Empowering the Youth Through Future Skills to Build a Smart Society at Zakat School in Kedah, Malaysia

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ABSTRACT

The rapid development of artificial intelligence (AI) and digital technology presents multidimensional challenges for the younger generation, ranging from digital ethical dilemmas and environmental sustainability crises to a decline in the quality of healthy lifestyles. This International Community Service program aims to enhance the competencies, ecological awareness, and Future Skills readiness of students at Sekolah Zakat Kedah in Malaysia. The program was attended by 40 boarding school students in Senior High School (Grades 10–12) from families classified as "asnaf." The implementation method adopted a "One-Day Experiential Learning Journey" approach within the "Learning to Action" framework, encompassing an AI demonstration session, rotations through multidisciplinary learning stations (Architecture, Computer Science, Civil Engineering, Environmental Engineering, Transportation), sustainability games, a design challenge, and a healthy lifestyle campaign. The program was evaluated comprehensively using qualitative methods, including participatory observation, assessment of Design Challenge projects, and open verbal reflection sessions. The results demonstrated an increase in students' understanding of ethics and the responsible use of AI, a strengthening of waste sorting and energy conservation practices, and the development of multidisciplinary collaboration skills in designing solutions for a smart society. This program has proven effective in equipping students with 21st-century skills while making a tangible contribution toward achieving the Sustainable Development Goals (SDGs 3, 4, 9, 11, and 13).

Index Terms— Artificial Intelligence; Future Skills; International Service; Kedah Zakat School; Smart Society

INTRODUCTION

The pace of development in today's digital age is characterized by the rapid advancement of Artificial Intelligence (AI) and automation, which are fundamentally transforming the landscape of education, social interaction, and the skills required in the workplace [1]. The Society 5.0 paradigm calls for a harmonious integration between cyberspace and the physical world, where technology is no longer viewed merely as a tool for automation but as a cognitive element that facilitates the resolution of complex social problems [1], [2]. However, behind this technological leap lies a critical dilemma for the younger generation on the cusp of transitioning into higher education and the professional world.

Globally, today's youth face an interrelated multidimensional crisis. First, they face a dilemma regarding digital literacy and AI ethics because, although the sophistication of generative AI offers the convenience of accelerated learning, the phenomenon of AI misuse, data privacy issues, and the decline in critical cognitive abilities due to digital dependence pose real threats to students' cognitive and intellectual capacities [1], [3]. On the other hand, there is an environmental sustainability crisis characterized by the threats of climate change, the degradation of local ecosystems, and waste management issues—all of which urgently call for a shift in mindset from mere passive awareness to concrete ecological action [2], [4]. Finally, this situation is exacerbated by a decline in health and well-being, as increased screen time has been shown to correlate directly with reduced physical activity, nutritional imbalances, sleep disturbances, and mental stress among adolescents [5], [6].

These conditions underscore that conventional educational models focused solely on mastering academic content are no longer sufficient (Rampelt et al., 2026). The younger generation requires training in "Future Skills" a comprehensive framework that integrates digital/AI literacy, critical thinking, creative problem-solving, environmental awareness, a holistic healthy lifestyle, and the ability to collaborate across disciplines [1].

Sekolah Zakat Kedah, Malaysia, is a senior high school (Grades 10–12) operating under the auspices of the Kedah State Zakat Agency (LZNK). This school is specifically designed to provide access to quality education for children from asnaf families (zakat beneficiaries) through a boarding school system. This system combines the Malaysian national curriculum, Islamic character development, and the cultivation of vocational skills and self-reliance.

