



Literature Study: The Value of the Character of Love for the Motherland in Science Learning

Wazha Bickie Maundeni¹

¹Faculty of Education, University of Botswana, Botswana

Article Info

Article history:

Received May 11, 2023
Revised Jun 16, 2023
Accepted Jul 10, 2023
OnlineFirst Jul 31, 2023

Keywords:

Literature Reviews
Love for the Motherland
Science Learning

ABSTRACT

Purpose of the study: The purpose of conducting this literature study research is to discover the character of students' love for the motherland in science learning.

Methodology: The method used in this research is a literature review. This study was conducted by reviewing 25 articles on the topic under study. Data analysis was carried out in this study using a synthetic matrix. The synthesis matrix is a technique for processing literature study data by interpreting it in diagrams or tables.

Main Findings: The character of love for the motherland is a character that shapes students' attitudes to have a sense of nationalism, compassion, and respect for the country. Love for the homeland is perfect to be implemented in science learning, so it can make students appreciate everything done in learning and put forward common interests. A sense of love for the motherland in science learning must be instilled in children early to become human beings who can respect their nation and country. With love for the motherland, students prioritize public interests that are group in nature compared to personal interests.

Novelty/Originality of this study: A literature study on love for the motherland will show the importance of the character values of love for the homeland in science learning. So the character of love for the motherland is essential for students.

This is an open access article under the [CC BY-NC](https://creativecommons.org/licenses/by-nc/4.0/) license



Corresponding Author:

Wazha Bickie Maundeni
Faculty of Education, University of Botswana, Botswana
Private Bag UB 0022 Gaborone, Botswana
Email: wazhabickiemaundeni@gmail.com

1. INTRODUCTION

Attitude is a form of assessment of the learning process given by the teacher [1]-[3]. Learning can be done effectively by considering the presentation of attitudes, interests and literacy according to student characteristics [4]-[6]. The teaching and learning process must be supported, especially as science learning materials include basic concepts that can become a vehicle for learning for students [7]-[9]. Therefore an understanding of IPA is needed.

Talking about science is one of the lessons in school, students' views of science are one of the factors that influence the learning process. Science itself is related to science which analyzes concepts, principles, and reviews the basis of science learning and its characteristics [10]-[12]. The problems that are often faced by students do not understand science learning, an adequate learning supports students to study in science [13]-[15]. Students' ability to learn science is the relationship between direct interaction to encourage academics and use of technology in learning [16]-[18]. This concerns the attitude shown in teaching and learning interactions in class such as the attitude of love for the motherland.

The attitude of loving the motherland is an attitude in which a person has an attitude of nationalism loving every national interest above personal interests. So that this makes the child's attitude have good character and do not deviate [19]-[21]. Children's attitudes that deviate from character values automatically violate agreed norms or rules [22]-[23]. Given that learning integration is important, it can offer learning according to the interests of students, therefore students can apply what they learn, such as love for the motherland [24]-[26]. Therefore it is very good to instill an attitude of love for the motherland in students so that students have a more nationalistic character towards national interests.

The current generation really needs character education as a social being. Humans need education so that they can be useful for society and can produce intellectual generations to increase knowledge [27]-[29]. National education functions to develop capabilities and skills, this development reflects productivity benefits that come from increased education [30]-[32]. Education itself functions to improve self-quality by improving educational processes and outcomes through a focus on teaching [33], [9], [34]. Learning is made based on the competency needs of students.

This research is in line with research conducted by Syahrial, who stated that it is necessary to apply the character values of hard work and love of the motherland to students through traditional games [35]. The difference between this research and previous research is that this research examines the character of love for the motherland in science learning, while in previous research it was about Comparison of Responses, Hard Work Characters and Students' Love of the Homeland Character: Integration of Traditional Patok Lele Games.

The purpose of conducting this literature study research is to find out the character of students' love for the motherland in science learning. This research is important to do because it can be a source of reference regarding the Value of the Character of Love for the Motherland in Science Learning.

2. RESEARCH METHOD

The method used in this research is literature review. Using this method aims to be able to identify, evaluate, review all research related to research conducted [36]-[37]. Data collection techniques using literature studies, where by collecting data through previous research such as reading journals, papers, articles and books as well as reports related to the research carried out

Sampling in this study was carried out by reviewing 25 articles on the topic under study. Sampling was carried out by means of a literature study based on previous research, both descriptive research, experimentation and development which discussed love for the motherland in science lessons. Instruments taken from literature studies based on the year of publication in the last 10 years on Google Scholar and others.

