

PAPER • OPEN ACCESS

The concept of eco-friendly schools: The application of science education in shaping children's characters to the environment

To cite this article: Evi Muafiah *et al* 2021 *J. Phys.: Conf. Ser.* **1796** 012063

View the [article online](#) for updates and enhancements.

You may also like

- [Analysis of health risks using geomedical mapping in landslide prone areas in Ponorogo, East Java](#)
Sisca Mayang Phuspa and Dihin Muriyatmoko
- [Usability Testing for Android Radio Streaming Apps of Songgolangit FM](#)
Nur Aini Shofiya Asy'ari and Dihin Muriyatmoko
- [Risk analysis of landslide disaster in Ponorogo, East Java, Indonesia](#)
S Koesuma, A P Saido and Y Fukuda



ECS 244th Electrochemical Society Meeting

October 8 – 12, 2023 • Gothenburg, Sweden

50 symposia in electrochemistry & solid state science

▶ Deadline Extended!
Last chance to submit!

New deadline:
April 21
submit your abstract!

The concept of eco-friendly schools: The application of science education in shaping children's characters to the environment

Evi Muafiah^{1*}, Anis Afifah¹, Dede Nurohman², Syamsul Huda³, Siswadi⁴

¹Institut Agama Islam Negeri Ponorogo, Indonesia

²Institut Agama Islam Negeri Tulungagung, Indonesia

³Institut Agama Islam Negeri Kediri, Indonesia

⁴Institut Agama Islam Negeri Purwokerto, Indonesia

*Corresponding author: evimuafiah@iainponorogo.ac.id

Abstract. This research was conducted to complement the existing learning by mapping carefully the child-friendly learning model applied at the Pelangi Alam School, Ponorogo, and how schools instill good habits through environmentally friendly exploration activities carried out in each lesson. This study used a qualitative phenomenological method by trying to understand the concept of environmental love by providing science and applying it to the environment. In addition, students also practiced science in understanding how the process of environmental care is through the implementation of the Environmental Green School program Pelangi Alam School, Ponorogo. The data sources of this research were the principal and 2 teachers. Data collection techniques were carried out by observing the reality of school activities, interviews about understanding the concept of Green School Environment as an effort to anticipate radicalism in schools and documentation. Based on the results of the research, the concept of Eco-Friendly Schools can help in developing positive characters. In general, students will follow the behavior that has been taught by the teacher. This continuous behavior will give a new habit which eventually become attached to the formation of the natural character of the students.

Keywords: character education, eco-friendly schools, environmental green schools, sciences education.

1. Introduction

The issue of culture and national character has now become a sharp focus of society. The spotlight is about various aspects of life, contained in various writings in print media, interviews, dialogues and speech degrees in electronic media. Apart from the mass media, community leaders, experts and education observers, and social observers talk about cultural issues and national character in various seminar forums, both at the local, national and international levels. Problems that arise in society such as corruption, violence, sexual crimes, vandalism, mass fights, consumptive economic life, unproductive political life, and so on have become hot topics of discussion in the mass media, seminars, and on various occasions. Various alternative solutions were proposed, such as regulations, laws, increased efforts to implement and enforce stronger laws [1].

This research was conducted to complement the existing studies by carefully mapping the child-friendly learning model applied at the Pelangi Alam School, Ponorogo, and how the school instilled deradicalization through exploration activities carried out in each lesson. This school tries to educate children according to their development with the jargon "educate children according to nature". This



Content from this work may be used under the terms of the [Creative Commons Attribution 3.0 licence](https://creativecommons.org/licenses/by/3.0/). Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.

study can later be used to anticipate and reduce violence in learning in schools which leads to the spread of radicalism among students.

In this study, it is hoped that the friendly concept of teaching and learning programs in schools can reduce hard and overly assertive behavior, sometimes even seeming to exceed the limits carried out by individual teachers on the pretext of implementing discipline. In addition, it can also break the chain of violence that is usually done by seniors to younger siblings and how the facilitator (what teachers call in natural schools) accompanies and supports students in every learning activity. This is also supported by the fact that violence can be transmitted from previous violent treatment that has been experienced.

2. Literature Review

These process skills can develop attitudes and values that include curiosity, honesty, patience, openness, non-superstition, criticality, diligence, tenacity, accuracy, discipline, care for the environment, paying attention to work safety and working with others. Judging from the nature of science as such, science education must be related to objects and problems that exist in the real world. So that science education should bring students to get along with this real world. This association will make students get something that is useful for themselves and others.