Through a situational analysis and initial coordination with school administrators and faculty mentors, several interrelated strategic challenges facing the partner were identified. First, there is a need for practical AI enrichment because, although students have interacted with digital devices, their use of smart technology remains limited to information consumption and has not yet been directed toward productive idea exploration, privacy ethics, and self-directed learning (Rampelt et al., 2026). Second, there is a need to strengthen an ecological and health-conscious culture within the boarding environment at Sekolah Zakat Kedah, which requires an interactive and engaging educational approach to reinforce habits such as waste sorting, energy conservation, screen time management, and safety awareness [4], [5]. Finally, there are limitations in interdisciplinary and international interactions, which means students need opportunities to engage with international academic networks and multidisciplinary collaborative learning models that can connect scientific theory with real-world applications in society [1].

To address these partner challenges, an international community service implementation team—comprising experts from eight disciplines (Architecture, Computer Science, Civil Engineering, Environmental Engineering, Transportation)—designed the International Community Service program. This program adopts a "**One Day Experiential Learning Journey**" approach, guided by the philosophy "Future Skills Today, Smart Society Tomorrow."

1. Implementation Method

A. Location, time, and objectives of the activity

This International Community Service activity was held on July 19, 2026, at the Kedah Zakat School, located at D 23, Jalan Puyu 3, Taman Wira Mergong, 05150 Alor Setar, Kedah, Malaysia. The school is managed by the Kedah State Zakat Agency (LZNK).

The primary target audience for this outreach activity was 40 high school students (Grades 10–12) who live and study in a boarding school system for zakat beneficiaries (asnaf). In addition to the students, the activity was attended by the principal, supervising teachers, and management representatives from the Kedah Zakat School.



Fig. 1. Zakat School in Kedah, Malaysia, as a partner site for the International Community Service Program

B. Implementation team and community service partners

This activity was carried out by a multidisciplinary team consisting of 7 members (Pandanaran University, Muhammadiyah University of Palangkaraya, Nahdlatul Ulama Institute of Technology and Science of Kalimantan). The team encompasses the academic fields of Architecture, Computer Science, Civil Engineering, Environmental Engineering, and Transportation.

The Kedah Zakat School serves as an international strategic partner, providing facilities (a multipurpose room and rotating learning station areas), coordinating student schedules, and committing to continue integrating Future Skills materials into the school's curricular and extracurricular activities.

C. Approach and Framework

The methods used to conduct the activities adopt an experiential learning, participatory, and student-centered learning approach. This approach is designed to ensure that students do not merely passively absorb theoretical concepts, but rather gain hands-on experience, engage in discussions, conduct experiments, and solve problems collaboratively.

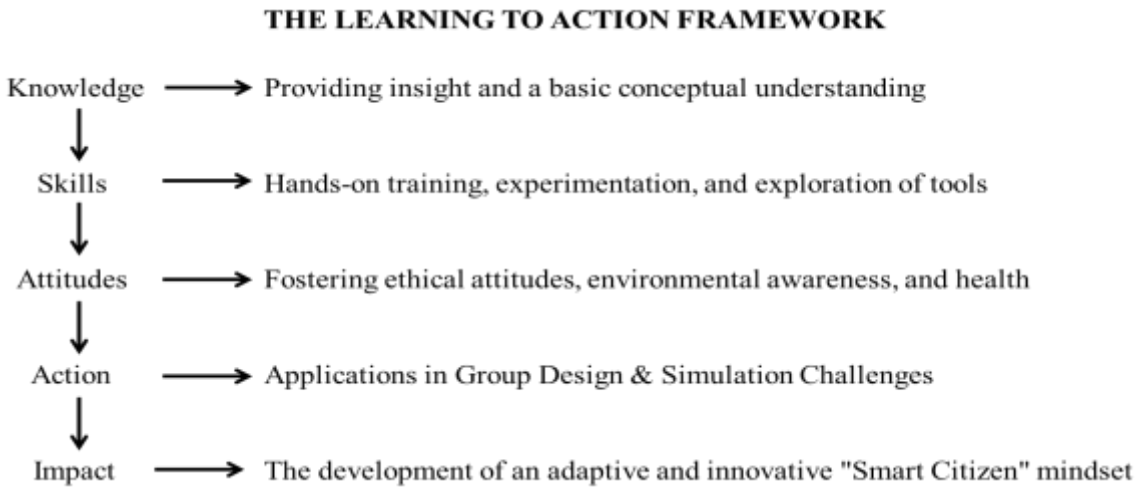

Fig. 2. The operational foundation for these activities is based on the "Learning to Action" framework