Data analysis was carried out in this study using a synthetic matrix. The synthesis matrix itself is a technique for processing literature study data by interpreting it in the form of diagrams or tables [38]-[39]. Based on this, in this study the researcher made the results of a literature study using a table consisting of column authors and year of publication, sample used, research design, and results. From the explanation above, the research procedure is obtained by determining the method used, determining the instrument, determining the sampling technique and analyzing data for conclusions.

3. RESULTS AND DISCUSSION

The results of a literature study conducted on scientific articles based on the topics studied, namely love of the homeland for science learning with a total of 25 articles. The following are the results of an article review on love of the motherland research in science learning:

Table 1. Results of Article Reviews

No	Author (Year)	Sample	Design	Results
1	Atika, N. T., Wakhuyudin, H., & Fajriyah, K. (2019)	Respondents from this study were fifth grade students at SDN Pandean Lamper 04 Semarang	The type of research used is a qualitative method with a descriptive approach	There are 5 indicators in the character of nationalism or love for the motherland with the highest percentage of 96%. It can be concluded that the character of loving the motherland shown by fifth grade students at SDN Pandean Lamper 04 Semarang has experienced an increase. This can be seen from the development of student character which has improved better.
2	Amalia, S., Rofifah, U., & Zuhri, A. F.	Literature Study of various aspects of media	The method used in this study is the literature study	The results obtained from the research of this study are that there are several ways that can be done to show an attitude of

No	Author (Year)	Sample	Design	Results
	(2020).		method by collecting related data from various literature and various media	love for the motherland, such as studying hard, preserving and introducing Indonesian culture to the international world, using and buying domestic products and making Indonesia proud by participating in a number of competitions held international standard.
3	Utami, M. L. B. (2018)	Students at SMPN 2 Blitar	The research design is based on observations by teachers	Classroom cleaning competition activities and decorating them with the theme of Indonesian customs are closely related to literacy regarding customs in the archipelago. In order to be able to decorate the class according to the characteristics of Indonesian customs, knowledge of the adat is needed. By knowing, knowing and understanding the customs that exist in the archipelago, it is hoped that a sense of love for the culture of the nation will grow. The higher the love for customs, traditions and culture in the archipelago, the more enthusiasm will grow to protect them, preserve them and defend them. Teachers are the spearhead in the world of education to prepare the next generation of the nation, therefore we must continue to grow and increase our students' sense of love for tradition and culture in the archipelago, and can be a good motivator for students to love their homeland and diversity.
4	Ulifah, D., & Suwanda, I. M. (2020)	The research location is at SMPN 1 Tarik, Sidoarjo Regency	The research method uses a descriptive qualitative approach. Data collection techniques using interviews, observation and documentation. Data analysis techniques used through data reduction, presenting data and drawing conclusions	The results of the study show that the strategies used to instill an attitude of love for the motherland in students are through: (1) teaching and learning activities, in the form of getting used to using Indonesian, singing the national anthem, keeping the class clean and teaching material that supports love for the motherland. (2) school culture, in the form of flag ceremonies, clean Friday, commemoration of national and hero days. (3) extracurricular activities, in the form of scout and angklung extracurricular activities. (4) outdoor learning activities, in the form of learning outside of school.
5	Tety Astuti, Ana Ferawati, Pendidikan Febri Berthalita Pujaningsih (2019)	ClassVII A and VII C SMPN 17 Kota Jambi as a sample	Descriptive research is a form of research aimed at describing existing phenomena, both natural phenomena and man-made phenomena. Education and teaching is a goal-conscious process.	The implementation of love for the motherland character education places more emphasis on love for Indonesian culture teaching to preserve Indonesia by planting trees and disposing of trash in its place. While at school it can teach students to be orderly and disciplined and responsible. SMPN 17 Jambi City students have a disciplined attitude and are responsible for doing and completing assignments.
6	Rahayu, G., Khoiri, A., &	The research subjects for class	Methods of data collection using	The results showed: 1) There was a significant difference in students'

