Integration of Artificial Intelligence in Character-Based Education: Strengthening Teachers with the Tamansiswa Approach in Indonesian Schools Kota Kinabalu

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Abstract.
Rapid technological advances, especially in Artificial Intelligence (AI), have brought significant changes to the education sector. This community service program aims to improve the effectiveness of learning at the Kota Kinabalu Indonesian School (SIKK) in Malaysia by integrating AI and anticipating its impact by strengthening character through the Tamansiswa educational philosophy. The method used in this program applies Community-Based Learning (CBL), which encourages active participation in identifying and solving educational challenges. The implementation stages include pre-observation, initial observation, problem formulation, preparation, program implementation, and evaluation. This initiative was carried out through academic collaboration between the University of Malaysia Sabah, Sarjanawiyata Tamansiswa University (UST) Yogyakarta in collaboration with the Consulate General of the Republic of Indonesia (KJRI) Kota Kinabalu, and SIKK to deepen substantial discussions and expand the scope of program implementation. The results of the activity show that the integration of AI in education improves the efficiency of learning at SIKK, while maintaining the values embedded in the Ki Hadjar Dewantara Among System. The output of the activity shows a high level of participant participation. The evaluation noted that the majority of participants felt helped in understanding the application of AI and Tamansiswa in education, while SIKK recommended further development so that the benefits of the program could be sustainable.

Keywords: *Artificial Intelligence, Student Camp and Education.*

1. INTRODUCTION

Technological advances in recent years have had a revolutionary impact in various fields, including education. Education is one of the fields that has undergone a major transformation due to the revolution triggered by artificial intelligence (AI). According to Russell dan Norvig (2020) AI is a system that can understand the environment and take action to maximize its chances of success in achieving goals. In research Porayska-Pomsta (2023) It has been shown that AI has great potential in the academic world, including in learning, research, administration, and evaluation. This statement is supported by community service carried out Yulianti et al. (2024) where the application of AI in education can improve the effectiveness of the learning process and academic administration. AI is used to develop an adaptive learning system that can adjust the material to the needs and level of understanding of each student. In addition, AI also plays a role in improving the efficiency of academic administration, such as automation of scheduling, management of student data, and evaluation of lecturer and teaching staff performance (Yulianti et al., 2024). The use of AI not only helps improve the quality of learning, but also has a positive impact in terms of efficiency and accuracy in the overall academic process (Yulianti et al., 2024).

Source: SIKK (2024).
Fig 1. Indonesian School Kota Kinabalu

Despite having many benefits, the application of AI in education also poses challenges, such as infrastructure readiness, data usage ethics, and the need for a balance between technology and humanistic educational values (Puspitasari, 2024). Thus, the world of education needs to adopt AI with an approach that prioritizes moral aspects, local wisdom, and culturally-characterized education as taught in the Tamansiswa philosophy (Ketamansiswaan, 2014). Tamansiswa Education is an education system based on the values of culture, nationality, and humanity (Trisharsiwi et al., 2020). One of the main concepts in Tamansiswa education is the Among System, which emphasizes a non-coercive approach to education, giving learners the freedom to develop in accordance with the nature of their nature and the times (Wahyuningsih, Dewi, & Hafidah, 2019). The Among system is based on the principles of asih, asah, asuh, which means affection, teaching, and nurturing (Yunita, Nawantara, & Ilman, 2023). In practice, educators act as mentors, namely counselors who educate with love without the use of coercion or punishment, so that learners can develop naturally in a supportive environment (Kurniawan et al., 2023). The aim of the Among System is to nurture children to become people of faith and devotion, free in body and mind, of noble character, intelligent and skilled, and physically and spiritually healthy to become independent members of society and responsible for the development of the nation, the country and humanity in general. In practice, after students have studied a subject, they are encouraged to apply it directly to community life. This process is carried out by developing creativity, taste, and initiative as a form of internalizing knowledge in real life (Dan, Sistem, Ki, Dewantara, & Wiraga, 2017).

The role of educators is clarified through three educational mottos formulated by Ki Hajar Dewantara, , namely Ing ngarsa sung tulada, which means that educators must set a good example when in front; Ing madya mangun karsa, which requires educators to arouse enthusiasm and motivation to learn when in the middle; and Tut wuri handayani, which emphasizes that educators must provide encouragement and direction from behind so that learners are able to become independent individuals (Agung S., 2022). These principles show that ideal education is not just the transfer of knowledge, but also character building and individual freedom in learning (Marliani & Djadjuli, 2019). With the development of artificial intelligence (AI) in education, the principles of the Among System can serve as a guideline so that technology is used wisely and does not ignore humanitarian values (Nita, Resty, Sari, & Aldida, 2023). AI can help create a more personalized learning system, enabling learners to study according to their respective potential and needs. However, the role of educators as mentors is still needed to guide, motivate, and set an example for learners, so that a balance between technology including AI and the human touch is maintained.