The Brain Based Learning approach considers student needs. If students' needs are met, there will be no problems in learning, so there will be no violence in education [2]. Given the importance of science education, a change towards contextual science learning must be realized. John Dewey (1916) from the results of his research on contextual learning concluded; that students will learn well if what is learned is related to what is already known and with activities or events that will occur around them. This learning emphasizes high thinking power, construction of knowledge, collecting and analyzing data, solving certain problems both individually and in groups.

According to the Ministry of Women's Empowerment and Child Protection, child-friendly schools are defined as programs to create safe, clean, healthy, caring, and cultured environmental conditions, which are able to guarantee the fulfillment of children's rights and protection from violence, discrimination and other mistreatment, as long as they are children. is in the education unit, and supports children's participation, especially in planning, policy, learning and supervision [3]. Child-friendly schools are a way to reconstruct education in schools through the fun and child-friendly school movement, namely schools as fun learning parks and ensuring the fulfillment of children's rights in life [4]. The concept of child-friendly schools views children as educational subjects. Child-friendly education is implemented physically in infrastructures and facilities. In non-physical terms, it is providing a sense of security, freedom of expression, channelling talents and interests and emotions of children [5]. The implementation of this program refers to 6 things, namely the existence of a written commitment, a child-friendly learning process, trained educational staff on children's rights, child-friendly infrastructure, child participation, and participation of parents and stakeholders [6-9].

Indicators of child-friendly schools are school policies, programs, facilities, environment, infrastructure, cultivation of noble values, educators, education personnel, safety, children's participation, and community participation [10]. Written commitments on child-friendly school programs include team decree and support programs, written policies on the fulfillment of rights, cooperation agreements with third parties. A child-friendly learning process is carried out in the form of a disciplined learning process without violence. Educators' knowledge about children's rights can be implemented through training activities. Child-friendly facilities are safe, comfortable and harmless. Children's participation, starting from planning activities, implementing and evaluating. Participation of parents and other stakeholders in socialization activities and the learning process [11]. Written commitments on child-friendly schools implemented through school policies include: the existence of clear sanctions in case of violations of children's rights, building cooperation with related institutions, and fostering child-friendly schools. Commitment and supervision are variables other than policies in implementing Child Friendly Schools (SRA). The implementation process is carried out by providing facilities and inclusiveness for children with special needs [12]. Child-friendly school policies are designed and implemented to ensure children's rights are fulfilled. This policy is applied to the learning environment by implementing fun learning and utilizing learning media; The social environment of the school by maintaining a harmonious relationship between teachers and students; Physical environment

by providing adequate infrastructure to facilitate learning. Child-friendly school policies are implemented to create conducive and pleasant school conditions [13].

3. Methods

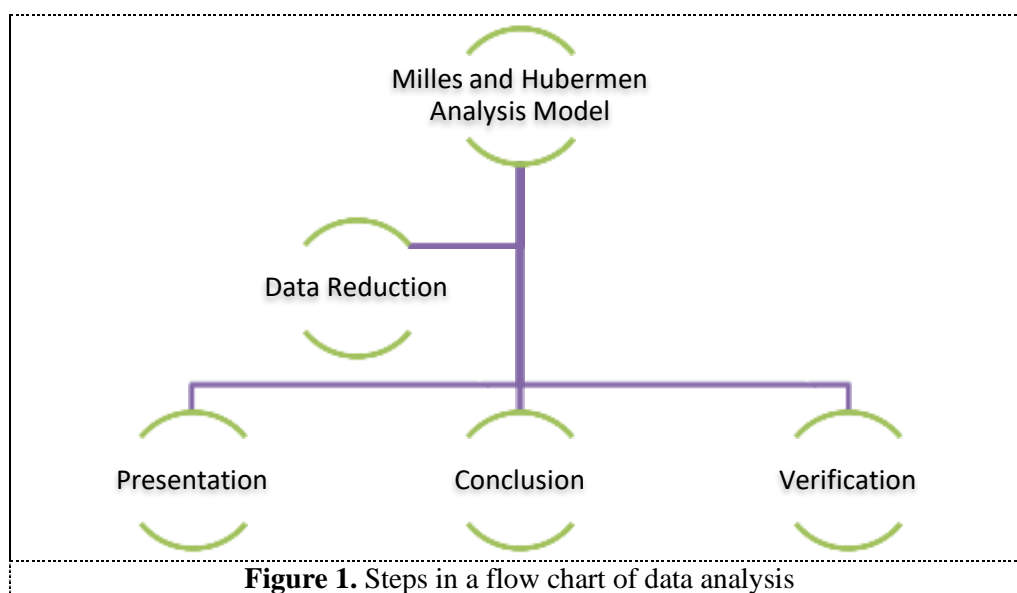
This study used a qualitative phenomenological method by trying to understand the concept or phenomenon of deradicalization in education through the implementation of the Child Friendly School (CFS) program at the Pelangi Alam School of Ponorogo. Pelangi Alam is one of the educational institutions in Ponorogo that implements a nature-based school and realizes the importance of cultivating character starting early by preparing the quality of students through habituation activities, rules, assignments and methods used to improve humanist character.