No	Author (Year)	Sample	Design	Results
	Firdaus, F. (2022)	VIII MTs Nurul Chusna in the 2020/2021 academic year were 20 students.	pretest questions, posttest scientific literacy and love of the motherland attitude questionnaire. Analysis technique prerequisite test, t-test and N-Gain test.	scientific literacy before and after using local culture (bundengan) based on the sig t-test (2-tailed) of 0.000 <0.005. 2) There is an increase in scientific literacy skills before and after using local culture (Bundengan) by 57% based on the N-Gain test.
7	Furqan, M. H., Yanti, S., Azis, D., Kamza, M., & Ruslan, R. (2020)	Study of literature	This study used a descriptive research method with data collection techniques from the study of literature.	The results of the research show that the geography subject contributes to fostering a sense of love for the motherland/nationalism both directly (Instructional Effect) and indirectly (Nurturant Effect).
8	Nurhafidhah, N., Yakob, M., & Mauliza, M. (2018)	Class VII Science at MTs Nurul Ulum Peureulak	The method used is descriptive method. This type of research is survey research. Data collection techniques using observation instruments. Research data were analyzed using the percentage formula.	The results showed that the aspects of character values contained in Class VII Science textbooks at MTs Nurul Ulum Peureulak were honest, tolerance, discipline, hard work, creative, democratic, curiosity, respect for achievement, fond of reading, and caring for the environment. Meanwhile, the character values that are not well integrated are the spirit of nationalism and love for the motherland. The textbooks that have been used by science subject teachers do not contain character values directly, but character values are reflected in every observation activity and assignment in the science textbook used.
9	Arnis, (2022)	A. SMPN 5 Tanjab Timur class VII	the process of cultivating character values through learning methods and models carried out by teachers in science subjects	Science learning is a natural learning concept and has a very broad relationship related to human life. Science learning plays a very important role in the process of education and development
10	Fitriya, (2021)	N. SMP Ma'arif Ponorogo	1 Qualitative research. In this case, the type of research used by researchers is a case study with data collection procedures using: interviews, observation and documentation. The data analysis used is interactive data analysis by Miles, Huberman, and Saldana which includes: data condensation, data display and drawing conclusions (verification).	the results of the study found that the supervisor's efforts in the process of cultivating student character values carried out in routine training activities included; monitoring from trainers, providing material/assignments, providing maximum motivation, direction and guidance.
11	Alifa, A. (2019)	SMPN Bangsalsari	1 The method used in this research is a	Planting the character of loving the motherland in forming akhlakul karimah

No	Author (Year)	Sample	Design	Results
		Jember	qualitative research method with a type of descriptive qualitative research with research subjects using purposive sampling and data collection methods by interviews, observation, and documentation. While the data analysis used is data reduction, data presentation, and drawing conclusions. To test the validity of the data, researchers used source and technique triangulation.	students of SMPN 1 Bangsalsari Jember for the 2018/2019 academic year, namely by reciting the national anthem Indonesia Raya and the national anthem, as well as holding postibraka and scout extracurricular activities.
12	Nasution, M. (2023).	Population of 165 respondents	The research method used is quantitative with a descriptive approach, and data analysis used in this research is to use a questionnaire. In this study using descriptive statistical data analysis techniques.	There is a good presentation of the character of love for the motherland in 5 out of 6 classes which are used as the sample population
13	Widiyono, A. (2022)	The research subjects were the teachers and students of SD UT Bumi Kartini in class V.	Data collection techniques through observation, interviews, and literature studies, while data analysis techniques use interactive model analysis.	The results showed that students could practice learning to draw batik motifs through the guidance and direction of the teacher by instilling more values of patience, consistency, tenacity, responsibility, confidence and perseverance. In addition, every stroke of the batik motif image can provide contextual experience for students and is able to provide benefits in respecting national cultural heritage.
14	Rahmawati, Y., Ridwan, A., Faustine, S., Syarah, S., Ibrahim, I., & Mawarni, P. C. (2020).	Research subjects consisted of 26 students of class VII	The research was conducted using qualitative analysis methods by collecting data through observation, reflective journals, student interviews, and scientific literacy tests. The ethnopedagogical model is carried out through five stages of learning, namely self-identification,	The results of the study show that the Ethnopedagogical learning model has an impact on developing students' scientific literacy and students' cultural identity. Science learning with the Ethnopedagogy model provides opportunities for students to develop scientific literacy and learn to understand their cultural identity, foster a sense of love for the motherland, pride and responsibility for preserving their culture.

