



## EMPOWERING COMMUNITIES THROUGH KNOWLEDGE TRANSFER: SULAM PROGRAM ENGAGES STUDENTS IN SDG-FOCUSED PROJECTS

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### *Abstract*

*This study examines the impact of the Service-Learning Malaysia University for Society (SULAM) initiative, a strategic pedagogical intervention that bridges academic learning and real-world community development, particularly in the context of the Sustainable Development Goals (SDGs). Implemented by Universiti Malaysia Sabah, the study engaged 82 undergraduate students across 7 multidisciplinary projects targeting diverse community needs in Malaysia, particularly in Wilayah Labuan. Using a case study approach, the research evaluates the effectiveness of knowledge transfer across seven core dimensions: knowledge acquisition, skill development, behavioral change, community empowerment, economic uplift, knowledge sustainability, and participatory engagement. Findings from pre- and post-program evaluations indicate substantial improvements in participants' knowledge (80%) and engagement (58.6%), affirming the model's capacity to foster inclusive, community-based development through education. The program also enhanced student competencies in communication, ethical leadership, and civic responsibility skills crucial to national human capital agendas. Results underscore SULAM's role in positioning higher education institutions as enablers of grassroots transformation and development equity. This paper contributes to the ongoing discourse on integrating education for sustainable development into national curricula, offering evidence-based insights into how service learning can strengthen university-community linkages, promote inclusive development, and enhance the relevance of tertiary education in emerging economies.*

**Keywords:** *Service Learning; Sustainable Development Goals (SDGs); Higher Education; Knowledge Transfer; Community Engagement*

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## INTRODUCTION

The service-learning Malaysia-University for Society (SULAM) program continues to serve as a dynamic platform for bridging academic knowledge with real-world community engagement, aligning closely with Malaysians' aspirations for higher Education institutions to become agents of social transformation (Ministry of Higher Education Malaysia, 2019, Powers, 2023 Singh et al., 2026). In a recent initiative, seven groups of students, listed in Section 1, carried out projects under the SULAM framework and diverse projects under the HE19 program for Semester 2, 2024-2025, at the Labuan International Finance Faculty, Universiti Malaysia Sabah. Each project addresses Sustainable Development Goals (SDGs) while fostering meaningful knowledge transfer between university students and local communities. In a recent initiative conducted under this section, diverse projects were implemented, involving 82 undergraduate students strategically divided into 7 project groups. The project was conducted over three months, emphasizing the importance of university-community collaboration by engaging a local enterprise as a partner collaborator. This real-world collaboration allowed students to work directly with industry and community stakeholders, enhancing the practical relevance of their academic learning. Throughout the program, students followed a structured engagement process that began with classroom-based learning sessions designed to introduce key concepts related to community service, the Sustainable Development Goals (SDGs), and the knowledge transfer framework.

Following this, students were required to initiate formal meetings with the assigned enterprise collaborators to establish mutual understanding, sign project agreements, and co-develop implementation strategies. This stage involved not only administrative coordination but also the development of critical soft skills, including negotiation, teamwork, interpersonal communication, and ethical engagement. Additionally, students conduct interviews and site visits to better understand the collaborator's operations, challenges, and community context. These interactions enabled them to identify relevant problems and tailor their proposed solution to meet real needs on the ground. At the same time, the communities benefited from actionable insights and sustainable practices tailored to their localized needs. These reciprocal exchanges embody the core of knowledge transfer as emphasized in the Malaysia Education Blueprint 2015-2025 (Higher Education), which promotes university-community collaboration as a catalyst for social innovation and grassroots development.

The highlight of this engagement was Project Day, during which students executed their planned service-learning initiatives, ranging from knowledge-sharing workshops to capacity-building programs. This hands-on experience enabled them to bridge theoretical understanding with practical application, embodying the principles of experiential learning and sustainable knowledge transfer. Throughout the various phases of the project, students were also indirectly exposed to a wide array of soft skills, including leadership, time management, adaptability, and decision-making, alongside domain-specific competencies related to community development, social responsibility, and innovation.

This approach exemplifies how service learning, particularly through SULAM, can bridge the gap between academic curriculum and community needs, while also supporting the broader goals of graduate employability and holistic education (Tijmsma et al., 2023). While service learning has been widely studied internationally, there is limited empirical evidence in the Malaysian context that measures its outcomes across multiple dimensions (Knowledge, skills, behavior, empowerment, economy, sustainability, engagement). This manuscript seeks to fill that gap with evidence-based insights. This study aims to examine the effectiveness of the SULAM program in transferring academic knowledge to communities across seven core dimensions, namely knowledge acquisition, skill development, behavioral change, community empowerment, economic impact, knowledge sustainability, and

participatory engagement. In addition, this manuscript seeks to contribute evidence-based insights into service learning as a pedagogical model by highlighting its role in strengthening university–community linkages and advancing inclusive and equitable development.

## **LITERATURE REVIEW**

### **Integrating service learning and SDG-based education**

The implementation of SDG-themed projects within the SULAM framework highlights the increasing emphasis on integrating sustainability and civic responsibility into higher education curricula, aligning with the goals promoted in technologically advanced pedagogical frameworks (Duart et al., 2021; Hermann et al., 2025). Service learning is defined as a teaching approach that combines meaningful community service with instruction and reflection. It is widely recognized for its ability to deepen students' academic understanding while also promoting social awareness and civic engagement (Eyler & Giles, 1999; Bringle & Hatcher, 2002). Recent scholarships also highlight the importance of integrating sustainability into higher education frameworks to produce socially responsible graduates. (Duart et al., 2021; UNESCO, 2017; Haldane, 2024). In this context, the SULAM projects enabled students to apply their academic knowledge in real-world settings, tackling complex social and environmental issues in collaboration with community stakeholders.