3.1. Participants

The data sources of this study were the principal, the principal and 2 teachers. The data collection technique is carried out by observing the reality of school activities, interviews about understanding the concept of child-friendly schools as an effort to anticipate radicalism in schools and documentation.

3.2. Data Analysis

The data analysis process was carried out simultaneously with the data collection process in the field. Data analysis used the Milles and Huberman analysis model which includes data reduction, data presentation, and conclusion/verification [14]. Data reduction is done by simplifying the data written in the field that is not in accordance with the SRA concept. The presentation of data is carried out in the form of narrative text in accordance with the subject matter consisting of the implementation of child-friendly education and deradicalization efforts carried out in nature schools. The data analysis ended with drawing conclusions and verification.



4. Result

The concept of child-friendly education is understood by educators at Pelangi Alam School as education that guarantees the protection of children's rights.

4.1. Implementation of Child Friendly Education at Pelangi Alam School

Providing education according to the nature of the child, starting from the teacher's understanding of the child's development, both physically and psychologically. The teacher must be able to read what happens when the child comes to school, for example when the child looks gloomy, the teacher must

first ask and understand what happened to the child. Learning is carried out on children in a state of being ready both physically and psychologically [15].

Child-friendly education is a program to provide educational services according to children's needs based on their development stage. The stage of child development in one class will differ from one child to another, the teacher's majority ability will be used by the teacher as a benchmark in learning, for students who have abilities below or above the average will be included in additional classes [16].

Based on the results of observations, at the beginning of the new school year the teachers screened children's development, which was carried out through IQ tests, tracing children's talents and interests, and discussions with parents regarding the child's development. With this complex knowledge of child development, the teacher will easily determine where, when and what children should learn.

The implementation of the child friendly school program at Pelangi Alam School, Ponorogo, in the realm of policy is with the jargon "Educating Children according to *Fitrah*". This is not merely jargon, but actually implemented in learning activities.

Both opinions suggest that in implementing child-friendly school policies through the jargon of educating children according to their nature, the learning is carried out according to children's needs. In addition, schools also create learning as a miniature of life, both in the natural environment and in the social environment [17].

The feeling of happiness that is present in learning at the Pelangi Alam Ponorogo School is a manifestation of the concept of independent learning.

Table 1. The results of the interview

Source	Information
Mr. Jazuli	<i>"Child Friendly Schools are schools that strive to guarantee and fulfill children's rights in every aspect of life. The main principle is the right to life and respect for children". "Children do activities not by being forced, shouted at, scolded, so that they create a burden and make them stressed about it. The understanding of the child-friendly concept by education becomes the foundation for schools to develop education that is in accordance with the nature of the child"</i>
Mrs. Siti Nuryani	<i>"There are children aged 8 years who still have difficulty in the developmental stages of reading preparation. What I mean by reading preparation does not mean knowing letters, but knowing shapes, colors, sounds and so on. So this child will also be different in learning to read compared to other children"</i>
Mr. Anonim	<i>"In the case of reading, children who have more abilities will be offered to read more than their peers as well as for other things. There are offers and deductions according to the development of each child"</i>
Mrs. Afifah	<i>"Naturally, humans want to be treated with respect, want to be respected for their opinions, given the opportunity to develop according to their abilities, not being compared, not being overly criticized"</i>
Mrs. Siti Nuryani	<i>"To educate according to nature is to have that instinct and conscience that God has given us. So we have to take care of the nature of the child and not destroy it. The nature of children wants to develop according to their growth and development, to be respected, not to be compared, and to be treated well"</i>
Mrs. Afifah	<i>"The freedom to learn in schools that I understand, is that children are free to study with anyone, and can study anywhere, they don't have to be in the room, children are free to explore many things and the teacher's duty to accompany and direct"</i>

4.2. Deradicalization of education at Pelangi Alam Ponorogo School

Deradicalization efforts at the Pelangi Alam Ponorogo School were carried out through religious learning, inculcating the character of *Pancasila* values and taking solutions to conflicts that occurred during the learning process.

