. https://doi.org/10.3390/su11010001

Sulastri, D., & Wibowo, A. (2021). Pengaruh penerapan model pembelajaran terhadap peningkatan literasi lingkungan siswa sekolah dasar. *Jurnal Pendidikan Dasar Nusantara*, *6*(2), 112–120. https://doi.org/10.29407/jpdn.v6i2.15234

Szczytko, R., Stevenson, K., Peterson, M. N., Nietfeld, J., & Strnad, R. L. (2019). Development and validation of the environmental literacy instrument for adolescents. *Environmental Education Research,* 25(2), 193–210. https://doi.org/10.1080/13504622.2018.1487035

Trisnadewi, K. A. (2021). Pengaruh pembelajaran luar kelas (outdoor learning) berbentuk jelajah lingkungan dan motivasi terhadap hasil belajar biologi siswa. *Wahana Matematika dan Sains: Jurnal Matematika, Sains, dan Pembelajarannya*, *15*(1), 1–12. https://doi.org/10.23887/wms.v15i1.31695

Tunjung, A., Aji, A., & Findayani, A. (2023). Hubungan antara literasi lingkungan dengan kemampuan memecahkan masalah lingkungan pada peserta didik di sekolah Adiwiyata SMA N 4 Semarang. *EduGeo*, 10(1). https://journal.unnes.ac.id/sju/index.php/edugeo

Usmadi, U. (2020). Pengujian Persyaratan Analisis (Uji Homogenitas Dan Uji Normalitas). *Inovasi Pendidikan*, *7*(1), 50–62. https://doi.org/10.31869/ip.v7i1.2281

Vaughn, M., Scales, R. Q., Stevens, E. Y., Kline, S., Barrett-Tatum, J., Van Wig, A., Yoder, K. K., & Wellman, D. (2021). Understanding literacy adoption policies across contexts: a multi-state examination of literacy curriculum decision-making. *Journal of Curriculum Studies*, *53*(3), 333–352. https://doi.org/10.1080/00220272.2019.1683233

Yulia, & Syarifuddin. (2016). Pengaruh Status Sekolah, Rencana Pendidikan Setelah Tamat SMA dan Latar Belakang Pendidikan Orang tua Terhadap Literasi Sains Siswa SMA Kelas XI IPA Se-Kota Kisaran Tahun Pembelajaran 2015/2016. *Jurnal Pelita Pendidikan*, *4*(1), 128–136. https://doi.org/10.24114/jpp.v4i1.3689

Zulfahita, Z., Husna, N., & Mulyani, S. (2020). Kemampuan Literasi dan Kepercayaan Diri Siswa SMP Berdasarkan Akreditasi Sekolah Swasta dan Negeri di Kota Singkawang. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, *6*(3), 407. https://doi.org/10.33394/jk.v6i3.2806