

Empowering Mahasantri Community in Developing Open Educational Resources on Ecological-based Islamic Education Learning

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Abstract. Currently, society is confronted with highly significant issues. These issues pose significant concerns caused by global climate change and the advent of Society 5.0. The Department of Islamic Education in Islamic higher education may encounter these issues. The department is responsible for producing competent prospective teachers who are capable of adapting to contemporary advancements. Indeed, the findings of the preliminary study indicate that students enrolled in the Department of Islamic Education at IAI Al-Qodiri Jember seemed to be insufficiently prepared to confront these two highly significant challenges. Thus, this community service aimed to empower mahasantri by enabling them to create an open educational resource for Ecological-based Islamic Education learning. The objective was to equip them with the necessary knowledge and skills to address the challenges posed by global climate change and the Society 5.0 era. The community service used the Community-based Research (CBR) method. The findings resulted in some points. First, students in the department exhibited an awareness to confront the challenges they encountered and fostered a desire among students to promote changes through the educational-oriented open educational resources movements. Secondly, students were capable of generating advancements in the form of IT-based Islamic Education learning materials and instructional media. Thirdly, students demonstrated the ability to create diverse products through the process of developing learning media, specifically open educational resources that encompassed materials and other Ecological-based Islamic Education learning activities.

Katakunci:
OER,
Ekologis,
PAI

Abstrak
Ancaman *global climate change* dan tantangan di era *Society 5.0* menjadi masalah yang cukup krusial saat ini. Kedua problematika ini menjadi tantangan tersendiri, terutama bagi Program Studi PAI di perguruan tinggi Islam. Prodi ini memiliki kewajiban untuk menciptakan calon guru yang berkualitas dan siap dapat menghadapi perkembangan zaman. Realitasnya, sebagaimana hasil studi awal, mahasantri pada Program Studi PAI, IAI Al-Qodiri Jember belum siap menghadapi kedua tantangan yang cukup krusial tersebut. Oleh karena itu, tujuan pengabdian ini adalah untuk mengembangkan

komunitas mahasantri dalam pengembangan *open educational resources* pada pembelajaran PAI berbasis Ekologis untuk menghadapi ancaman *global climate change* dan tantangan era *Society 5.0*. Metode pengabdian yang digunakan adalah metode *Community-based Research* (CBR). Adapun hasil pengabdian ini ialah pertama, mahasantri pada program studi PAI memiliki kesadaran untuk siap menghadapi tantangan *global climate change* dan era *Society 5.0*, dan lahir keinginan untuk melakukan perubahan melalui gerakan edukatif berorientasi *Open Educational Resources*. Kedua, mahasantri dapat melakukan inovasi materi pembelajaran PAI dan inovasi media pembelajaran PAI dengan pemanfaatan IT. Ketiga, mahasantri menghasilkan berbagai produk dari hasil dari proses pengembangan media pembelajaran berupa *Open Educational Resources* yang berisi materi-materi dan kegiatan pembelajaran PAI berbasis ekologis lainnya.

1 Introduction

Nowadays, global society has to deal with quite significant issues. The first concern arises from the global climate change. These concerns lead to increased temperatures, flooding, dryness, and diminished productivity (Yadav & Upadhyay, 2023). One of the explanations is attributed to the excessive humanistic control over the environment (Tilman, 2022). The second issue pertains to the difficulties encountered in the Society 5.0 era. In this age, humans are situated and expected to be at the forefront of innovation, harnessing the influence of technology and the outcomes of industry 4.0 through the incorporation of technology to enhance the quality of life, promote social responsibility, and ensure sustainability (Carayannis & Morawska-Jancelewicz, 2022). This era also fosters the integration of artificial intelligence into human life (Alimohammadlou & Khoshsepehr, 2023). However, the current state of humanity has not completely adjusted to the Society 5.0 era. The challenges posed by global climate change present an undertaking task for humans to effectively reduce its adverse effects to preserve human life. Similarly, the Society 5.0 era poses a challenge for people to continuously innovate to ensure their survival.