D. **Stages of activity implementation**

The community service program was carried out in three main stages:

STAGES OF IMPLEMENTING COMMUNITY SERVICE

1. PREPARATION PHASE
- Inter-university and partner coordination meeting (Kedah Zakat School)
- Development of multidisciplinary interactive modules and learning station guides
- Permit processing and provision of teaching aids and technology

2. IMPLEMENTATION PHASE (One Day Experiential Learning Journey)
- Opening & Icebreaker
- AI Demonstration: Artificial Intelligence for Smart Learning
- Multidisciplinary Learning Stations (Rotation Through 8 Learning Stations)
- Sustainability Games & Simulation
- Design Challenge: Future Smart Society
- Healthy Lifestyle Campaign & Group Presentations

3. EVALUATION & RELAXATION PHASE
- Participatory observation of student engagement
- Open, verbal, and qualitative reflection sessions with participants
- Evaluation of Design Challenge projects
- Feedback from the principal and supervising teachers

Fig. 3. Stages of Activity Implementation

E. **Methods for evaluating and measuring success**

In accordance with the internal regulations of the Kedah Zakat School, which prohibit students from bringing cell phones onto the dormitory premises, the program's effectiveness was not evaluated through digital pre-tests or post-tests, nor through online questionnaires. The evaluation of the program's success was conducted comprehensively and qualitatively using three main techniques:

1. Direct observation by the implementation team and facilitators of student engagement, enthusiasm, attendance rates, discussion dynamics, and collaborative skills at each learning station and design challenge.

2. An on-the-spot reflection session at the end of the event, during which participants, selected at random and on a voluntary basis, shared the new knowledge they had gained, shifts in their mindset, and action plans they intend to implement in their daily lives.

3. An evaluation of the quality of ideas, creativity, and multidisciplinary integration in the Design Challenge discussion outcomes presented by each group.

Program success indicators:

1. At least 90% of the target participants actively participate in the entire series of events from start to finish.

2. Each group is able to develop and present one proposed solution for a Smart Society that integrates technology, the environment, and health.

3. Reflective statements from students and written or verbal appreciation from the administration and supervising teachers at Sekolah Zakat Kedah regarding the benefits of the activity.

RESULTS AND DISCUSSION

F. Overview of activity implementation

An international Community Service event themed "Future Skills for a Smart Society: Empowering the Young Generation through Artificial Intelligence, Sustainable Technology, and Healthy Living" was held in person on July 19, 2026, at the Kedah Zakat School in Malaysia. The event was fully attended by 40 high school students (Grades 10–12) under the auspices of the Kedah State Zakat Agency (LZNK). All stages of the event, designed in the format of a One-Day Experiential Learning Journey, proceeded smoothly, on schedule, and interactively in accordance with the planned timeline. The synergy between the Indonesian multidisciplinary team of experts and the administrators of the Kedah Zakat School created a conducive and inclusive learning environment that encouraged active participant engagement from the beginning through the closing session.