The Kota Kinabalu Indonesian School in Malaysia faces the challenge of integrating artificial intelligence (AI) into education without compromising the formation of students' character and ethical values. The unguided application of technology risks reducing social interaction, weakening emotional involvement in the learning process, and reducing students' reflective abilities in understanding humanitarian values. Therefore, AI should be utilized not as a substitute for the role of educators, but as a tool that supports character-based and national education.

Ki Hadjar Dewantara's principles, especially the concept of Among which emphasizes love, sharpening, and nurturing, become the main foundation in the application of AI. Compassion in learning must be prioritized, students' creativity needs to be sharpened without full dependence on technology, and the role of teachers remains key in guiding them towards independence. By balancing technological innovation and Taman Siswa values, SIKK can utilize AI to improve academic efficiency while maintaining an education rooted in morality, nationality, and humanitarian values. The implementation of this community service program aims to increase the capacity of educators in utilizing technological developments and strengthening the values of Taman Siswa-based education. This program uses the Community-Based Learning (CBL) method, which emphasizes the active involvement of the community in the learning process and problem solving in accordance with local needs (Rahman, 2019). This method is applied to build collaboration between participants and stakeholders in analyzing, understanding, and developing solutions to educational challenges related to the utilization of AI and educational values. Student welfare (Rahman, 2019). In its implementation, this activity involves various parties, including the Consulate General of the Republic of

Indonesia (KJRI) Kota Kinabalu Sabah, SIKK managers, and educators, in order to create a learning ecosystem that is more participatory, relevant, and sustainable.

II. METHODS

This community service uses the problem-based learning (PBL) approach, which focuses on real conditions to provide more contextual and effective solutions in solving the problems faced by partners. The implementation of this activity is carried out in stages, as shown in Figure 2.

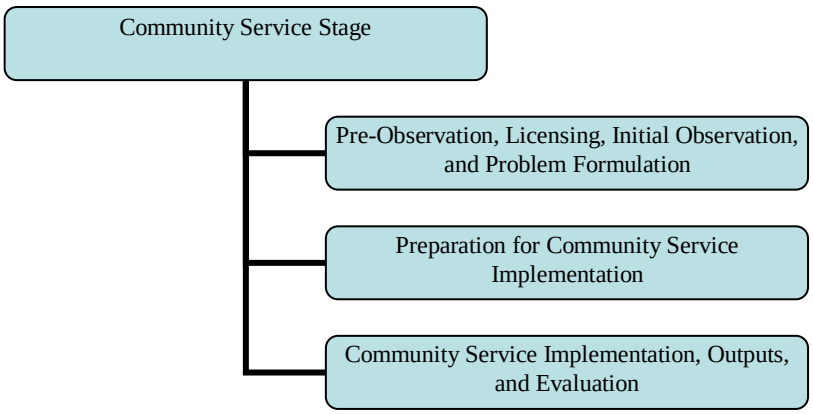
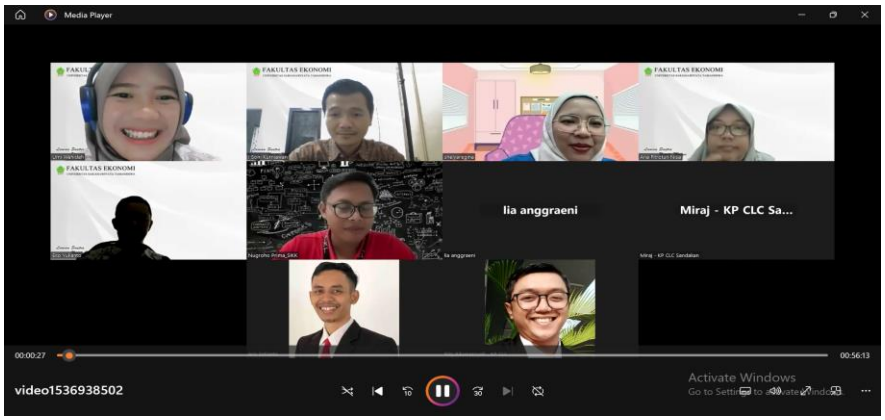


Fig 2. Community Service Stage

2.1 Pre-Observation, Initial Observation, Licensing, and Problem Formulation

The pre-observation stage was carried out by searching for information through online media and through direct interviews with educational partners on site. In addition, evaluations from previous service programs were used as a reference in understanding the partners' conditions, specific needs, and the challenges faced.