Intriguingly, the Islamic Education Study Program at Islamic Higher Education seems to be proficient in addressing these two issues. The primary responsibility of the Islamic Education Study Program is to produce highly competent prospective teacher capable of effectively navigating contemporary advancements (Cahyono et al., 2022). In order to confront these challenges, prospective teachers of Islamic Education

must equip themselves with enhanced knowledge and ingenuity in adapting to the rapid advancements in IT and digitalization during the Era of Society 5.0. Additionally, they ought to promote heightened awareness and actively engage in initiatives to address the threats posed by global climate change.

Based on the findings of the preliminary study, it is evident that students from the IAI Al-Qodiri Jember Islamic Education Study Program seem to be insufficiently prepared to confront the escalating concern of global climate change. They have not previously engaged in or organized events on environmental conservation and the ecological movement in response to this imminent danger. Within the Islamic education learning process, there is a subject regarding the relation between humans and the environment. Nevertheless, this subject is limited to text-based information and lacks in-depth analysis and comprehensive exploration of contextual issues, such as recognizing the dangers posed by global climate change.

In addition, as the results of observations and interviews with students of the IAI Al-Qodiri Jember (2023), they are also insufficiently prepared to confront the demands of the Society 5.0 Era. They have not engaged in or organised any specific and practical training activities or workshops to confront the dynamics of the current era. Thus far, their involvement has been limited to engaging in theoretical activities, specifically joining seminars that discuss the challenges faced by Islamic Education in the context of Society 5.0. The lecture itself lasted for around 2 hours, which is insufficient for acquiring complete knowledge of the dynamics that prevailed throughout that era. Engaging in such seminar activities will help nurture students' awareness on the fact that Islamic Education is currently confronting an era characterized by exceedingly swift advancements in information technology. They lack proficiency in participating in the development of Islamic Education learning that is appropriate for the Society 5.0 era, such as the implementation of Open Educational Resources-based learning. In addition, the learning activities have failed to provide instruction and supervision on creating Islamic Education learning materials that are applicable to contemporary trends.

These two issues can be resolved by implementing creative and collaborative interdisciplinary community service activities. This community service can be in the form of empowering students through

assistance in developing ecological-based Open Educational Resources for Islamic Education learning. By engaging in innovative activities such as creating Open Educational Resources and incorporating Islamic Education and Ecological learning material into multidisciplinary studies, students will be qualified to effectively confront the challenges posed by Society 5.0 and global climate change.

2 Methods

The CBR method (Community-Based Research) is used to attain the intended objectives or conditions as this approach can be effectively implemented within Tridharma of Higher Education, including research, education, and community service (Tim Penyusunan CBR UIN Sunan Ampel Surabaya, 2015). The CBR method emphasises problem identification, prevention, prioritizing support, developing systems, promoting social development for those receiving assistance, implementing programs that address their needs, and supporting their development (Chotimah, 2019). Moreover, this method will effectively facilitate the establishment of an assistance program within an ecological-based Open Educational Resources framework in Islamic Education learning. It will help address the challenges posed by the Era of Society 5.0 and the threats arising from global climate change at IAI Al-Qodiri Jember.

The participants in this community service are the fifth-semester students from both the members and non-members of the Students' Association of the Islamic Education Study Program as it possess the necessary resources to actively contribute to the process of empowerment, to create positive results for both students and the Islamic Education study program in developing ecological-based Open Educational Resources in Islamic Education learning to effectively address the challenges posed by the Society 5.0 era and the global climate change issue at IAI Al-Qodiri Jember. The assisting activities were conducted in the lecture hall of IAI Al-Qodiri Jember. The length of the mentoring session is three months, commencing in October and concluding in December of 2023.