No	Author (Year)	Sample	Design	Results
			content integration, collaboration, dialogue, and reflection.	
15	Agustini, F. (2020).	The subjects in this study were SDN Pleburan 03 Semarang	data obtained through questionnaires and interviews and then researchers conducted an analysis of the results of the questionnaire and the results of the interviews. The data that has been collected is then tested for its validity through triangulation of sources and techniques.	The findings found that the character value that emerges through the traditional game of tug of war in science learning is cooperation. Through these games students get meaningful learning experiences related to motion and style material
16	Pratama, A. A. P., Zainuddin, M., & Sutansi, S. (2021).	GradeIV elementary school	This development uses the Dick and Carey model	The validation results by material experts, media experts, and users obtained percentages of 100 percent, 83.3 percent and 91.6 percent. The results of student questionnaires on small-scale tests and field tests obtained percentages of 93.3% and 92 percent. Educational Monopoly can foster the character of loving the motherland with a percentage of 90 percent.
17	Mutmainah, A. L. (2020).	The research subjects were textbooks of Natural Sciences, grade VIII odd semester issued by the Ministry of Education and Culture. The results of the research show that science textbooks on biology for class VIII are odd semester	content/content analysis research method with a qualitative approach that describes aspects of character education content in textbooks	The results obtained from the character of loving the homeland is 0.32%. Thus the 2013 Curriculum Science textbook published by the Ministry of Education and Culture can facilitate students in strengthening character education.
18	Asrial, S., Kurniawan, D. A., Ubaidillah, J. S., Damayanty, L., & Luthfiah, Q (2021)	a sample of 42 students	Data analysis using descriptive and inferential statistics. By using the assumption test, namely the normality and linearity tests, as well as testing the hypothesis using the regression test.	The results of the integration of traditional games have a significant effect on the response variable, the social care character and the love of the homeland, with a sig value <0.05 and for each dominant variable in the good category.
19	Sapdi, R. M. (2022)	Study of literature	Data collection techniques in this study used library	The conclusion of this article is that natural science learning with Rahahan Lil Alamin's character is one that integrates

No	Author (Year)	Sample	Design	Results
			research techniques, which were then analyzed using descriptive methods to examine the contents of a document, book, writing, or relevant research results.	the character values of Rahmatan Lilalami into learning natural sciences such as the value of muwathonah (love of the homeland).
20	Aulia, G. R. (2019)	The sample used in this study consisted of 34 respondents	This study uses a quantitative method with multiple variable relationship models. Simple regression analysis is used to measure the outcome of the learning process	Based on the results of the study, it was shown that the attitude of love for the motherland in high school students in the city of Medan showed a very good category of 73.53%, and a good category of 26.47%. The effect of civics education learning outcomes on the attitude of patriotism among high school students in the city of Medan has a significant effect, from the calculation results it is obtained that t count is $19.668 > t$ table which is equal to 2.037.
21	Ramadhani, N., Sembiring, M., & Wibawa, S. (2018)	The subjects in this study were 34 students of class XI	The method in this research is classroom action research (CAR). This research was conducted in 2 cycles where each cycle consisted of 3 meetings	From the results of the study, several things were obtained, namely: in the first cycle, teacher activity was in the good category, while in the second cycle, teacher activity was in the very good category. in the first cycle the student activity was in the good category while in the second cycle the student activity was in the very good category
22	Puspito, F. S. (2019)	ClassXI IPA and history teacher at Mataram Tempursari High School	This study uses a qualitative approach and descriptive research type. Data collection was carried out using the method of observation, interviews and documentation.	The results of the research in this study are as follows: the attitude of nationalism among Mataram Tempursari high school students, namely the attitude of nationalism in terms of love for the motherland, love for Indonesian culture, respect for the services of heroes, tolerance between races and religions and willingness to sacrifice.
23	Gusviani, E. (2016).	Fourthgrade elementary school	This research was conducted qualitatively with descriptive method and purposive sampling technique. The instrument used is in the form of observation of learning activities to analyze the emergence of spiritual and social attitudes using videographs.	The results of calculating the total average emergence of spiritual and social attitudes were obtained by elementary schools using the 2013 Curriculum to get greater results. It is hoped that this research can be used as a basis for further research and as a motivation for teachers to be able to bring out an attitude of love for the motherland, especially in science learning.
24	Laksana, D. N. L. (2016)	The subjects in this study were elementary school teacher candidates.	This study uses a qualitative approach to explain more deeply about the	The research results obtained are as follows. there are misconceptions in various science concepts in elementary schools with the character of love for the

No	Author (Year)	Sample	Design	Results
		The number of subjects who were used as respondents was 64 people, consisting of 44 female teacher candidates and 20 male teachers	types of motherland misconceptions that occur	
25	Syazali, M., & Umar, U. (2022).	Study of literature	Data collection techniques in this study used library research techniques, which were then analyzed using descriptive methods to examine the contents of a document, book, writing, or relevant research results.	The conclusion that we can draw from this study is that the role of love for the motherland in learning science in Indonesia is divided into 3 aspects, namely the pedagogical aspect, as a source of learning and being able to improve and develop various science learning outcomes.

The table above is the result of a review of the character of love for the motherland in science learning from the elementary school level to high school and university. The results of the review of books and articles.

