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Human-Centered AI Literacy to Support Tolerance and Social Cohesion in a Diverse Community

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ABSTRACT

Background: The growing use of generative AI in everyday learning and communication creates both opportunities and risks, including misinformation, bias, and unethical use, which may intensify social tension in diverse communities. This highlights the need for human-centered AI literacy that promotes not only technical use but also critical thinking, ethical awareness, and respect for differences.
Contribution: This community service program addresses the gap in community-based AI literacy initiatives by integrating responsible generative AI use with tolerance education for socially vulnerable children in a diverse social setting.
Method: A participatory one-day seminar and workshop were conducted on 14 June 2025 at Panti Asuhan Bersinar, East Jakarta. The program combined interactive instruction with guided hands-on practice using ChatGPT as a generative AI learning tool. Evaluation employed pretest-posttest assessment, Likert-scale questionnaires, facilitator observation, practice-based assessment, and short interviews.
Results: The mean score increased from 46 in the pretest to 82 in the posttest, with an average n-gain of 0.7061, indicating high effectiveness. These findings suggest that the program effectively strengthened responsible AI literacy and reinforced ethical awareness relevant to tolerance and social cohesion.
Conclusion: The integrated seminar-workshop model was effective in improving participants' understanding of constructive, critical, and ethical AI use. This approach also shows potential as a replicable community-based strategy for promoting responsible AI literacy and social harmony in diverse settings.

1. Introduction

The rapid development of Artificial Intelligence (AI), particularly generative AI, is increasingly shaping how people access information, generate ideas, and make decisions in everyday life [1]. This shift calls for AI literacy that is not only oriented toward technical skills but also grounded in human-centered principles, so that the use of AI remains aligned with human dignity, human rights, and democratic values. UNESCO emphasizes that protecting human rights and dignity is the foundation of AI ethics, accompanied by principles of transparency, fairness, and the importance of human oversight [2]–[4]. In line with this, the OECD also stresses that trustworthy AI must respect human rights and democratic values [5].

Despite its opportunities, the growing use of generative AI also introduces significant risks for everyday users. AI-generated outputs may appear fluent and convincing while still containing factual errors, misinformation, biased assumptions, or harmful suggestions [6], [7]. For this reason, strengthening AI literacy should not only focus on how to use AI tools, but also on how to evaluate, question, and verify AI-generated information critically and ethically [8]. Recent studies and educational guidance on AI literacy have highlighted the importance of helping users recognize hallucinations, bias, and misinformation, while building habits of careful verification and responsible use [9]. Therefore, human-centered AI literacy requires a balance between functional competence, critical thinking, and ethical awareness.

In Indonesia, the urgency of AI literacy is closely related to the country's pluralistic social context. Indonesia is characterized by diversity in ethnicity, religion, culture, and social background, making tolerance and social harmony essential foundations of everyday life [10], [11]. However, the expansion of digital communication and algorithmically mediated information flows also creates new challenges. Online spaces can intensify polarization, reinforce prejudice, and accelerate the spread of divisive narratives, particularly when users lack critical digital literacy and ethical awareness [12]–[14]. In this context, AI literacy should not be treated merely as a technical skill, but as part of broader character education that encourages respect for differences, empathy, openness, and responsible communication [15], [16]. When used wisely, AI can support learning and constructive interaction; when used carelessly, it may amplify misunderstanding and social tension.

This issue becomes even more important for socially and emotionally vulnerable communities, including children living in orphanage settings. Such communities may benefit from technology for learning and communication, but they also require guidance that emphasizes safety, acceptance, empathy, and moral support. In this setting, the use of generative AI should be introduced carefully so that participants not only understand its practical benefits, but also learn to use it in ways that respect others and avoid harmful or conflict-triggering content. A human-centered approach is therefore necessary to ensure that AI literacy contributes to both digital competence and positive social values.

From a pedagogical perspective, seminars and workshops are relevant formats for this purpose because one-way instruction alone is often insufficient to build practical understanding and responsible usage habits [17], [18]. Interactive approaches that combine

dialogue, examples from daily life, games, and guided practice can improve participant engagement and facilitate the internalization of values [19]–[21]. In the context of AI literacy, hands-on learning is especially important because participants need opportunities to practice formulating appropriate prompts, interpreting AI responses, distinguishing facts from opinions, and verifying information using trusted sources [22], [23]. Such activities help move participants beyond passive exposure to AI and toward reflective and responsible use.