The stages in this research refer to the CBR stage, namely laying foundation, research planning, gathering and analysis information, and

follow-up for discovery activities within acting and finding. The following is a description of the flow image:

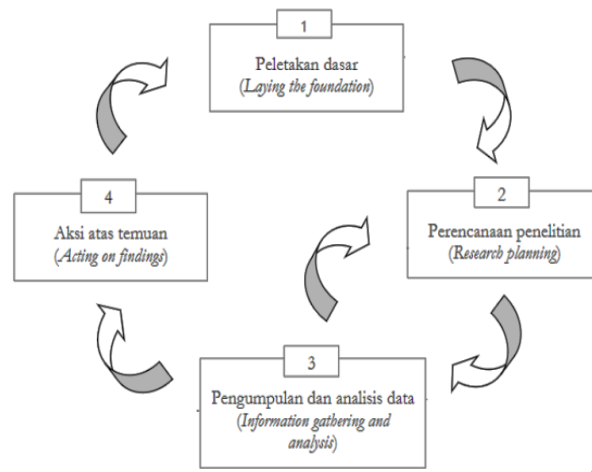


Figure 1. CBR Method Stages

Based on the CBR stages as in Figure 1, this community service/research activity is designed as follows:

- a. Laying Foundation. During this phase, the participation of the chairman and secretary of the Islamic Education study programme, Islamic Education lecturers, a selection of fifth semester students from both the members and non-members of the Students' Association of the Islamic Education Study Programme, as well as environmental activists at the Al-Ma'un Institute, was demanded. The conducted activities encompassed a Focus Group Discussion (FGD) aimed at outlining the scope of mentoring, its significance, the objectives of mentoring and research, identifying the challenges and requirements of the mentoring issue, and establishing the ultimate goal of mentoring. Furthermore, other than engaging in extension and training activities, the assisted subjects also contribute to the development and implementation of fundamental counseling and training principles for other students at the IAI Al-Qodiri Jember Islamic Education Study Program.
- b. Research planning. Through communication with various stakeholders, the preparation of mentoring plans starts from identifying problems, providing pretests before counseling and training, implementing counseling and training, mentoring after counseling and training to evaluating the success of the program through providing posttest to find out the results of the final awareness, knowledge and creativity of

Islamic Education Study Program students regarding the development of ecological-based Open Educational Resources in Islamic Education learning to face the Era of Society 5.0 and threats from global climate change at IAI Al-Qodiri Jember. Apart from that, the success of this community service can be seen in the aspect of creative products produced by students during the development of ecological-based Open Educational Resources.

- c. Data gathering and analysis information, this stage involves collecting, organizing, and analyzing data to conclude the results of the data analysis carried out. This activity involves assisted partners. Some of the methods used are questionnaires, interviews, observation and documentation.
- d. Follow-up of discoveries (acting and finding). Following data analysis, researchers collaborate with partners or support communities in implementing follow-up strategies to ensure that the conducted activities effectively result in positive transformation.

3 Results

The IAI Al-Qodiri Jember *Mahasantri* Community is an affiliate and independent community within the IAI Al-Qodiri Jember. Its primary purpose is to prepare and develop highly qualified Islamic Education prospective teachers. This community serves as a platform for students residing at the Al-Qodiri Islamic Boarding School in Jember. Students in this community are not just from the Islamic Education Study Program, but also from other study programs. However, the target participant for this community service program is the *Mahasantri* community from the IAI Al Qodiri Jember Islamic Education Study Program. Therefore, only those who are enrolled in the Islamic Education Study Program are eligible to participate in these empowerment activities.

The initial phase of the empowering activities commenced with the implementation of the Focus Group Discussion (FGD) as the primary activity. This activity involves the collaboration of assisted partners, lecturers or tutors, and Al-Qodiri Jember student members to identify issues and implement appropriate methods to address them. The problem identification involves assessing the student's proficiency in creating products or developing Open Educational Resources (OER) that contain

Ecological-Based Islamic Education learning materials and activities. It also includes identifying the challenges faced by students in the Islamic Education study program when it comes to develop products or learning media in the form of OER.