The initial observation stage was carried out together with the Indonesian Consulate General in Kota Kinabalu and SIKK, which was followed by a program presentation as part of the licensing submission on May 29, 2024. During this observation stage, the service team, together with the Head of SIKK and several teachers at the Community Learning Center (CLC), held an online discussion. The results of the observation identified several main challenges, such as the imbalance in the number of teachers and students, limited technological infrastructure, and a lack of AI training for teachers. The lack of training in the use of AI hinders innovation in learning methods, which has an impact on low student engagement and the lack of effectiveness of technology-based teaching. This condition also contributes to the low quality of learning and the increasing number of dropouts. Based on these findings, the team formulated a solution by offering webinars as well as AI training in line with Tamansiswa teachings. The program includes AI introduction and training, followed by countering the impact of AI with character building based on Tamansiswa teachings, as well as question and answer sessions.



Source: Documentation of the Community Service Team, 2024.

Fig 3. Online Observation

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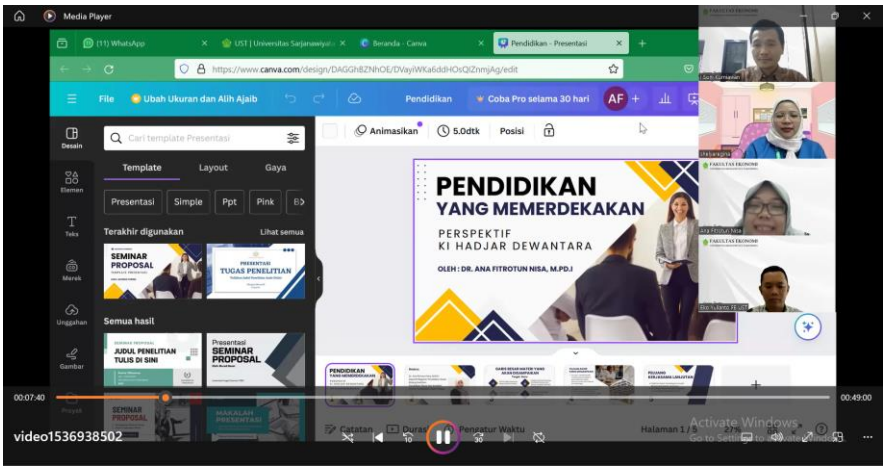


Source: Documentation of the Community Service Team, 2024.

Fig 4. Presentation of the Community Service Team in the Submission of Permits

Preparation for Community Service Implementation

The preparation of the Community Service program includes various important aspects to ensure the smooth running and effectiveness of the activities. The design begins with the preparation of a systematic framework of activities so that the program runs according to the needs of the partners. Training materials and seminars are developed specifically to suit the objectives of the program. On the administrative side, the team prepares official documents, including letters of permission and assignment, which not only legitimize the activities but also form the basis for cooperation with partners.

Publication and coordination of participants are crucial parts of the preparation stage. Posters and promotional materials are made to attract participants' interest, while registration is managed through a structured system to ensure a smooth registration process. A WhatsApp Group (WAG) is formed as an effective means of communication, allowing participants to get the latest information and interact with the committee and speakers.

Technical preparations are made to ensure that activities run optimally. The attendance system is designed to record the attendance of participants accurately, while certificates of participation are prepared as a form of appreciation and documentation of their participation. Technical simulations are carried out so that the committee and speakers understand the flow of activities thoroughly. Door prizes are designed to increase participant engagement, so that they are more motivated to participate actively. Zoom media rental with a capacity of 500 participants was carried out, ensuring maximum participation without technical problems..

2.3 Community Service Implementation, Outputs, and Evaluation

The implementation of community service activities was carried out through academic collaboration between Universiti Malaysia Sabah and Universitas Sarjanawiyata Tamansiswa, involving Suddin Bin Lada, Ignatius Soni Kurniawan, Ana Fitrotun Nisa, and Umi Wahidah as main speakers and Shifa Megarani as moderator. This collaboration aims to optimize knowledge transfer, enrich substantial studies, and expand the scope of program implementation on an ongoing basis. The activity went smoothly and received high enthusiasm from partner participants who actively participated in the discussion and question and answer sessions. The interaction that took place allowed for a more in-depth identification of the partners' specific problems and needs. With a participatory approach, this activity is not only a means of knowledge transfer but also a collaborative platform that encourages innovation in improving the quality of education.