Although the literature has increasingly discussed AI literacy, digital ethics, and tolerance education, these themes are often treated separately. Existing studies tend to focus on technical AI understanding, general ethical principles, or digital literacy in formal educational settings, while community-based initiatives that explicitly integrate responsible generative AI use with tolerance education remain limited. This gap is particularly evident in socially vulnerable contexts such as orphanages, where participants may need not only practical digital skills but also structured support in ethical reflection, respectful communication, and social value formation. Accordingly, there is still limited evidence on how a human-centered AI literacy program can be designed and evaluated as a community-based intervention that simultaneously promotes ethical AI use and social cohesion.

Based on this urgency and research gap, this community service article presents the design, implementation, and evaluation of the "Harmony in Diversity with AI" program conducted on 14 June 2025 at Panti Asuhan Bersinar, East Jakarta. The program integrates tolerance education with human-centered AI literacy through an interactive seminar and guided hands-on practice using generative AI tools, including ChatGPT. The contribution of this study lies in offering an evaluated community-based model that links responsible AI use, critical awareness, and tolerance education in a vulnerable and diverse social setting. In doing so, this article aims to demonstrate that AI literacy can serve not only as a means of improving digital competence, but also as a practical strategy for strengthening social harmony in pluralistic communities.

2. Method

This community service activity applied a participatory education approach through a combination of a seminar and a hands-on workshop. The program was structured into six main stages as shown in Figure 1, namely partner problem and needs identification, activity design, preparation, implementation, evaluation, and report writing.

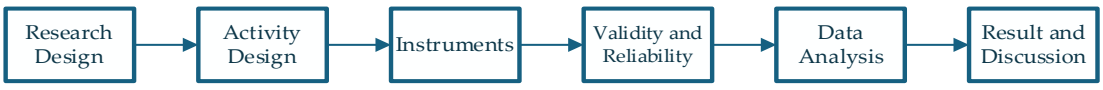

Figure 1. Activity stages

2.1. Research Design

This study employed a mixed-method evaluation design to assess the implementation and outcomes of the community service program "Harmony in Diversity with AI." Quantitatively,

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the study used a one-group pretest-posttest design to examine changes in participants' understanding before and after the intervention. Qualitatively, the study incorporated facilitator observation, practical assessment, and short interviews to enrich the interpretation of the quantitative findings and to capture participant engagement, perceived benefits, and contextual responses to the program. This design was selected because the intervention was intended not only to deliver an educational activity, but also to evaluate its effectiveness in strengthening responsible AI literacy, critical awareness of AI-generated outputs, and ethical understanding related to tolerance and social harmony.

The activity was implemented as a one-day face-to-face educational program combining an interactive seminar and a guided hands-on workshop. The seminar introduced participants to the meaning of tolerance in diversity, empathy, mutual respect, and peaceful coexistence in a pluralistic society. The workshop then introduced generative AI as a learning tool and guided participants in prompt formulation, response evaluation, and information verification. In this way, the study evaluated not only knowledge improvement but also participants' awareness of the ethical and social implications of AI use in everyday life.

2.2. Activity Design

The program was conducted face-to-face on 14 June 2025 at Panti Asuhan Bersinar, Yayasan Bersinar Tunas Bangsa, East Jakarta, Indonesia. The participants consisted of 30 children living in the orphanage who took part in the full sequence of activities, including the seminar, workshop, and evaluation process. The partner was selected because the orphanage represented a socially and emotionally vulnerable community context in which educational support should address not only knowledge development, but also values such as empathy, mutual respect, acceptance of differences, and responsible social interaction. This context was considered relevant for implementing a human-centered AI literacy program integrated with tolerance education.

2.3. Instruments

To evaluate the program comprehensively, data were collected using five instruments: pretest-posttest, material understanding questionnaire, activity satisfaction questionnaire, facilitator observation and practical assessment, and short interviews. The pretest and posttest were used to measure changes in participants' understanding before and after the intervention. The assessment focused on three domains: AI in daily life, critical thinking toward AI outputs, and ethics and social impact of AI use. The pretest was administered before the intervention, while the posttest was administered after the seminar and workshop had been completed.

The material understanding questionnaire consisted of 9 items measured using a 5-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. The instrument covered three dimensions: AI in Daily Life, Critical Thinking toward AI Outputs, and Ethics and Social Impact of AI Use. Representative indicators included understanding that AI can support learning and daily activities, recognizing that AI responses may contain inaccuracies or bias, verifying AI-generated information using trusted sources, and using AI in ways that do not demean others or trigger conflict. The questionnaire items are presented in Table 1.