The findings from the collaborative analysis of the FGD process resulted in the following conclusions: 1) Students in the Islamic Education study program lack knowledge and proficiency in creating open educational resources-based learning media products that are relevant to the current era of society 5.0; 2) Students in the Islamic Education study program fail to recognize the significance of incorporating ecological-based materials with the Islamic Education subject such as Al-Qur'an, Hadith, *Aqidah*, *Akhlak*, *Fiqih*, and History of Islamic Culture, into the course material to address the threats posed by global climate change; 3) Despite possessing various IT devices, such as laptops and android smartphones, students in the Islamic Education study program lack understanding and expertise with the Information Technology (IT) products and their utilisation; and 4) Students in the Islamic Education study program have not received any training on developing IT-based learning resources.

After assessing the objective conditions of the student population at IAI Al Qodiri Jember, several identified requirements have been determined. These needs include: 1) Islamic boarding school student students need an outreach process regarding the relevance of Islamic Education material in the Era of Society 5.0 and global climate change; 2) Islamic Education study program students need training on creating or developing learning media products in the form of Open Educational Resources which contains Ecological-based Islamic Education learning materials and activities; 3) Islamic Education study program students need assistance in product development or learning media in the form of Open Educational Resources; 4) Islamic Education study program students need assistance to create and formulate Islamic Education materials such as Al-Qur'an, Hadith, *Aqidah*, *Akhlak*, *Fiqih*, and History of Islamic Culture) that are oriented towards ecological materials; and 5) Islamic Education study program students need assistance to incorporate other ecologically oriented Islamic Education learning materials and activities into learning media products in the form of Open Educational Resources..

Following this identification, the empowering team and the student community of the Islamic Education study program decided to hold an

empowerment activity in the form of training, mentoring, and counseling with the following expected goals: 1) raising awareness among Islamic Education study program students about the problems they face and encouraging them to make change; 2) through this participatory-based empowerment, it is expected that Islamic Education study program students can innovate Islamic Education learning materials and innovate Islamic Education learning media using IT; 3) the realization of a product from the process of developing learning media in the form of Open Educational Resources which contains materials and other Ecologically Based Islamic Education learning activities.

Prior to conducting the community service activity, the empowering team conducted an initial evaluation process, also known as a pretest, using questionnaires, interviews, and observations of the IAI Al-Qodiri Jember Islamic Education community that will be empowered. This evaluation was based on the results of the FGD. The assessment employs a Google Form. Based on the findings from the questionnaire, interviews, and observations, the following conclusions can be drawn: 1) The student of the Islamic Education study program at IAI Al-Qodiri Jember lacks awareness of the imminent danger posed by global climate change. Additionally, nearly half of the students lack comprehension of the concept of Society 5.0 and its associated challenges. 2) The student lacks awareness and comprehension of the significance about Islamic Education and ecology, as well as the relevance of Open Educational Resources in the context of Islamic Education. Additionally, they lack knowledge and understanding of the potential hazards posed by global climate change. 3) Most students have not received counseling or attended seminars on global climate change. 4) The student community has not been involved in counseling, seminars, or training on open educational resources and ecological conservation. 5) Their understanding and familiarity with the crisis of global climate change and the challenges of society 5.0, as well as its relevance to Open Educational Resources, Islamic Education, and ecological conservation, are limited. 6) Their ability to creatively utilize IT development products such as Android mobile phones and laptops that they already possess is questionable.

The core of this community service activity is carried out using empowerment treatment. Such treatment is administered through empowering strategies such as counseling, training, and mentoring.

Implementing this empowerment model is a highly successful method for enhancing the productivity and quality of ecologically focused Islamic Education learning. Scientific forums, such as counseling and training, are important tools in the student community of the Islamic Education study program at IAI Al-Qodiri Jember. These forums aim to create a community of students who possess high potential and can contribute to quality learning. This is achieved by utilising learning media developed as Open Educational Resources, which contain materials and activities related to Ecological-based Islamic Education. During these activities, the students of the IAI Al-Qodiri Jember Islamic Education study program can benefit new insight from the presenters. Additionally, they have the opportunity to engage in discussions and practice creating or enhancing learning materials in the form of Open Educational Resources for Ecological-based Islamic Education.