Based on the results in the table above, the character of love for the motherland is a character that shapes students' attitudes to have a sense of nationalism, compassion, and respect for the country where they live [40]-[41]. Love for the motherland itself is a feeling of pride, belonging, a sense of always appreciating, respect and loyalty to one's homeland and being able to preserve the environment and one's country [42]-[44]. Therefore, a sense of love for the motherland is very good to be implemented in science learning, so that it can make students appreciate everything that is done in learning and put forward common interests.

A sense of love for the motherland in science learning must be instilled in children from an early age so that they can become human beings who can respect their nation and country. Where if students can and are able to appreciate then they can cooperate well with fellow friends [45]-[47]. In addition, in group learning students can respect the opinions of other students so they don't impose their own will. This reflects an attitude of love for the motherland where students are more concerned with the public interest than their own interests [48], [21]. Therefore, it is very necessary to instill the character of loving the motherland in science learning in every school.

4. CONCLUSION

Based on the results that have been obtained from the literature study above, it is found that the attitude of loving the motherland in learning science. This is seen based on the level of student nationalism produced which prioritizes general group interests compared to personal interests. This research on the topic of studying love for the motherland in science learning also has not done too many previous studies that have conducted literature studies. Based on this, the researcher recommends that further research be carried out in order to be able to conduct further research on the topic of studying love for the motherland in science learning.

ACKNOWLEDGEMENTS

The researcher would like to thank all stakeholders who have given permission to the researcher to do service and those who helped with this research.

REFERENCES

- [1] Doğan, Y. B., Akar, H., & Üstüner, M, "Examining the measurement invariance of the teachers' sense of self-efficacy scale in terms of gender," *International Journal of Evaluation and Research in Education*, vol. 8, no. 2, pp. 213–220, 2019, <https://doi.org/10.11591/ijere.v8i2.18694>
- [2] Nito, P. J. B., Manto, O. A. D., & Wulandari, D. "Pengaruh Program Mentoring Terhadap Peningkatan Kemampuan Berpikir Kritis Penggunaan Standardized Nursing Language Mahasiswa Keperawatan sebagai Metode Pembelajaran," *Dinamika Kesehatan: Jurnal Kebidanan Dan Keperawatan*, vol. 11, no. 2, pp. 462-472, 2020, DOI: <https://doi.org/10.33859/dksm.v11i2.628>