Table 1. Material understanding questionnaire

Dimension	No	Indicators
AI in Daily Life	1	AI can support learning and everyday activities.
	2	AI use should be matched to the need and still involve human judgment.
	3	AI should be used for positive and productive purposes.
Critical Thinking Toward AI Outputs	4	AI responses can be incorrect.
	5	Generative AI may produce misinformation and biased outputs.
	6	Information from AI should be verified using trusted sources.
Ethics and Social Impact of AI Use	7	AI should not be used to demean others or triggers conflict.
	8	AI can be used to compose polite messages that respect differences.
	9	Wise AI use can support tolerance and social harmony.

The activity satisfaction questionnaire consisted of 15 items, also measured on a 5-point Likert scale, and covered five dimensions: Material Quality, Facilitator Quality, Methods and Activities, Facilities and Atmosphere, and Benefits and Sustainability. Representative indicators included clarity of the material, relevance of examples, opportunities for discussion, facilitator assistance during practice, comfort of the learning environment, adequacy of time allocation, and the perceived importance of continuing similar activities in the future. The Activity Satisfaction Questionnaire is presented in Table 2.

Table 2. Activity satisfaction questionnaire

Dimension	No	Indicators
Material Quality	1	The material met participants' needs.
	2	The tolerance material was easy to understand.
	3	The AI material was useful for daily activities.
Facilitator Quality	4	The facilitator explained clearly and kindly.
	5	The facilitator provided opportunities for questions and discussion.
	6	The facilitator assisted during the workshop practice.
Methods and Activities	7	Games and quizzes increased learning motivation.
	8	The activity flow was engaging and easy to follow.
	9	The allocated time was sufficient and appropriate.
Facilities and Atmosphere	10	Facilities such as the projector and audio supported the activity.
	11	The atmosphere felt warm and enjoyable.
	12	Participants felt respected during the activity.
Benefits and Sustainability	13	The activity provided new knowledge.
	14	The activity improved understanding of wise AI use.
	15	Similar activities should be conducted again.

In addition, facilitator observation and practical assessment were used to document participant activeness, interaction, engagement during discussion, and ability to complete guided workshop tasks. The practical assessment focused on participants' ability to formulate prompts appropriately, interpret AI responses, and identify basic verification steps before

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trusting or sharing information. Finally, short interviews were conducted with the orphanage management and selected participants to capture reflections on program relevance, learning experience, and suggestions for future improvement.

2.4. Validity and Reliability

The two questionnaire-based instruments were tested for validity and reliability before interpretation. Construct validity was assessed using the Pearson product-moment correlation, by examining the relationship between each item score and the total score of the corresponding instrument [24], [25]. Items were considered valid when the calculated correlation coefficient exceeded the critical value used in the study. The Pearson Product–Moment correlation is shown in Eq. (1) [26]:

$$r = \frac{\sum((X-\bar{X})(Y-\bar{Y}))}{\sqrt{\sum(X-\bar{X})^2 \sum(Y-\bar{Y})^2}} \quad (1)$$

where:
r is Pearson correlation coefficient,
X and Y are variables being correlated, and
$\bar{X}$ and $\bar{Y}$ is the means of variables X and Y.

Reliability was assessed using Cronbach's alpha; an alpha value of at least 0.70 is generally considered to indicate good internal consistency, meaning the questionnaire is suitable for analysis [27]. The formula is presented in Eq. (2) [28].

$$\alpha = \left(\frac{k}{k-1}\right)\left(1 - \left(\frac{\sum \sigma^2 i}{\sigma^2 X}\right)\right) \quad (2)$$

where:
α is Cronbach's alpha coefficient,
k is the number of items in the scale,
σ^2i is the variance of each item, and
σ^2X is the variance of the total score.

2.5. Data Analysis

The study used both quantitative and qualitative analysis procedures. Quantitative data from the pretest and posttest were analyzed using descriptive statistics, particularly mean score comparison, to examine changes in par---pants' understanding before and after the intervention. The effectiveness of the learning intervention was further assessed using normalized gain (n-gain) [29]. The n-gain formula is presented in Eq. (3) [30].

$$g = \frac{Post - Pre}{Skor\ Max - Pre} \quad (3)$$

Responses from the material understanding and activity satisfaction questionnaires were analyzed descriptively using percentages and average response tendencies across dimensions. This analysis was intended to identify patterns of participants' perceived understanding, satisfaction with the implementation process, and attitudes toward the educational content

delivered during the program. Instrument validity and reliability testing were conducted using IBM SPSS Statistics 25. Qualitative data from observation, practical assessment, and short interviews were analyzed through thematic summarization. The analysis focused on identifying recurring themes related to participant engagement, enthusiasm, ethical awareness, perceived benefits of the workshop, and recommendations for future activities. These qualitative findings were then used to complement and strengthen the interpretation of the quantitative results, allowing for a more comprehensive evaluation of the intervention in a vulnerable community context.