Based on the analysis of these needs, the team made various preparations for implementation stage. This included internal coordination within each committee, such as creating outreach and training materials, compiling attendance lists, selecting speakers, and developing evaluation instruments for activity feedback. Additionally, arrangements were made for activity accommodation. The speakers participating in the event are Dr. Nurul Anam, S.Pd.I, M.Pd., Sayyidah Syaekhotin, M.Pd.I, and M. Ghifari Ilham, A.Md. The presented material covered four main topics: 1) Islamic Education in the Era of Society 5.0, Ecology and Global Climate Change, and the development models of Open Educational Resources in Islamic Education learning; 2) Ecological-based Islamic Education learning materials derived from Al-Qur'an-Hadith, Akidah-Akhlak, Fiqh, and History of Islamic Culture; 3) the creation of learning media products in the form of ecological-based Open Educational Resources in Islamic Education learning; and 4) Evaluation of the quality of the products resulting from the development of ecological-based Open Educational Resources in Islamic Education learning.

The implementation of the strategy, involving counseling, training, and mentoring, is scheduled to start in November 2023 and extend through January 2024, following the completion of necessary preparations. The implementation of the strategy is progressing successfully. Here is the documentations of strategic implementation activities:



Figure 2: Implementation of strategies in the Mahasantri Community at IAI Al-Qodiri Jember

After the strategic implementation has been completed, an ecological-based Open Educational Resources for Islamic Education learning within the subject of Al-Qur'an-Hadith, *Akidah-Akhlak*, *Fiqih*, and History of Islamic Culture are as follows:

a. The results of the first group can be seen at the following web address:

<https://padlet.com/ainunannafisa/ainun-napisa-tqiy5ob0629add9w>

b. The results of the second group can be seen at the following web address:

<https://padlet.com/fuidhashobah/ekologi-akidah-akhlak-y3ten5ve7eiywhyw>

c. The results of the third group are in the following web address:

<https://padlet.com/itayuliindriyani02/ita-yuli-qaeco3p0sm28kmv>

d. The results of the fourth group can be seen at the following web address:

<https://padlet.com/pascasarjanaiaiqjember/ekologi-dan-pai-jk09kw476dye3vny>

The quality of the product is assessed through product evaluation. The assessment of product quality is conducted by two experts, specifically a materials expert and a multimedia expert. The material assessment was conducted by M. Ali Fikri, M.Pd.I, an Islamic Education Lecturer at IAI Al-Qodiri Jember, while the multimedia assessment was conducted by Ilham Akbar Joviansyah Putra, A.Md.T, an alumnus of Jember State Polytechnic.

The results of the assessment clearly indicate that the product has a good quality.

Upon completion of the aforementioned activities, the subsequent task includes the service team conducting a conclusive assessment, or posttest, to assess the students' comprehension and grasp of the materials that have been presented and studied throughout the counseling, training, and mentoring activities, from initiation to conclusion. The assessment was conducted through a questionnaire utilizing Google Forms. The findings indicated that all *mahasantri* possess the ability to comprehend and acknowledge the concept of global climate change and its associated issues. The students demonstrate awareness and understanding of the contemporary societal era and its challenges. They also exhibit comprehension of Open Educational Resources and the interconnection between Islamic Education, ecology, and the relationship between the two. Furthermore, the students are capable of comprehending the correlation between Open Educational Resources, Islamic Education, and ecology. They possess a thorough understanding of Ecological-based Islamic Education material and are able to formulate and develop such material. Additionally, the students are proficient at creating learning media based on Open Educational Resources and are proficient in practicing the development of ecological-based Open Educational Resources in the context of Islamic Education learning.