The outcomes of this activity include the achievement of program objectives and publication through online media platforms to expand its reach and impact. To support these outputs, documentation is systematically carried out in the form of written reports detailing all stages of the activity, audiovisual recordings as evidence of implementation, and publications in scientific articles and news (Khasanah et al., 2024). This publication aims to increase accessibility to the findings and recommendations produced, so that the program can be replicated in various similar contexts and become a reference for academics and practitioners in developing more effective implementation strategies.

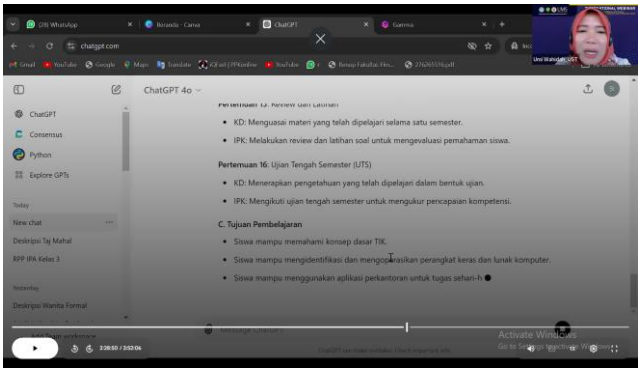
The evaluation of the program can include an analysis of the achievement of objectives, the level of partner participation, as well as feedback from participants collected through surveys, and stakeholder input (Jati, Hubeis, & Suprayitno, 2021). After the activity is completed, an evaluation is carried out to measure the number of participants, their participation, and the benefits of the activity according to the participants. This evaluation serves as a basis for the development of similar programs so that community service can continue to provide optimal and sustainable benefits..

III. RESULT AND DISCUSSION

3.1. Implementation

Service to the international community with the sub-theme "Artificial Intelligence Training and Strengthening Teacher Character with Tamansiswa Values" was held on August 1, 2024, in the form of a webinar as part of an effort to increase the capacity of educators in dealing with the development of artificial intelligence (AI) in the world of education. This activity is a collaboration between the Kota Kinabalu Indonesian School, Sarjanawiyata Tamansiswa University, and Universiti Malaysia Sabah (UMS) which aims to introduce the use of AI in learning while strengthening the character of educators in accordance with the Tamansiswa education philosophy. The activity began with a speech by the Head of SIKK, Sahyuddin, S.Pd., MA TESOL, who emphasized that the use of AI in education must be balanced with strengthening students' character. In this context, it is important for educators not only to master technology but also to ensure that its application remains in line with the values of character-oriented education. This statement underlines the main challenge in the implementation of AI in an academic environment, namely how technology can be utilized without reducing the humanistic aspect in the learning process.

The material presented in the webinar focused on the technical and conceptual aspects of AI utilization and its integration with Tamansiswa values. Ignatius Soni Kurniawan highlighted the efficiency and effectiveness that educators can obtain through the utilization of AI in the world of work. Umi Wahidah provided technical training on the use of AI in the creation of teaching materials, which enables teachers to develop more interactive and efficient learning materials. This training was carried out with a practice-based approach so that participants could directly understand and apply AI technology, especially ChatGPT, in their daily learning activities. This is in line with research Nita et al. (2023) which states that the use of AI, especially ChatGPT, can help teachers in preparing semester plans (RPS) and simplifying the academic administration process. In practice, ChatGPT is used as an example in the preparation of grade 5 RPS, where AI is able to provide recommendations for teaching materials systematically and efficiently. In addition to improving the efficiency of teachers' work, this training also aims to strengthen the digital skills of educators in integrating AI into teaching methods. As stated by Hakeu, Pakaya, Djahuno, Zakarina, dan Tangkudung (2023), Integrating AI into learning can improve the quality of teaching and create a more dynamic and interactive discussion space. With this training, it is hoped that teachers and students will not only be able to utilize AI as a learning tool, but also understand how to use it ethically and responsibly in an educational context.



Source: Documentation of the Community Service Team, 2024.