3. Results and Discussion

3.1. Authors and Affiliations

The community service program "Harmony in Diversity with AI" was conducted on 14 June 2025 at Panti Asuhan Bersinar, Yayasan Bersinar Tunas Bangsa, East Jakarta. The one-day format was selected to ensure implementation effectiveness, accommodate the partner's time constraints, and complete the full sequence of materials, practice, and reflection in a single session in Figure 2.

During the opening and introduction, the session began with setting a comfortable atmosphere and introducing the implementation team, supervising lecturer, and orphanage representatives. This stage aimed to build rapport, create a sense of safety, and reduce psychological distance so participants were more ready to engage actively. This early interaction was particularly important in an orphanage context, where a warm and inclusive environment supports learning and value internalization.

The interactive material session focused on tolerance and harmony in diversity and their relevance in the digital era. Materials were delivered dialogically with everyday examples so tolerance was understood not only as a concept but as a practical approach to respecting differences, managing emotions, and building healthy communication. It was emphasized that AI development must be accompanied by literacy and ethics so technology strengthens social relationships rather than undermining them. Integrating tolerance with the AI context also prepared participants to respond wisely to information, online conversations, and differing perspectives that increasingly emerge in digital spaces.

Next, a hands-on workshop was conducted to train participants in using AI and exploring ChatGPT to support productive daily activities. Figure 3 presents the workshop activities. The workshop focused on practical, easy-to-apply skills, such as formulating clear prompts, providing sufficient context to obtain relevant responses, and evaluating AI outputs before use. The core emphasis was on constructive AI use, including using AI for learning, idea generation, and composing polite messages that respect differences, while avoiding AI-generated content that demean others or triggers conflict. Participants were also introduced to key risks of generative AI, including convincing but incorrect outputs, misinformation, and bias, so verifying information through trusted sources remains essential before relying on or sharing AI-generated results.

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Figure 2. Material presentation

To maintain enthusiasm and engagement, the program was reinforced with ice breakers, educational games, and interactive quizzes. The session concluded with a joint prayer, gift distribution, a shared meal, group photos, and closing remarks as a form of appreciation and relationship building with participants and the partner.

Figure 3. Workshop activities

Participants reported a warm and supportive atmosphere, with particularly high engagement during the games, quizzes, and togetherness activities. The orphanage management expressed appreciation and encouraged regular follow-up programs to support character development and promote responsible technology use. After the official session ended, a group photo was taken as a keepsake to acknowledge the participation of all parties as shown in Figure 4.

Figure 4. Group photo session

3.2. Quantitative Improvement in Participants' Understanding

A pretest was administered before the material delivery and workshop to map initial understanding of AI literacy, including awareness of AI as a support tool, recognition of AI output limitations, and principles of wise use. A posttest was administered after the session to measure changes in understanding following the materials and hands-on practice in Table 3.

Table 3. Pre-Test and Post-Test results

No	Pre	Post	n-Gain	No	Pre	Post	n-Gain
1	40	100	1.00	16	40	60	0.33
2	40	80	0.67	17	60	80	0.50
3	20	60	0.50	18	20	40	0.25
4	40	100	1.00	19	0	60	0.60
5	20	60	0.50	20	20	60	0.50
6	40	60	0.33	21	40	80	0.67
7	60	80	0.50	22	60	100	1.00
8	60	100	1.00	23	40	100	1.00
9	40	80	0.67	24	80	100	1.00
10	20	80	0.75	25	20	80	0.75
11	60	100	1.00	26	80	100	1.00
12	60	80	0.50	27	60	80	0.50
13	80	100	1.00	28	40	80	0.67
14	60	80	0.50	29	60	80	0.50
15	60	100	1.00	30	60	100	1.00
		Average	46		82	0.7061	

The quantitative findings indicate that the intervention contributed positively to participants' understanding of responsible AI use. The mean pretest score was 46, while the mean posttest score increased to 82, showing a substantial improvement after the seminar and hands-on workshop. This result suggests that the intervention was successful in strengthening participants' understanding of AI use in daily life, critical interpretation of AI-generated outputs, and awareness of the ethical and social implications of AI use.