Starting with the initial evaluation process or pretest, followed by extension, training, and mentoring activities, and concluding with the final evaluation or posttest, it can be inferred that certain outcomes were achieved through the community service. First, The students of IAI Al Qodiri Jember, who attend an Islamic boarding school, demonstrate a strong sense of awareness in confronting the challenges they encounter, which in turn fosters their motivation to initiate transformative actions. This is seen in the cognizance of students in the Islamic Education studies program to confront the challenges posed by educationally focused movements such as Open Educational Resources. During the FGD process and early evaluation (Pre-Activity) or pretest, it becomes apparent that Islamic boarding school students lack awareness about the dangers posed by global climate change and are ill-equipped to tackle the difficulties of the society 5.0 era. Throughout the counseling activity, students from an Islamic boarding school recognized the importance of addressing this issue

through educational programs. One of these activities was the creation of an Open Educational Resources learning product for Islamic Education that is rooted in ecological principles. By employing such strategies, they demonstrate a conscious effort to cultivate the full potential of their knowledge and creativity in addressing these issues, aligning with the academic background of students pursuing a Bachelor's degree in the Islamic Education Study Program.

Second, they have the opportunity to develop innovative learning materials and media for Islamic Education by utilizing information technology. This situation is evident when students in the Islamic Education study program demonstrate their ability to create innovative learning materials in Islamic Education. They are able to develop ecological-based learning materials within subjects such as Al-Qur'an-Hadith, Akidah-Akhlak, Fiqh, or History of Islamic Culture. The purpose of these materials is to address crisis problems caused by global climate change. Additionally, they demonstrate expertise in utilizing information technology to create innovative learning media. Specifically, they can produce learning media products that are focused on Open Educational Resources, which is a characteristic of education in the Era of Society 5.0.

Third, they can develop a wide range of goods through the development of ecologically-based Open Educational Resources for Islamic Education learning materials and activities. Upon completion of the Islamic Education study program, students have the ability to create innovative learning materials and media for Islamic Education using IT. The next step involves integrating the outcomes of material innovation and media innovation into Open Educational Resources, focusing on Islamic Education. Thus, they can develop: 1) Open Educational Resources-based learning products for Ecological-based Al-Qur'an-Hadith learning subject; 2) Open Educational Resources-based learning products for Ecological-based *Akidah Akhlak* learning subject; 3) Open Educational Resources-based learning products for Ecological-based *Fiqih* learning subject; and 4) Open Educational Resources-based learning products for Ecological-based History of Islamic Culture learning subject.

After the completion of the final community service activity and the attainment of results that met the anticipated objectives, the next step involved conducting a meeting with the IAI Al-Qodiri Jember Student Community to develop a plan for follow up activities. The meeting resulted

multiple agreements, outlined as follows: The created products are distributed to the IAI Al-Qodiri Jember Islamic Education Study Program, as well as SMP/MTs and SMA/MA/SMK educational institutions, to be incorporated on their websites and used by the students. The educators can engage in two types of service activities: 1) designing in-class learning activities or activities based on Blended Learning, and 2) focusing on innovation in developing Islamic Education learning materials that address current and critical issues, such as materials based on *dhikr manaqib*, Anti-Bullying, civilizational *Fiqih*, and more. Additionally, they may decide to focus on developing Islamic Education learning media that align with open educational resources, utilizing applications other than padlets, such as extensions in the Moodle application or mobile learning.

4 Discussion

Following an initial assessment of the IAI Al-Qodiri Jember Islamic Education student community, it was discovered that the students of the Islamic Education study program were already familiar with IT products such as laptops and cell phones. However, they have not yet acquired the knowledge and skills to create and utilize open educational resources-based learning materials that are relevant to the current societal context. Moreover, there is a lack of awareness regarding the significance of incorporating ecological-based Islamic Education learning materials. These materials can potentially serve as effective tools in minimizing the risks posed by global climate change. On the contrary, students enrolled in the Islamic Education study program who aspire to become Islamic Education teachers must possess a comprehensive understanding of the subject matter and be able to incorporate information technology into their teaching effectively (Rosmaladewi et al., 2023). In the meantime, students in the Islamic Education study program are encountering the challenges of Society 5.0, which is a focal point for innovation through the utilization of technology and the integration of Industry 4.0 to enhance quality (Carayannis & Morawska-Jancelewicz, 2022). Additionally, they are also confronted with the threats posed by global climate change, which is a consequence of human dominance over the environment (Tilman, 2022). These threats manifest in rising temperatures, floods, droughts, and decreased productivity (Yadav & Upadhyay, 2023).