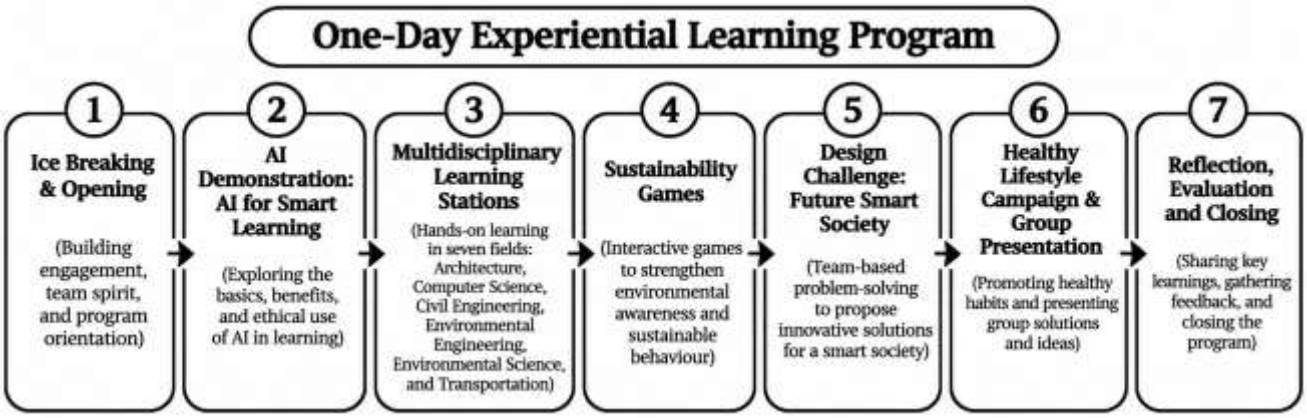

Fig. 4. One-Day Experiential Learning Program

One-day experiential learning program

G. Dynamics of multidisciplinary activities and exploration

1) Opening session, icebreaker, and ai demonstration

The event began with an official opening ceremony, remarks from partner organization leaders, and an introduction of the organizing team. The icebreaker session proved effective in lightening the mood and easing the initial awkwardness among the students as well as between the students and the speakers.



Fig. 5. An introduction to the basics of AI and digital ethics for students

During the AI Demonstration session, the Computer Science and Architecture team introduced the potential of generative AI as a tool to support self-directed learning. The discussion took a critical turn when participants were invited to explore the ethics of AI use. Students realized that AI should be positioned as a "thinking partner" to spark creativity and efficiency, not as a shortcut that replaces critical reasoning and originality of thought (Rampelt et al., 2026). In addition, issues of personal data protection and digital privacy were discussed to safeguard students from the risks of cybercrime (Karaköse et al., 2026).



Fig. 6. Participants listened to the presentation

Table 1 A paradigm shift in the use of AI

Conventional / Misguided Ways of Thinking	**Future Skills Mindset**
AI as a tool for copying assignments	AI as an accelerator for exploring ideas
Ignoring ethics and plagiarism	Addressing privacy and digital ethics
Passive cognitive dependence	Sharpening critical thinking (prompting)

2) Rotation through multidisciplinary learning stations and sustainability games

Dividing participants into small groups to rotate through the learning stations facilitates intensive and personalized interaction at each thematic station, which demonstrates the practical applications of various academic disciplines. At the Architecture and Civil Engineering Station, students learn about smart building principles, natural lighting, spatial efficiency, and disaster-resistant construction, while at the Environmental Engineering & Environmental Science Station, education focuses on waste recycling management, water conservation, and reducing the carbon footprint within the dormitory environment [4]. Furthermore, the Transportation and Geotechnical Engineering Station helps participants understand sustainable urban mobility, road safety culture, and disaster risk mitigation education, which is then complemented by the Health Station, where education focuses on the importance of balanced nutrition, screen time management, adolescent mental health, and physical fitness [5], [6].

The activities continued with the Sustainability Games, where participants engaged in friendly competition through ecological simulation games. These interactive simulations successfully fostered an understanding that small eco-friendly habits such as sorting organic and inorganic waste and conserving electricity—have a tangible

impact on the Earth's sustainability [2].