- [3] Nugroho, N. M. A., Sutejo, S., & Prayogi, A. S. "Pengaruh Pendidikan Kesehatan Audio Visual Android Terhadap Kecemasan Pasien Pre Operasi Spinal Anestesi Di Rsu Pku Muhammadiyah Bantul," *Jurnal Teknologi Kesehatan (Journal Of Health Technology)*, vol. 16, no. 1, pp. 08-15, 2020, DOI: 10.29238/jtk.v16i1.558
- [4] Rochman, C., Nasrudin, D., Muslim, & Hermita, N. "Characteristics of the ability of physics concept in enrichment teaching materials of natural and mineral resources (NMRs) literacy," *Jurnal Pendidikan IPA Indonesia*, vol. 6, no. 2, pp. 252–256, 2017, <https://doi.org/10.15294/jpii.v6i2.9482>
- [5] Hartini, S., Firdausi, S., Misbah, & Sulaeman, N. F. "The development of physics teaching materials based on local wisdom to train Saraba Kawa characters," *Jurnal Pendidikan IPA Indonesia*, vol. 7, no. 2, pp. 130–137, 2018, <https://doi.org/10.15294/jpii.v7i2.14249>
- [6] Laila Puspita. "Pengembangan modul berbasis keterampilan proses sains sebagai bahan ajar dalam pembelajaran biologi Module development based on science process skills as teaching materials in biological learning," *Jurnal Inovasi Pendidikan IPA*, vol. 5, no. 1, pp.79–87, 2019, <http://dx.doi.org/10.21831/jipi.v5i1.22530>
- [7] Prihatini, E. "Pengaruh Metode Pembelajaran dan Minat Belajar Terhadap Hasil Belajar IPA," *Formatif: Jurnal Ilmiah Pendidikan MIPA*, vol. 7, no. 2, pp. 171–179, 2017, <https://doi.org/10.30998/formatif.v7i2.1831>
- [8] Riswanto, H., & Dasmu, D. "Upaya Meningkatkan Hasil Belajar Ilmu Pengetahuan Alam (IPA) dengan Metode Pembelajaran Mind Map," *Formatif: Jurnal Ilmiah Pendidikan MIPA*, vol. 5, no. 2, pp. 246–252, 2015, <https://doi.org/10.30998/formatif.v5i2.330>
- [9] Şemin, F. K. "Competencies of principals in ensuring sustainable education: Teachers' views," *International Journal of Evaluation and Research in Education*, vol. 8, no.2, pp. 201–212, 2019, <https://doi.org/10.11591/ijere.v8i2.18273>
- [10] Nurazizah, S., Sinaga, P., & Jauhari, A. "Profil Kemampuan Kognitif dan Keterampilan Berpikir Kritis Siswa SMA pada Materi Usaha dan Energi," *Jurnal Penelitian & Pengembangan Pendidikan Fisika*, vol.3, no. 2, pp. 197–202, 2017, <https://doi.org/10.21009/1.03211>
- [11] Uckan, N. A. "ITER Physics Design Guidelines," *Fusion Technology*, vol. 19, no. 3, pp. 1493–1498, 1991, <https://doi.org/10.13182/fst19-1493>
- [12] Astalini, A., Maison, M., Kurniawan, D. A., & Yuniyarsih, S. "Students Attitude of Physics Lesson in Senior High School," *Edusains*, vol. 10, no. 1, pp. 160-167, 2018, <https://doi.org/10.15408/es.v10i1.7214>
- [13] Decock, P. B. "Studying Physics: Reading Origen and Philo," *Journal of Early Christian History*, vol. 7, no. 3, pp. 96–115, 2017, <https://doi.org/10.1080/2222582x.2018.1434675>
- [14] Halim, A., Suriana, S., & Mursal, M. "Dampak Problem Based Learning terhadap Pemahaman Konsep Ditinjau dari Gaya Berpikir Siswa pada Mata Pelajaran Fisika" *Jurnal Penelitian & Pengembangan Pendidikan Fisika*, vol. 3, no. 1, pp. 1–10, 2017, <https://doi.org/10.21009/1.03101>
- [15] Wilson, M. T., Seshadri, S., Streeter, L. V., & Scott, J. B. "Teaching physics concepts without much mathematics: ensuring physics is available to students of all backgrounds," *Australasian Journal of Engineering Education*, vol.25, no. 1, pp. 39–54, 2010 <https://doi.org/10.1080/22054952.2020.1776027>