In order to address these community issues, a solution movement is necessary. One possible solution is to offer treatment through counseling, training, and mentoring. The student community of the IAI Al-Qodiri Jember Islamic Education study program received counseling and training on the topic of "Developing Open Educational Resources in Ecological-based Islamic Education Learning to Address the Challenges of Society 5.0 and Global Climate Change". These counseling, training, and mentoring activities aim to raise students' awareness of the challenges they encounter and foster a desire to create innovative learning materials and media for Islamic Education. Specifically, the main focus is on utilizing advancements in information technology to develop an Open Educational Resource that incorporates materials and activities based on Ecological-based Islamic Education. In addition, counseling, training, and mentoring activities are essential for students in the Islamic Education study program. This is because these students, who aspire to become Islamic Education teachers, can greatly benefit from these opportunities in the current era (Idris, 2022). and plays a crucial and pivotal role in successfully addressing the challenges posed by global climate change (Tsaqib et al., 2020).

The efficacy of this counseling, training, and mentoring can also be seen in studies conducted by Anggraeni and Mukhlis (Anggraeni & Mukhlis, 2023), Nirvana et al. (Nirwana et al., 2021), and Afriza et al. (Afrizal et al., 2023). Counseling, training, and mentoring activities are widely regarded as highly effective methods for enhancing capabilities and quality. Community Service participants have the opportunity to engage in information, ideas, and experience exchange, as well as direct discussions with tutors. Participants can contribute original scientific knowledge towards development of ecological-based Open Educational Resources for Islamic Education, aimed at addressing the challenges posed by Society 5.0 and the risks associated with global climate change. Furthermore, this counseling, training, and mentoring activity can enhance the student community's creative aptitude in Islamic boarding schools, enabling them to produce ecological-based Open Educational Resources for Islamic Education learning.

From the provision of counseling, training, and mentoring activities, the student community of the Islamic Education study program at IAI Al-Qodiri Jember experienced substantial development. It can be seen as follow; First, the students of IAI Al-Qodiri Jember, who attend an Islamic boarding

school, possess a conscious recognition of the challenges they encounter, which in turn fosters their determination to bring about transformations. The awareness of students in the Islamic Education study program to confront the challenges posed by educationally-focused Open Educational Resources movements is evident. At the early stage of the FGD process and initial evaluation (Pre-Activity) or pretest, Islamic boarding school students lack awareness about the dangerous effects of global climate change and are unable to cope with the challenges of the society 5.0 era. The predicament faced by mahasantri corresponds to that of numerous individuals who remain oblivious to the adverse repercussions of the global climate change crisis (Fatkhullah et al., 2022) and are yet to grasp the challenges posed by the society 5.0 era, which stem from advancements in Science and Technology (IPTEK) (Pihar, 2022). In order to increase awareness among these students, the community service team employs an outreach strategy, as it has been demonstrated to effectively raise awareness within the community being served, as exemplified by the efforts of Dewi Nur Hayati, Diah Handayani (Nur Hayati & Handayani, 2021), and Putri Arifatul Jannah (Jannah et al., 2022). Following the outreach activity, students from the Islamic boarding school came to recognize the importance of addressing this issue through IT-focused educational initiatives. One of the initiatives involves the creation of Open Educational Resources for Islamic Education learning that are centered around ecological principles. Through such actions, they demonstrate an understanding of harnessing the full potential of their knowledge and creativity to address these issues, aligning with the educational background of students pursuing a Bachelor's degree in the Islamic Education Study Program.