The effectiveness of the intervention was further supported by the normalized gain (n-gain) score of 0.7061, which falls within the high category. This result indicates that the one-day educational intervention was not merely informative, but also sufficiently effective in improving participants' learning outcomes within a relatively short period. The high n-gain

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suggests that the combination of interactive explanation and guided practice enabled participants to move beyond passive exposure to AI concepts toward a more applied and meaningful understanding. In line with the human-centered AI literacy perspective, this improvement should not be interpreted only as increased familiarity with AI tools, but also as stronger critical and ethical awareness regarding how AI-generated information should be interpreted and used responsibly.

The improvement in scores also supports the educational value of participatory learning. Rather than relying solely on one-way explanation, the intervention combined seminar delivery, games, quizzes, and direct guided practice. This participatory format likely contributed to participants' increased understanding because they were actively involved in the learning process, asked questions, responded to examples, and directly practiced prompt formulation and response evaluation. Such findings are consistent with the broader view that educational interventions become more effective when participants are actively engaged in socially meaningful and contextually relevant learning experiences.

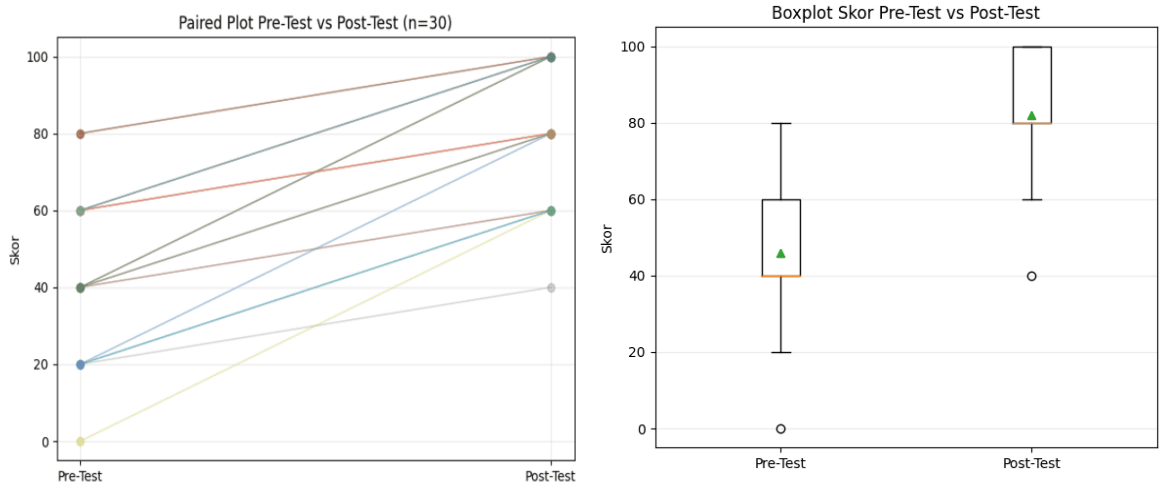

Figure 5. Improvement in participants' Pre-Test to Post-Test scores: (a) Paired Plot (b) Boxplot

Figure 5 reinforces these findings by visualizing the score changes. In the paired plot, nearly all lines rise from pre-test to post-test, confirming improvement at the individual level. The boxplot also shows an upward shift in the score distribution, with the post-test median and mean higher than the pre-test. The wider spread of pre-test scores compared to post-test suggests that participants' understanding became more consolidated after the training, although a small number of lower scores remained as individual variation. Overall, the table provides quantitative evidence of the magnitude of improvement, while the figure highlights the consistent upward pattern and the distribution of changes across participants.

Together, these results indicate that the program not only increased the average score but also improved individual achievement. This supports the contribution of the interactive seminar and hands-on workshop in strengthening participants' understanding, while those with lower gains can be targeted through repeated practice, more intensive mentoring, or simplified practice materials.

3.3. Results of the Material Understanding Questionnaire

Beyond the tests, evaluation was conducted using questionnaires. The material understanding questionnaire used a Likert scale to capture participants' broader perceived understanding, including attitudes and readiness to use AI wisely. The activity satisfaction questionnaire was used to assess implementation quality. Validity testing for both questionnaires was conducted using the Pearson Product Moment method with IBM SPSS Statistics 25. The critical r values were 0.302 for the satisfaction questionnaire and 0.217 for the material understanding questionnaire. Items were considered valid when the calculated correlation exceeded the critical value, resulting in 30 valid items with validity coefficients ranging from 0.512 to 0.751. Reliability was assessed using Cronbach's Alpha, yielding α = 0.938 for the satisfaction questionnaire and α = 0.893 for the material understanding questionnaire, indicating both instruments were reliable.