Religion is taught correctly and precisely. Religious learning given to children is also given in a friendly manner, by providing an understanding of the importance of carrying out religious teachings without coercion.

Table 2. The results of the interview

Source	Information
Mrs. Afifah	<i>“In terms of religion, teachers are expected to continue to advise children gently, remain firm without violence, and try not to get angry”</i>
Mr. Anonim	<i>“Teaching religion on a child-friendly level, meaning that children are taught to love their God by means of the teacher showing true love to children. Love unconditionally. Loving without having to give the condition that the child must be smart, the child must be kind, the child must obey and so on. But love, period. Love grows when love is given unconditionally”</i>
Mrs. Siti Nuryani	<i>“Teaching religion according to its development with love and compassion. Children are not too forced, but given understanding while being invited to do concrete things about religion. Children are taught with tenderness not by force and coercion. Religion is taught over a long period of time, not a short period of time. So children are taught to love God through their creation. So that children will feel comfortable and happy in studying religion”</i>
Mr. Anonim	<i>“Fighting in children is understood as four things, first as a normal conflict in an association. The two quarrels at school sometimes are an outlet for unsatisfied needs at home, so we have to see what is the basis for the fight to occur, so that we as parents at school do not directly justify wrong or right. Third, there is a difference in the sense of empathy between one child and another so that when an argument occurs, it takes a different amount of time for the child to reconcile, but it still needs continuous assistance and communication, especially to the child who is fighting or disagreeing. Fourth, there is a need for expert team assistance for some cases that cannot be resolved by the teacher, in this case the teacher must communicate it with parents”</i>

Based on these three opinions, in fact accuracy in the delivery of religious teachings, as well as friendly delivery methods, is the key so that religious teachings can be accepted by children with pleasure, and children will practice these teachings happily and without feeling forced [18].

Commitment as part of the Unitary State of the Republic of Indonesia is implemented by practicing the values of *Pancasila* in daily life. Some of the activities carried out at the Ponorogo Pelangi Alam School in instilling *Pancasila* values are as described in the description of the activities in Table 3.

Table 3. Description of the Activities of the Practice of *Pancasila* Values

The values of <i>Pancasila</i>	Activity Description
Religious Tolerance	In practice, there are no direct activities in schools that lead to inter-religious tolerance, because all children at Pelangi Alam School are Muslims. The planting of religious tolerance is limited to strengthening the Islamic foundations of students.

The values of <i>Pancasila</i>	Activity Description
	The practice of tolerance related to the acceptance of differences is carried out by living together, respecting friends and experiencing inclusiveness
Respect Opinions	In learning the teacher often offers students to express opinions, and if the class is not conducive, the teacher asks students to calm down.
Maintaining Sovereignty	Celebration of the Republic of Indonesia's Anniversary, tells of the struggles of heroes
Discussion	During the cooking class activity, the children discussed the group leader, the menu to be made, and the distribution of equipment.
Help each other	<ul style="list-style-type: none"> - Invite children to clean class together - Inviting children to provide assistance when disasters occur such as earthquakes, floods and other disasters in various regions - Carry out the distribution of zakat maal and qurban meat.

Based on Table 3, it can be seen that the planting of *Pancasila* values is done concretely, inherent in students' daily activities. The inculcation of *Pancasila* values is integrated into learning activities and student habituation activities.

From the results of the research, we conclude that fighting in children is a natural thing, because children's emotions are still very unstable. What will be done when the departure occurs is with restitution, namely by inviting children who are fighting to a special place [19]. The effort made here is to ask the child to convey a chronology of the events that caused the fight. Children will be invited to reflect on what causes and consequences of breeding that occur between them, the teacher will not immediately blame the child's actions, but see what motivations are behind the act. The teacher will assist the children in controlling their emotions, so that peace can be realized between them without any sense of revenge to repeat or continue the quarrel on the next day or opportunity [20]. This will provide understanding to children that arguments are a form of natural emotional outpouring and require good communication to resolve them. Based on the results of the research, the concept of friendly schooling can help in developing positive characters (morals and ethics). In general, students will follow the behavior that has been taught by the teacher. This continuous behavior will create new habits, which eventually become attached to the natural character building of students.