Second, *mahasantri* of Islamic Education study program at IAI Al-Qodiri Jember have the ability to create innovative learning materials and media for Islamic Education by utilizing information technology. This situation can be ascertained when students in the Islamic Education study program exhibit the ability to create innovative ecological-based learning materials for Islamic Education. These materials can cover subjects such as Al-Qur'an-Hadith, *Akidah-Akhlak*, *Fiqih*, or the History of Islamic Culture, which aims to mitigate the crisis issues arising from global climate change. The innovation implemented by mahasantri aligns with Saenah's explanation (Saenah, 2022), which asserts that amid contemporary

advancements, Islamic Education learning must continuously adapt and evolve to address various global challenges effectively. One of the global issues is ecological problems manifested as threats arising from global climate change. This issue poses a significant threat that could result in detrimental consequences for global environmental conditions (Gafforov et al., 2023). The development of Islamic Education learning plays a crucial role in internalizing and implementing the principles of environmental education due to the strong correlation between environmental education and Islamic Education (Laksono, 2022).

Furthermore, *mahasantri* of the Islamic Education study program have the ability to create innovative learning materials for Islamic Education by utilizing information technology. Specifically, they can develop Open Educational Resources-based learning material, a defining feature of education in the Era of Society 5.0. Open Educational Resources encompass comprehensive components that fulfill the requirements of universality, technological self-sufficiency, and sustainable development. Consequently, OER facilitates the establishment of a learning system that can serve as an integrator of the educational process in the era of Society 5.0 (Давиденко & Давиденко, 2022). By incorporating elements of OER, students can actively participate in the movement to implement OER, which creates opportunities for empowerment and mobilization. This contribution can have a transformative impact by fostering an emerging routine and supporting innovation in education and learning (Rodés Paragarino & Gewerc, 2023).

Third, *mahasantri* of the Islamic Education study program at IAI Al-Qodiri Jember has capability to create a diverse range of products through the development of ecological-based Open Educational Resources in their Islamic Education learning activities. Further, students are able to create innovative learning materials and media for Islamic Education using information technology (IT). After having the ability to produce the learning materials and media, the next step is to integrate the outcomes of the learning material and the learning media innovation, which focused on Open Educational Resources within the Islamic Education framework. Finally, they can develop: 1) Open Educational Resources-based learning products for Ecological-based Al-Qur'an-Hadith learning; 2) Open Educational Resources-based learning products for Ecological-based *Akidah Akhlak* learning; 3) Open Educational Resources-based learning

products for Ecological-based *Fiqih* learning; and 4) Open Educational Resources-based learning products for Ecological-based History of Islamic Culture learning.

Conversely, the achievement of *mahasantri* at IAI Al-Qodiri Jember Islamic Education Study Program in developing ecological-based Open Educational Resources for Islamic Education learning materials will enhance the quality of Islamic Education learning activities. Multiple research findings indicate that the utilization and advancement of Open Educational Resources-based media/products play a significant role in enhancing the educational outcomes of students in the field of Islamic Education. The utilization of Open Educational Resources-based Products in Islamic Education learning is strongly correlated with the improvement of the learning achievement (Attamimi et al., 2023). In addition, implementing such learning product can also enhance student motivation and improve learning outcomes.(Setiawan et al., 2023) Hence, the utilization and advancement of Islamic Education instruction through Open Educational Resources can enhance student's motivation and improve their academic performance and learning outcomes.

5 Conclusion

The empowerment of *mahasantri* at IAI Al-Qodiri Jember fosters the development of awareness, understanding, innovation, and creativity. This leads to several conclusions: 1) *mahasantri* of Islamic Education study program possess an awareness to address the challenges they encounter and foster a desire among students to instigate transformations through educationally-focused movements utilizing Open Educational Resources; 2) *mahasantri* of Islamic Education study program have the ability to create intriguing learning materials and innovative media for Islamic Education by utilizing information technolog; and 3) *mahasantri* of Islamic Education study program are able to create diverse products through the process of developing learning media in the form of Open Educational Resources which contains materials and ecological-based Islamic Education learning activities.

6 Acknowledgement

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