- [16] Hamdani, H., Mursyid, S., Sirait, J., & Etkina, E. "Analisis Hubungan antara Sikap Penyelesaian Soal dan Hasil Belajar Mahasiswa Calon Guru Fisika," *Jurnal Penelitian & Pengembangan Pendidikan Fisika*, vol. 3, no. 2, pp. 151–156, 2017, <https://doi.org/10.21009/1.03205>
- [17] Dou, R., Brewes, E., Potvin, G., Zwolak, J. P., & Hazari, Z. "Understanding the development of interest and self-efficacy in active-learning undergraduate physics courses," *International Journal of Science Education*, vol. 40, no. 13, pp. 587–1605, 2018, <https://doi.org/10.1080/09500693.2018.1488088>
- [18] Van De Heyde, V., & Siebrits, A. "Digital laboratory report writing, assessment and feedback in the 21st century for an extended curriculum programme for physics," *Research in Science and Technological Education*, pp. 1–32, 2020, <https://doi.org/10.1080/02635143.2020.1775571>
- [19] Astuti, T., Ferawati, A., & Pujaningsih, F. B. "Analisis Hubungan Kuesioner Cinta Tanah Air dengan Soal Karakteristik Zat pada Mata Pelajaran IPA Terpadu di SMP N 17 Kota Jambi," *Jurnal Pendidikan Matematika dan Sains*, vol. 7, no. 1, pp.31-35, 2019, <http://dx.doi.org/10.21831/jpms.v7i1.25216>
- [20] Kamid, K., Rohati, R., Hobri, H., Triani, E., Rohana, S., & Pratama, W. A. "Process Skill and Student ' s Interest for Mathematics Learning : Playing a Traditional Games," *Internasional Journal of Instruction*, vol. 15, no. 3, pp. 967–988, 2022, <https://eric.ed.gov/?id=EJ1355286>
- [21] Utami, M. L. B. "Pendidikan karakter cinta tanah air dan kebhinekaan melalui lomba kebersihan dan keindahan kelas dengan tema adat nusantara," *Jurnal Pendidikan: Riset dan Konseptual*, vol. 2, no. 4, pp. 462-465, 2018, DOI: https://doi.org/10.28926/riset_konseptual.v2i4.89
- [22] Astalini, A., Darmaji, D., Kurniawan, D. A., & Rohana, S. "Student Perceptions and Responses: Learning Using E-Module Physics-Math II," *JIPF (Jurnal Ilmu Pendidikan Fisika)*, vol. 8, no. 1, pp. 53-63, 2023, DOI: <http://dx.doi.org/10.26737/jipf.v8i1.3274>
- [23] Puspito, F. S. "Peran guru sejarah dalam meningkatkan nasionalisme siswa kelas XI IPA SMA Mataram Tempursari" Doctoral dissertation, Universitas Negeri Malang, 2019.
- [24] Setiawan, B., Innatesari, D. K., Sabtiawan, W. B., & Sudarmin, S. "The development of local wisdom-based natural science module to improve science literation of students," *Jurnal Pendidikan IPA Indonesia*, vol. 6, no. 1, pp. 49–54, 2017, <https://doi.org/10.15294/jpii.v6i1.9595>
- [25] Asrizal, Amran, A., Ananda, A., Festiyed, F., & Sumarmin, R. "The development of integrated science instructional materials to improve students' digital literacy in scientific approach," *Jurnal Pendidikan IPA Indonesia*, vol.7, no.4, pp. 442–450, 2017, <https://doi.org/10.15294/jpii.v7i4.13613>
- [26] Mutakinati, L., Anwari, I., & Yoshisuke, K. "Analysis of students' critical thinking skill of middle school through stem education project-based learning," *Jurnal Pendidikan IPA Indonesia*, vol. 7, no. 1, pp. 54–65, 2018, <https://doi.org/10.15294/jpii.v7i1.10495>