4.3 Positive values from the Green School

Green school/*Sekolah Alam* (SA) is a school with a nature-based educational concept. Observing a green school is seeing a school that is unique. Green school environment really feels natural with the school building which is only a house on stilts which is commonly referred to as a hut surrounded by various fruit, vegetable, flower gardens and even farm areas. Not the atmosphere of a multi-storey building and magnificent as a classroom.

From an early age, children are introduced to the real life environment. SA children are freed not to wear uniforms, instead they wear play clothes complete with boots that make them free to explore their environment. Diversity is seen as something unique in SA, and uniformity is not seen from what is worn, but in morals, behavior and attitudes as well as their enthusiasm for learning and curiosity.

From an early age, nature school children are introduced to various activities that are strange to measure children of their age in other schools. They are used to doing business with "market day" activities, where students are taught the business of buying and selling from and for them. There is an "Open House" event which is an annual activity, where each student has a role to host invited guests who attend to see the progress of green school. OTFA (out tracking fun adventure) activities, which are the most favorite outside school activities, but not just for excursions or recreation. These two activities

introduce and bring students closer to the process and not the results. All learning processes that take place in SA are in a fun learning atmosphere. Studying in the open nature will instinctively create that atmosphere, without pressure and far from boredom. By using the concept of fun learning, SA has transformed the school into a miniature of life that is not only natural and real, but also beautiful and comfortable. The learning process turns into a real life activity which is lived with joy. That way there will grow awareness in children that learning is fun and school becomes synonymous with joy.

The learning method used to support this atmosphere is the “spider web” method (Thematic), where a theme is integrated into all subjects. Thus, students’ understanding of learning materials is integrative, comprehensive and applicable, as well as more “down to earth”. The basic abilities that are grown in children in AS are the ability to build a desire, make observations, make hypotheses, and think scientifically. With the “spider web” method, they learn not only by listening to the teacher’s explanation, but also by seeing, touching, feeling and following the whole process of each lesson. Nature School tries to build children’s basic abilities that make them proactive and adaptive to environmental changes. For example, the ability to think logically. A child who is able to think logically is more important than just getting high marks in math. Because that ability gives the power to “digest” the problems of his life. Likewise, outbound training, which trains courage, patience, tenacity, teamwork and leadership. This exercise builds a strong mental structure for them that makes them resistant to the shocks of life.

5. Conclusions

The implementation of child-friendly education in character building for low-grade students has been implemented in schools by carrying out activities that can form leadership, discipline, *qonaah*, piety, responsibility and cooperation. And the teacher provided an example by respecting opinions and motivating students in the learning process. Even though in building the character of students still experienced many obstacles, the research results had a positive impact. Based on the results of observations both verbally and student attitudes, doctrine or character learning from an early age was very influential. Child Friendly School (CFS) are the embodiment of educational institutions that ensure children’s comfort in learning. Adjustment of learning with development will make children learn without feeling overwhelmed. Children will feel comfortable learning something because there is no compulsion to accept the thought process. Educating children according to nature is to provide education according to the basic needs of every human being. In addition, it is an effort for schools to provide protection for children who experience conflict without intimidating other children. If there is an understanding of the basic rights of the child, the child will learn according to his wishes, consciousness, without any coercion. In accordance with its essence, the ideal science learning is a student-centered learning process with an emphasis on providing direct experience to develop competencies in order to explore and understand the natural surroundings scientifically. Science education is directed to inquiry and act so that it can help students to gain a deeper understanding. Experience to find out or do (inquiry skills) includes observing, measuring, classifying, asking questions, classifying, processing and analyzing data, applying ideas to new situations using simple tools and communicating information in various ways, namely by pictures, spoken, written and so on. These process skills can develop attitudes and values that include curiosity, honesty, patience, openness, non-superstition, criticality, diligence, tenacity, meticulousness, discipline, care for the environment, pay attention to work safety and cooperate with others.