Fig 5. Introduction and Practice of AI Training

The concept of digital leadership was presented by Suddin Lada as a strategy for educators in utilizing AI without losing their primary role in guiding learners. Meanwhile, Ana Fitrotun Nisa connects AI with the Tamansiswa educational principles of asah, asih, asuh, niteni, niroke, and nambahi, which emphasize the balance between knowledge, ethical values, and creativity in learning. The application of AI in education must be in line with the teachings of Tamansiswa, which emphasizes the balance between mastery of knowledge and character building. According to Susanto & Jaziroh, (2017) The among system places learners at the center of learning by instilling independence as a fundamental prerequisite in optimizing individual potential. The leadership trilogy in the among system, namely Ing Ngarsa Sung Tuladha, Ing Madya Mangun Karsa, and Tut Wuri Handayani, requires teachers not only to be conveyors of knowledge but also to be role models, mentors, and motivators for learners (Agung S., 2022). In addition, the Tri N (Ngerti, Ngrasa, Nglakoni) teachings emphasize intellectual understanding, emotional experience, and the application of knowledge in everyday life (Susanto & Jaziroh, 2017). In the digital age, AI can be a tool that supports these principles by providing more interactive and adaptive learning access. However, the application of AI must still maintain the essence of education based on culture and local wisdom, as emphasized in the among system. Thus, technology is not only used to improve learning efficiency, but also to strengthen the character, ethics, and social responsibility of learners so that they are able to face the challenges of the digital era without losing their identity and the nation's noble values.

Fig 6. Presentation of Student Activities
Source: Documentation of the Community Service Team, 2024.

3.2. Output and Evaluation

The output of the activity showed high participant participation, with 350 registrants from various backgrounds, including SIKK educators, students, and representatives from various agencies. The enthusiasm of the participants was evident from the many questions asked in the discussion session, which ultimately extended the duration of the webinar to accommodate the needs of the participants. One interesting question came from a participant who questioned how AI such as ChatGPT can be referred to a more valid source of reference for academic purposes. The input collected also showed the usefulness of the activity in implementing the development of national character and proposed follow-up activities.

As part of the dissemination of the results of the activities, the publication includes a press release on the official website of the Indonesian National Foresight and Strategic Policy Institute (SIKK) and the Faculty of Economics website of Sarjanawiyata Tamansiswa University. The selection of online media aims to ensure that the results of the activities are accessible to a wider range of stakeholders, both in academic circles and the general public.