Table 4. Material understanding questionnaire results

Dimension	No	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
AI in Daily Life	1	0.00%	0.00%	3.33%	30.00%	66.67%
	2	0.00%	0.00%	6.67%	26.67%	66.67%
	3	0.00%	0.00%	6.67%	33.33%	60.00%
	Average	0.00%	0.00%	5.56%	30.00%	64.44%
Critical Thinking toward AI Outputs	4	0.00%	0.00%	10.00%	26.67%	63.33%
	5	0.00%	0.00%	10.00%	20.00%	70.00%
	6	0.00%	0.00%	6.67%	40.00%	53.33%
	Average	0.00%	0.00%	8.89%	28.89%	62.22%
Ethics and Social Impact of AI Use	7	0.00%	0.00%	3.33%	16.67%	80.00%
	8	0.00%	0.00%	0.00%	16.67%	83.33%
	9	0.00%	0.00%	0.00%	6.67%	93.33%
	Average	0.00%	0.00%	1.11%	13.33%	85.56%

Based on Table 4, responses across the three AI-related dimensions indicate very strong understanding, with no "strongly disagree" or "disagree" responses for any item. In the AI in Daily Life dimension, most responses were "agreed" at 30.00% and "strongly agree" at 64.44%, with 5.56% "neutral", suggesting participants understood AI as a daily support tool, the importance of human judgment, and the need to direct AI use toward positive and productive purposes. The Critical Thinking toward AI Outputs dimension also showed a positive pattern, with 62.22% "strongly agree" and 28.89% "agree", yet a higher neutral rate of 8.89%, particularly on items about AI errors and risks of misinformation and bias.

This indicates that further reinforcement is needed on evaluating outputs and verifying sources so critical AI literacy becomes more consistent. The strongest results appeared in the Ethics and Social Impact dimension, with 85.56% "strongly agree" and 13.33% "agree" and only 1.11% "neutral", showing strong awareness of ethical boundaries, including avoiding harmful content and using AI to compose respectful messages that support tolerance. Overall,

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the concentration of responses in "agree" and "strongly agree" confirms that the training strengthened understanding of beneficial, critical, and ethical AI use, while follow-up support is recommended to further develop critical thinking and verification habits.

3.4. Results of the Activity Satisfaction Questionnaire

Based on Table 5, participant satisfaction across the five dimensions was very high because no responses fell into "strongly disagree" or "disagree" for any item. For material quality, responses concentrated on "agree" at 30.00% and "strongly agree" at 66.67%, with only 3.33% neutral, indicating the materials were considered appropriate to needs, understandable, and useful. Facilitator quality was also rated strongly, averaging 71.11% "strongly agree" and 24.44% "agree", while 4.44% were neutral. The strongest point was the discussion opportunity item, where 100.00% selected "strongly agree", showing that facilitation was perceived as highly supportive and interactive. In methods and activities, the average remained dominant in positive categories with 74.44% "strongly agree" and 21.11% "agree", although 4.44% neutral responses appeared, especially on the time adequacy item where 10.00% were neutral. This suggests that while games, quizzes, and the activity flow were engaging, slight refinement in pacing or time allocation could improve consistency for all participants in Table 5.

Table 5. Activity Satisfaction Questionnaire Results

Dimension	No	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Material Quality	1	0.00%	0.00%	3.33%	26.67%	70.00%
	2	0.00%	0.00%	0.00%	33.33%	66.67%
	3	0.00%	0.00%	6.67%	30.00%	63.33%
	Average	0.00%	0.00%	3.33%	30.00%	66.67%
Facilitator Quality	4	0.00%	0.00%	6.67%	33.33%	60.00%
	5	0.00%	0.00%	0.00%	0.00%	100.00%
	6	0.00%	0.00%	6.67%	40.00%	53.33%
	Average	0.00%	0.00%	4.44%	24.44%	71.11%
Methods and Activities	7	0.00%	0.00%	3.33%	20.00%	76.67%
	8	0.00%	0.00%	0.00%	16.67%	83.33%
	9	0.00%	0.00%	10.00%	26.67%	63.33%
	Average	0.00%	0.00%	4.44%	21.11%	74.44%
Facilities and Atmosphere	10	0.00%	0.00%	0.00%	10.00%	90.00%
	11	0.00%	0.00%	6.67%	6.67%	86.67%
	12	0.00%	0.00%	0.00%	6.67%	93.33%
	Average	0.00%	0.00%	2.22%	7.78%	90.00%
Benefits and Sustainability	13	0.00%	0.00%	10.00%	20.00%	70.00%
	14	0.00%	0.00%	6.67%	26.67%	66.67%
	15	0.00%	0.00%	3.33%	16.67%	80.00%
	Average	0.00%	0.00%	6.67%	21.11%	72.22%