3) Design challenge and healthy lifestyle campaign

During the Design Challenge session, each group was tasked with designing a scenario for a future residential area or school community (Future Smart Society) using the design thinking framework, based on their understanding of all the academic disciplines they had covered. As a result, the ideas created by the participants demonstrated impressive multidisciplinary integration through two main concepts: the concept of a sustainable community which incorporates eco-friendly school buildings powered by solar panels, self-sufficient water treatment systems, and automated waste sorting areas and the concept of mobility and health, which focuses on providing safe pedestrian paths, vehicle-free zones, and the provision of integrated sports facilities to support the physical and mental health of dormitory residents.

The session concluded with a Healthy Lifestyle Campaign and group presentations. Students systematically presented their designs to their peers and facilitators, while also demonstrating the campaign's messages about healthy living. This activity helped develop their public speaking skills, self-confidence, and collective leadership abilities.

Table 2 Design challenge output matrix

Pillar Aspects	**Participants Innovative Solutions**
Smart technology	AI optimization for self-directed learning management
Sustainable environment	Integrated waste sorting system and solar energy efficiency
Smart infrastructure	Designing a healthy classroom with natural lighting
Healthy living	Screen-free scheduling and balanced nutrition campaign

H. Analysis of qualitative evaluation results and participant responses

Given the partner school's rules restricting cell phone use on the dormitory grounds, the evaluation did not use an online quantitative questionnaire but instead employed participatory observation and open-ended verbal reflection analysis.

1) Results of Participatory Observation

During approximately 6–7 hours of active participation, the team of facilitators recorded indicators of changes in participants' attitudes and levels of engagement:

1. 100% of participants (40 students) took part in the entire series of activities from the opening to the closing session, with no one leaving the venue.
2. Inclusive group dynamics emerged. Students with prior knowledge were quicker to assist their peers (peer mentoring) during the simulation and design challenge sessions.
3. There was an increase in the frequency with which students asked critical questions, particularly during the sessions on AI ethics and environmental management.

2) Participants reflections and responses

The closing reflection session confirmed that the material had been internalized at the cognitive and affective levels. Several representative excerpts from students' statements illustrate the learning outcomes achieved:

"I just learned that Artificial Intelligence isn't just used to find answers, but can also help with learning, generating ideas, and understanding lessons in more creative ways." — Participant 1 (Verbal Reflection Session, July 19, 2026).

"Today's activity helped me better understand that protecting the environment can start with simple habits, such as sorting trash and reducing plastic use at school and at home."—Participant 2 (Verbal Reflection Session, July 19, 2026).

"I enjoyed discussing with my friends in the group. We learned that solving a problem requires collaboration across various fields of study." — Participant 3 (Verbal Reflection Session, July 19, 2026).



Fig. 7. A circle time for participants to reflect at the end of the activity

3) Recognition of Partners and mentor teachers

Zakat Kedah School expressed high appreciation for the intervention model introduced by the volunteer team. The experiential learning method was deemed capable of simplifying complex modern science topics into engaging and practical material:

"This kind of learning approach encourages students to ask questions and participate in discussions more actively. Even fairly complex material can be understood more easily because it is presented through interactive activities." — Supervising Teacher, Zakat School in Kedah (July 19, 2026).



Fig. 8. Presentation of souvenirs to the leadership of the Zakat School in Kedah, Malaysia



Fig. 9. Group photo of all participants, accompanying teachers, and the multidisciplinary service team

I. Tangible contributions to the sustainable Development Goals (SDGs)

The implementation of this International Community Engagement program has made a measurable contribution to the achievement of several Sustainable Development Goals (SDGs) at the community level:

1. [SDG 3] Good Health and Well-being

Campaigns that promote a healthy lifestyle, balanced nutrition, prevention of screen addiction, and awareness of road safety.

2. [SDG 4] Quality Education

Enhancing artificial intelligence (AI) literacy, digital ethics, and 21st-century skills through an inclusive learning approach.

3. [SDG 9] Industry, Innovation, and Infrastructure

An introduction to green technology, digital innovation, and the principles of resilient smart buildings.