- [27] Pelullo, C. P., & Di Giuseppe, G. "Vaccinations among Italian adolescents: Knowledge, attitude and behavior," *Human Vaccines and Immunotherapeutics*, vol. 14, no. 7, pp. 1566-1572, 2018, <https://doi.org/10.1080/21645515.2017.1421877>
- [28] Darmaji, D., Kurniawan, D. A., & Irdianti, I. "Physics education students' science process skill," *International Journal of Evaluation and Research in Education*, vol. 8, No. 2, pp. 293-298, 2019, <https://doi.org/10.11591/ijere.v8i2.28646>
- [29] Yanti, Y., & Yusliani, E. "Meta-Analisis : Pengaruh Integrasi Pendidikan Lingkungan dalam Pembelajaran IPA Terhadap Sikap Peduli Lingkungan Siswa," *Jurnal Penelitian Dan Pembelajaran Fisika*, vol. 6, no.1, pp. 9-16, 2020, DOI : <https://doi.org/10.24036/jppf.v6i1.108590>
- [30] Susilowati, S. "Pengembangan Bahan Ajar IPA Terintegrasi Nilai Islam untuk Meningkatkan Sikap dan Prestasi Belajar IPA Siswa," *Jurnal Inovasi Pendidikan IPA*, vol. 3, no. 1, pp. 78, 2017, <https://doi.org/10.21831/jipi.v3i1.13677>
- [31] Zaki, M. "Implementasi Program Imtaq dalam Pembentukan Sikap Toleransi Peserta Didik," *JTP - Jurnal Teknologi Pendidikan*, vol. 19, no. 2, pp. 99-113, 2017, <http://journal.unj.ac.id/unj/index.php/jtp/article/view/6099>
- [32] Mason, G. "Higher education, initial vocational education and training and continuing education and training: where should the balance lie?" *Journal of Education and Work*, vol. 33, no. 7, pp. 468-490, 2020, <https://doi.org/10.1080/13639080.2020.1755428>
- [33] Kalaw, M. T. B. "Trend of De La Salle Lipa Education Graduates' Performance in the Licensure Examination for Teachers (LET) from 2011 to 2015," *International Journal of Evaluation and Research in Education (IJERE)*, vol. 6, no. 2, pp.138, 2017, <https://doi.org/10.11591/ijere.v6i2.7592>
- [34] P. Rahmadhani, "Analisis Hubungan Minat Belajar dan Hasil Belajar Materi Hukum Hooke di SMAN 10 Kota Jambi", *Jor. Eva. Edu*, vol. 3, no. 2, pp. 45-48, Apr. 2022, DOI: <https://doi.org/10.37251/jee.v3i2.242>
- [35] L. Nurnawangsih and F. Yolviansyah, "Analisis Minat Belajar Siswa Terhadap Mata Pelajaran fisika Kelas XI MIPA di SMAN 5 Kabupaten Tebo", *Jor. Eva. Edu*, vol. 3, no. 2, pp. 55-59, Apr. 2022, DOI: <https://doi.org/10.37251/jee.v3i2.243>
- [36] M. Syazali and U. Umar, "Peran Kebudayaan Dalam Pembelajaran IPA Di Indonesia: Studi Literatur Etnosains", *educatio*, vol. 8, no. 1, pp. 344-354, Mar. 2022, DOI: <https://doi.org/10.31949/educatio.v8i1.2099>
- [37] Laksana, D. N. L. "Miskonsepsi dalam materi IPA sekolah dasar," *JPI (Jurnal Pendidikan Indonesia)*, vol. 5, no. 2, pp. 166-175, 2016, DOI: <https://doi.org/10.23887/jpi-undiksha.v5i2.8588>
- [38] Amalia, S., Rofifah, U., & Zuhri, A. F. "Menampilkan sikap cinta tanah air pada era 4.0," *Jurnal Ilmiah Edukatif*, vol. 6, no. 1, pp. 68-75, 2020, DOI: <https://doi.org/10.37567/jie.v6i1.109>
- [39] Rohmat Mulyana Sapdi, "Pembelajaran Ipa Berkarakter Rahmatan Lil Alamin Dalam Konteks Paradigma Integrasi Bayani, Burhani, Dan Irfani", *Madrasatuna*, vol. 2, no. 02, pp. 64-77, Oct. 2022, <https://journal.iaima.ac.id/madrasatuna/article/view/22>
- [40] Alifa, A. "Penanaman Karakter Jujur Dan Cinta Tanah Air Dalam Membentuk Akhlakul Karimah Siswa SMPN 1 Bangsalsari Jember Tahun Pelajaran 2018/2019," Doctoral dissertation, Universitas Islam Negeri Kiai Haji Achmad Siddiq Jember, 2019.
- [41] N. T. Atika, H. Wakhuyudin, and K. Fajriyah, "Pelaksanaan Penguatan Pendidikan Karakter Membentuk Karakter Cinta Tanah Air", *Mimb. Ilmu*, vol. 24, no. 1, pp. 105-113, Apr. 2019, DOI: <https://doi.org/10.23887/mi.v24i1.17467>
- [42] Rahayu, G., Khoiri, A., & Firdaus, F. "Integrasi Budaya Lokal (Bundengan) pada Pembelajaran Gelombang dan Bunyi untuk Meningkatkan Sikap Cinta Tanah Air dan Literasi Sains Siswa," *Jurnal Ilmiah Pendidikan Fisika*, vol. 6, no. 1, pp. 117-125, 2022, DOI: <https://doi.org/10.20527/jipf.v6i1.4323>
- [43] A. Astalini, D. Darmaji, D. A. Kurniawan, R. I. Widodo, and S. Rohana, "Junior High School Teacher's Forum Group Discussion Response on Application of Adat Bersendi Syara' Syara' Bersendi Kitabullah in Learning", *Jor. Eva. Edu*, vol. 3, no. 4, pp. 102-107, Oct. 2022, DOI: <https://doi.org/10.37251/jee.v3i4.283>
- [44] A. Arnis, "Penanaman Nilai-Nilai Karakter Melalui Mata Pelajaran Ilmu Pengetahuan Alam Terpadu", *jurpendigu*, vol. 3, no. 3, Aug. 2022, DOI: <https://doi.org/10.47783/jurpendigu.v3i3.383>
- [45] Nursakinah, P. Fadillah, Irma Widya Ningsih, and J. Junaidi, "Analysis of the Character of Hard Work in Thematic Learning in Elementary Schools", *Jor. Eva. Edu*, vol. 3, no. 4, pp. 119-123, Oct. 2022, DOI: <https://doi.org/10.37251/jee.v3i4.287>
- [46] Ernawati, M. D. W., Asrial, A., Perdana, R., Septi, S. E., Rohana, S., & Nawahdani, A. M. "Evaluation of Students' Interest, Attitudes, and Science Process Skills in Science Subjects," *Journal of Education Research and Evaluation*, vol. 6, no. 1, pp. 181-194, 2022, <https://doi.org/10.23887/jere.v6i1.37583>
- [47] F. Agustini, "Integrasi Nilai Karakter Melalui Permainan Tradisional Tarik Tambang dalam Pembelajaran IPA", *j. ilm. skol. Dasar*, vol. 4, no. 2, pp. 114-120, Jul. 2020, DOI: <https://doi.org/10.23887/jisd.v4i2.24513>
- [48] Mutmainah, A. L. "Analisis pendidikan karakter pada buku teks IPA-Biologi tingkat SMP kelas VIII semester ganjil TP 2019/2020," Doctoral dissertation, Uin Sunan Gunung Djati Bandung, 2020.