Facilities and atmosphere received the highest ratings overall, averaging 90.00% "strongly agree" and 7.78% "agree", with only 2.22% neutral, indicating that equipment, comfort, and the overall learning atmosphere strongly supported participation. Finally, benefits and sustainability also showed strong acceptance with 72.22% "strongly agree" and 21.11% "agree", but the neutral proportion was relatively higher at 6.67%, mainly on the "new knowledge gained" item. This points to the value of adding brief follow-up activities or reinforcement so benefits are felt more evenly and maintained after the program. Overall, the distribution of responses confirms the program was evaluated very positively in terms of content, facilitation, activity design, learning environment, and perceived impact, while time management and post-program follow-up emerge as the main areas for improvement.

The activity satisfaction questionnaire showed that participants responded positively to the implementation of the program. Across the five dimensions; Material Quality, Facilitator Quality, Methods and Activities, Facilities and Atmosphere, and Benefits and Sustainability, the majority of responses were in the positive category. This indicates that the program was not only educationally effective, but also perceived as engaging, supportive, and relevant by the participants.

Positive responses in the Material Quality dimension suggest that the content was perceived as understandable and useful. This is important because the intervention introduced topics that may initially seem complex, such as AI, misinformation, and ethical implications, to participants in a community-based setting. The fact that participants rated the materials positively indicates that the content was delivered in a way that was accessible and appropriate to their level. Similarly, strong responses in the Facilitator Quality dimension indicate that the facilitators were able to communicate clearly, guide participants effectively, and create a learning environment that encouraged participation.

The positive responses in the Methods and Activities and Facilities and Atmosphere dimensions also support the value of an interactive and supportive educational approach. The integration of discussion, games, practice sessions, and reflection activities appears to have contributed to a learning atmosphere that was both enjoyable and meaningful. Moreover, favorable responses in the Benefits and Sustainability dimension suggest that participants perceived the activity as beneficial and worthy of continuation. This finding implies that the intervention may have potential for replication in similar community settings, especially where digital literacy and character education need to be strengthened simultaneously.

3.5. Observation and Practice-Based Findings

Findings from facilitator observation and practical assessment showed that participants were generally active and engaged throughout the intervention. During the seminar session, participants responded to questions, joined the discussion, and took part in educational games and quizzes. During the hands-on workshop, they were able to follow the guided steps in using AI tools, formulate prompts, observe AI-generated responses, and discuss whether the outputs were trustworthy or required verification. These observations suggest that the

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intervention did not only improve declarative understanding, but also supported the development of practical and reflective skills.

The practice-based component was particularly important because it transformed the session from a purely theoretical explanation into an experiential learning process. By directly interacting with AI tools, participants were able to see both the usefulness and the limitations of generative AI. They learned that AI can provide fast and helpful responses, but that those responses are not always correct and should be checked carefully. This practical realization supports the broader educational objective of the program, namely to develop responsible users rather than merely enthusiastic users of technology. From an instructional perspective, these findings reinforce the value of guided practice in improving comprehension and retention, particularly in community-based learning contexts.

3.6. Qualitative Findings from Short Interviews

The short interview findings were generally consistent with the quantitative results and observation data. The interviews suggested three recurring themes: perceived usefulness, ethical awareness, and participant engagement. First, in terms of perceived usefulness, participants and the orphanage management viewed the program as beneficial because it introduced AI in a practical and understandable way. The activity was perceived not only as informative, but also as relevant to everyday learning and communication. This suggests that the intervention succeeded in making AI literacy meaningful within the participants' lived context.