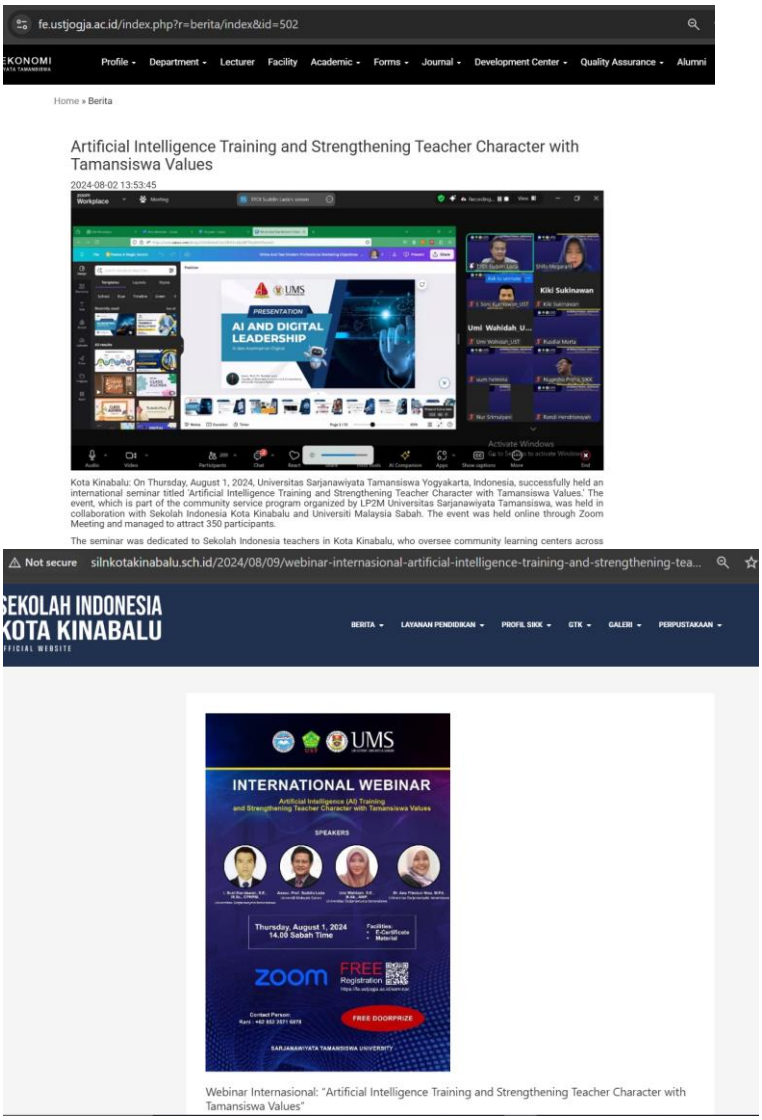


Fig 7. Publication on the SIKK Website and the UST Faculty of Economics

The evaluation of the webinar showed positive results, with the active participation of 350 participants consisting of SIKK teachers, students, and educators from various institutions. The high level of interest shows that the participants were not only limited to educators at SIKK but also from other institutions and even from overseas participants from Timor Leste. The high level of participant involvement was reflected in the number of questions asked during the discussion session, where more than 30 participants actively engaged in dialogue with the speakers, even requesting an extension of the duration because the topics discussed were considered very relevant and applicable. Most participants followed the webinar to the end, indicating that the material presented was in line with their needs.

The results of the survey and feedback collected show that the majority of participants stated that this training helped them understand the application of artificial intelligence (AI) in the world of education, especially in compiling teaching materials more efficiently. A total of 90% of participants considered that the material provided was relevant to current educational challenges, while 85% of participants felt that the practice-based approach greatly helped them in implementing AI in learning. In addition, the strengthening of Tamansiswa values in the context of technology-based education was also appreciated because it provided a new perspective in digital classroom management.

Stakeholders from SIKK and UST said that this program has the potential to become a model for future community service activities, especially in improving educators' understanding of AI in harmony with character education values. The results of this evaluation confirm that this activity not only improves

participants' competence in utilizing AI but also opens up opportunities for further development so that the benefits can be sustainable and reach more educators in the future (Jati et al., 2021).

The final report is prepared as accountability to the Institute for Research and Community Service (LP2M) of Sarjanawiyata Tamansiswa University, covering program planning, implementation, and evaluation. The evaluation measures the achievement of objectives, partner participation, and the benefits of activities through surveys and stakeholder input (Jati, Hubeis, & Suprayitno, 2021). This report serves as official documentation and a reference for the development of similar programs so that the benefits of community service are sustainable. Impact analysis, method effectiveness, and recommendations are also included to ensure the continuity and quality improvement of the program. The final report notes that this activity has made a real contribution to increasing the capacity of educators in the use of AI in academic environments. The recommendations resulting from this report include the need for the development of follow-up sessions with more intensive mentoring, expansion of the scope of participants to reach more educators, and improvement of more applicable materials according to the specific needs of each institution. The documentation compiled will serve as a reference for similar programs in the future, ensuring that the benefits of this community service activity continue and can be applied in a wider variety of educational contexts.

IV. CONCLUSION

The integration of artificial intelligence in education at the Kota Kinabalu Indonesian School has provided significant benefits in improving learning efficiency while maintaining the values of character-based education. This community service program shows that the application of AI in balance with the Tamansiswa educational philosophy can strengthen the role of educators as mentors in guiding students. Through the Community-Based Learning approach, educators not only acquire skills in utilizing AI, but also understand how to use it ethically and responsibly. With the active participation of more than 350 participants, the evaluation results show that this training has succeeded in increasing understanding of AI in the world of education and its relevance to Tamansiswa's values.

Further evaluation indicates that this program has the potential to be developed more widely to reach more educators, both in SIKK and other institutions. The publication of the results of activities on various online platforms ensures that the benefits of this program can be more widely accessed and replicated in various educational contexts. Recommendations from this activity include the need for continued assistance in the implementation of AI and the strengthening of practice-based materials to support more innovative teaching. By combining technological advances and character-based education, this program is a model for implementing AI in learning that not only improves academic effectiveness, but also maintains the values of student welfare as a foundation in the education system.

V. ACKNOWLEDGMENTS

We are grateful to Sarjanawiyata Tamansiswa University (UST) and Universiti Malaysia Sabah for their funding support, as well as the Indonesian Consulate General in Kota Kinabalu and SIKK for their permission and facilitation that made this program possible.

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