References

- [1] Abu Rokhmad 2018 Buku dan Penyebaran Ideologi Radikal di Lembaga Pendidikan, *International Journal Ihya’ Ulum Al-Din*, **20** 1.
- [2] Khamami Zada 2015 Radikalisme dalam Paham Keagamaan Guru dan Mata Pelajaran Fikih di Madrasah Aliyah, *Jurnal PENAMAS*. **28** 1.
- [3] Manab, Abdul 2015 Penelitian Pendidikan Pendekatan Kualitatif, Kalimedia: Yogyakarta
- [4] Mita Fitria, 2018 Potensi Radikalisme dan Terorisme di Pasaman Barat (Studi Analisis Paham Guru dan Materi Ajar di Pondok Pesantren se-Pasaman Barat), *ISTIQRO’*. **16** 1

- [5] Moh. Hasim 2015 Potensi Radikalisme di Sekolah: Studi Terhadap Buku Pendidikan Agama Islam Sekolah Dasar, *Edukasi*, **13** 2.
- [6] Muhammad Thohir, Radikalisme Versus Pendidikan Agama: Menggali Akar Radikalisme Dari Kekerasan Terhadap Anak Atas Nama Pendidikan Agama, *Nadwa: Jurnal Pendidikan Islam*, **9** 2.
- [7] Santi Andriyani 2019 Pengembangan *Reading Supplementary Material* Sebagai Upaya Menangkal Radikalisme, *Lingua Didaktika*. **13** 2.
- [8] Sekar wiji Rahayu, Fajar Sugianto & Vivi Velicya 2020 Penguatan Pemahaman Terhadap Pengaruh Radikalisme Sebagai Upaya Mitigasi Risiko dan Perlindungan Anak, *Jurnal Ilmu Hukum*. **16** 1
- [9] Suaib Tahir, Abd. Malik & Novrika 2020 Buku Panduan Pencegahan Radikalisme di Lingkungan Kerja BUMN dan Perusahaan Swasta, Bogor: BNPT, BUMN & KADIN INDONESIA.
- [10] Subaidi, Tjipto 2006 Penelitian Kualitatif, Surakarta: Muhammadiyah University Press.
- [11] Wahyudi Akmaliah Muhammad dan Khelmy K. Pribadi, Anak Muda, Radikalisme, dan Budaya Populer, *MAARIF*. **8** 1.
- [12] Yudita Susanti 2020 Startegi Membentengi Kalangan Pelajar terhadap Paham Radikalisme dan Intoleransi di SMPN 01 Seberuang Kabupaten Kapuas Hulu, *Jurnal PEKAN*. **5** 1
- [13] Yulia Indahri 2018 Peran Lembaga Pendidikan dalam Upaya Memberantas Terorisme, *Info Singkat: kajian Singkat Terhadap Isu Aktual dan Strategis*. **10** 11.
- [14] Zulfani Sesmiarni 2015 Membendung Radikalisme Dalam Dunia Pendidikan Melalui Pendekatan *Brain Based Learning*, *Kalam, Jurnal Studi Agama dan Pemikiran Islam*, **9** 2.
- [15] Thahir, A, H, Alamsyah, Huda, D., Huda, S., Firmansyah, M., Supena I., Jaafar, A 2020 Integration of Maqasid Al-Shari'ah onthe Islamic Institute(In case: Islamic Institutein Indonesia and Malaysia). *Hamdard Islamicus*, **43** 1 932-943.
- [16] Humaidi, A., Fadhliyah, N., Muawanah, Hanani, N., Amrulloh, M, A., Zahra, D, N., Ya'cub, M 2020 The Process of Establishing Islamic Education at Wali Barokah Islamic Boarding School in Kediri, Indonesia. *Hamdard Islamicus*, **43** 1 907-919.
- [17] Huda, S., Yasin, M., Fitri, A., Syazali, M., Supriadi, N., Umam, R., Jermsttiparsert, K. 2020 Numerical Ability Analysis: The Impact of the Two Stay-Two Stray Learning Model on the Sequence and Series Topic in Islamic Boarding School. *Journal of Physics: Conference Series* **1467** 1 012002
- [18] Munifah., Huda, S., Hamida, U.D., Subandi., Syazali, M., Umam, R. 2019 The use of management strategies to attract the public's interest in pesantren: A new model for pesantren dynamics study. *International Journal of Innovation, Creativity and Change*, **8** 8 363-383.
- [19] Hartinah, S., Suherman, S., Syazali, M., Efendi, H., Junaidi, R., Jermsttiparsert, K., Umam, R. 2019 Probing-prompting based on ethnomathematics learning model: The effect on mathematical communication skills. *Journal for the Education of Gifted Young Scientists*. **7** 4 1-16.
- [20] Sumarni, S., ertiwi, S.T.Y., Rukiyaha., Andika, W.D., Astika, R.T., Abdurrahman., Umam, R. 2019 Behavior in early childhood (2-3) years: A case study on the use of gadgets in social environments. *International Journal of Innovation, Creativity and Change*, **8** 8 384-404.