Second, regarding ethical awareness, interview responses indicated that participants increasingly recognized that AI-generated information should not be trusted automatically and that technology should not be used to harm, insult, or mislead others. This theme supports the questionnaire findings, especially in the ethics and social impact dimension, and suggests that the intervention encouraged value-based reflection in addition to technical understanding. Third, in terms of engagement, the interviews and observations both showed that the interactive format of the activity helped sustain participant attention and involvement. The combination of seminar delivery, games, guided practice, and togetherness activities created a positive atmosphere that supported participation. Although the interview data in this study were brief, they still contributed to triangulation by showing that participant experiences aligned with the improvements seen in test scores and questionnaire responses.

Taken together, the findings show that the "Harmony in Diversity with AI" program was effective as a community-based educational intervention. The increase in pretest-posttest scores and the high n-gain value indicate that participants' understanding improved substantially after the intervention. At the same time, positive questionnaire responses, active workshop participation, and supportive interview findings suggest that the program was also meaningful from the participants' perspective. These converging results strengthen the argument that a human-centered AI literacy intervention can be effectively implemented in a vulnerable community setting when it is delivered through participatory and context-sensitive methods.

The findings are particularly important because they support the view that AI literacy should not be framed narrowly as technical familiarity with digital tools. Instead, the results indicate that meaningful AI literacy also includes critical evaluation, ethical reflection, and social responsibility. Participants did not simply learn that AI can help with schoolwork or information seeking; they also developed awareness that AI outputs can be wrong, biased, or socially harmful when used carelessly. This supports the broader conceptual argument presented in the introduction that AI literacy should be integrated with human-centered values, especially in pluralistic and socially sensitive environments.

The results also highlight the educational relevance of participatory learning in community service settings. The combination of explanation, interaction, practice, and reflection appears to have facilitated stronger understanding than a lecture-only model would likely achieve. This is reflected not only in the improved scores but also in the positive patterns observed in participant engagement and satisfaction. Thus, the intervention demonstrates that community-based programs can serve as meaningful spaces for combining digital literacy, ethical reasoning, and tolerance education in a practical and accessible format.

Another important contribution of this program lies in its integration of tolerance education and AI literacy, which are often addressed separately. In many educational and community-based initiatives, AI-related content tends to focus on technical skills or general digital use, while value-based social education is discussed independently. By bringing these two areas together, the present intervention offers a more holistic approach, especially for vulnerable groups who need both practical digital guidance and social-emotional reinforcement. In this sense, the study contributes not only by reporting educational improvement, but also by presenting a community-based model for linking responsible technology use with social harmony.

Despite the positive findings, several limitations should be acknowledged. First, the intervention was conducted in a one-day format, which limits the ability to assess whether the gains in understanding would be retained over time. Second, the study involved only 30 participants from a single orphanage, so the results cannot be generalized broadly to other populations or settings. Third, because part of the evaluation relied on self-reported questionnaires, there is a possibility of social desirability bias, in which participants may have provided favorable responses due to the educational setting or the presence of facilitators. In addition, the study did not include a control group, which limits stronger causal comparison. Finally, the interview data were brief and therefore sufficient mainly for triangulation rather than for deeper qualitative interpretation. Future studies could strengthen the evidence by including a larger sample, longer intervention duration, follow-up assessment, richer qualitative data, and comparative or longitudinal evaluation designs.

4. Conclusion

This study demonstrates that the “Harmony in Diversity with AI” program was effective in improving participants’ understanding of responsible AI use in a socially vulnerable

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community setting. The increase in pretest-posttest scores, supported by the high n-gain value, indicates that the intervention successfully strengthened participants' awareness of AI in daily life, their critical thinking toward AI-generated outputs, and their understanding of the ethical and social impact of AI use. The positive questionnaire results, observation findings, and short interview responses also suggest that the program was meaningful, engaging, and relevant to participants' needs. These findings highlight that AI literacy, when delivered through a human-centered and participatory approach, can serve not only to improve digital competence but also to foster ethical awareness, respectful communication, and social harmony. Thus, the study contributes by offering a community-based educational model that integrates tolerance education with responsible generative AI literacy in a diverse and vulnerable setting.

From a practical perspective, the findings imply that similar interventions can be applied in other community-based educational contexts to strengthen both digital literacy and value-based learning. Programs of this kind may be particularly relevant for groups that require not only access to technology-related knowledge but also support in developing empathy, critical awareness, and responsible communication in the digital era. Nevertheless, future implementation should consider longer duration, more intensive guided practice, and follow-up mentoring to support deeper and more sustainable learning outcomes. Future research is also recommended to involve larger and more diverse participant groups, include longer-term evaluation or retention testing, and use richer qualitative data to better understand how integrated AI literacy and tolerance education may influence attitudes and behavior over time.

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