4. [SDG 11] Sustainable Cities and Communities

Training in designing environmentally friendly, safe, and inclusive living environments during Design Challenge sessions.

5. [SDG 13] Climate Action

Improving literacy on climate change, energy efficiency, and concrete actions to reduce plastic waste.

J. Supporting Factors, Challenges, and Field-Based Solutions

1) Supporting factors

1. Full Support from International Partners: The leadership of LZNK and the Kedah Zakat School provided well-equipped facilities and fully supported the activities.

2. Multidisciplinary Expertise of the Implementation Team: Collaboration among experts from 8 academic fields enables the development of rich, comprehensive, and complementary course modules.

3. Dynamic Program Design: Structuring events as games, hands-on demonstrations, and group competitions helps maintain students' focus and enthusiasm.

2) Field challenges and solutions

1. The dense multidisciplinary curriculum covered in a single day made the time allotted for exploration at each learning station feel limited.

2. There were signal stability issues during the live demonstration of the AI tool.

3. Variations in students' initial levels of digital literacy were addressed by implementing a peer mentoring strategy, in which students who grasped the material more quickly helped their groupmates.

CONCLUSIONS AND RECOMMENDATIONS

K. **Conclusion**

Based on the entire series of activities carried out as part of the International Community Service program themed "Future Skills for a Smart Society: Empowering the Young Generation through Artificial Intelligence, Sustainable Technology, and Healthy Living" at Sekolah Zakat Kedah, Malaysia, the following key conclusions can be drawn:

1. This international community service program, based on multidisciplinary collaboration, was successfully implemented smoothly and effectively through the "One Day Experiential Learning Journey" approach. All materials and interactive activities ranging from AI demonstrations, rotations through multidisciplinary learning stations, sustainability games, a design challenge, to a healthy lifestyle campaign were delivered in accordance with the allocated time and work plan.

2. Qualitative evaluation results, based on participatory observation and open verbal reflections, demonstrated high levels of enthusiasm and understanding among the students. Participants proved capable of understanding the importance of ethical use of Artificial Intelligence (AI) for smart learning, developed ecological awareness regarding waste management and energy efficiency, grasped the principles of a physically and mentally healthy lifestyle, and were able to collaborate in interdisciplinary teams to design smart community solutions.

3. This initiative not only successfully enhanced the 21st-century skills of students eligible for zakat (asnaf) but also strengthened international academic cooperation between Indonesian higher education institutions and the Kedah Zakat School. Furthermore, this program makes a measurable contribution to the achievement of several Sustainable Development Goals (SDGs), specifically SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), SDG 9 (Industry, Innovation, and Infrastructure), SDG 11 (Sustainable Cities and Communities), and SDG 13 (Climate Action).

L. **Recommendations and Follow-Up Plans**

1) Academic and Methodological Recommendations

1. For the implementation of future community service programs, it is recommended that qualitative evaluation instruments be refined by developing structured participatory observation sheets (performance assessment rubrics) or conducting random in-depth interviews after the activity, in order to document the impact of changes in student behavior more comprehensively.

2. Given the rapid advancement of science and technology, the Future Skills module can be continuously updated

by incorporating new topics such as digital financial literacy, advanced cybersecurity ethics, and self-directed stress management techniques for adolescents in boarding school settings.

2) Action Plan

To ensure the program's lasting impact, a draft strategic follow-up plan has been developed:

1. Conduct periodic online mentoring sessions to deepen students' understanding of AI ethics, the creation of school-based research papers, and creative writing.

2. Initiate ongoing collaborative community service projects focused on applied physical projects, such as the creation of an integrated waste sorting zone, a healthy school garden, or an energy-efficient learning space at Zakat Kedah School.

3. Develop joint research among partner universities to measure the long-term impact of implementing the Future Skills curriculum on students' digital literacy and mental health.

4. Propose that this International Community Service initiative become a structured annual program (Annual International Community Service) to expand its reach and benefit a broader international community.

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