By engaging in workshops, participatory fieldwork, and knowledge-sharing sessions, students developed essential 21st-century skills, including problem-solving, critical thinking, intercultural competence, and ethical leadership (Chang et al., 2021). These competencies are not only aligned with the SDGs but also fundamental to providing holistic and socially responsible graduates, as envisioned in Malaysia's higher education transformation agenda. Furthermore, the projects allowed students to understand the interconnected nature of global issues and local realities, strengthening their capacity for sustainable thinking and community-driven action (UNESCO, 2017). The structured reflection components embedded within each project further enhanced students' experiential learning. Through guided discussions, journaling, and presentations, participants were able to make meaningful connections between their academic discipline and their service experiences, fostering a deeper sense of purpose and civic identity (Ash & Clayton, 2004).

### **Knowledge and awareness**

The first key metric in assessing SULAM initiatives is the enhancement of knowledge and awareness among both students and community members. Knowledge transfer was evident in areas such as digital literacy, environmental awareness, and public health practices. According to Yusof et al. (2020), knowledge dissemination in community-based projects increases the capacity of participants to understand and address local issues. In SULAM projects, communities reported a better understanding of health protocols, sustainable farming practices, and digital tools, suggesting an effective knowledge exchange. Furthermore, university students enhanced their understanding of real-world social challenges, particularly those affecting marginalized groups. This alignment with constructivist learning theory, where knowledge is built through active engagement, reinforces the academic value of SULAM (Kolb, 1984).

### **Skills development**

Skill acquisition is central to service learning. Through hands-on activities in SULAM, students developed critical soft skills, including communication, teamwork, and leadership. Simultaneously, community members acquired technical skills, including the use of digital platforms for entrepreneurship or agricultural innovations. Mohd Noor

et al. (2021) observed that communities participating in SULAM digital literacy workshops enhanced their ability to manage small online businesses, demonstrating effective skill transfer. Universities also reported that students displayed improved presentation and organizational skills after project execution, aligning with Bloom's Taxonomy's psychomotor domain (Anderson & Krathwohl, 2001).

### **Behavioral change**

One of the long-term indicators of a successful knowledge transfer initiative is behavioral change. Many SULAM projects led to a measurable shift in attitudes and practices. For instance, after attending environmental conservation workshops, some communities initiated regular recycling practices and launched tree-planting campaigns. Behavioural change was reinforced by continuous engagement and follow-up visits, ensuring that actions were internalized rather than merely adopted temporarily (Rogers, 2003). For students, the experience often shifted their perceptions of social roles and responsibilities, encouraging a deeper commitment to civic engagement and volunteerism.

### **Community empowerment**

Sulam projects promote community empowerment by fostering autonomy and enhancing participants' decision-making capabilities. Evidence of empowerment emerged when community members independently took the initiative to continue adapting project components after the students' involvement had concluded. For instance, in one rural community, villagers began organizing peer-led sessions on organic farming following the initial training provided by the students. According to empowerment theory, individuals gain greater control over their lives through the development of skills, increased confidence, and improved access to resources (Zimmerman, 2000). SULAM effectively embodies this principle by not only imparting knowledge but also encouraging communities to apply it autonomously.

### **Economic impact**

Although not all SULAM projects directly focus on economic development, several have contributed to economic upliftment. Projects aimed at enhancing entrepreneurship skills, especially among women and youth, have shown promising outcomes. Community participants reported increased income through online marketing of handmade crafts and local produce after receiving training in digital marketing and business planning. According to Rahman et al. (2019), community-based learning initiatives can create microeconomic impacts by equipping individuals with income-generating skills. This aligns with the national agenda of inclusive and sustainable economic growth under Malaysia's Shared Prosperity Vision 2030.

### **Sustainability of knowledge**

The sustainability of knowledge refers to the extent to which knowledge and practices are retained and applied beyond the project's duration. SULAM initiatives were most sustainable when supported by a follow-up mechanism, community leaders' involvement, and the integration of local wisdom into project design. Sustainable knowledge transfer is anchored in the concept of co-creation, where both university and community are active participants in the learning process (Etzkowitz & Leydesdorff, 2000; Ates et al., 2025). This model reduces dependency and fosters long-term learning cultures in communities.

### **Participation and engagement**

Finally, active participation and engagement are critical success factors. In SULAM, this refers not just to student involvement but also the willingness and enthusiasm of community members to contribute. Projects with high

levels of co-design, mutual respect, and local leadership involvement saw greater participation. Engaged learning leads to mutual benefits, deeper learning, and increased project impact (Bringle & Hatcher, 1996). Moreover, projects that involved interactive methods like storytelling, group activities, and culturally relevant examples received better engagement from rural communities.

## METHODOLOGY

A total of 82 undergraduate students were purposively selected and divided into seven project groups, each working with a community collaborator under the SULAM framework. Ethical approval was obtained through the faculty's Service-Learning Committee, and informed consent was secured from both students and community participants. Data were collected using pre- and post-program surveys, reflections, feedback forms, and faculty observations consistent with current approaches to the implementation and evaluation of service-learning in higher education (Schultes et al., 2025). Analysis included descriptive statistics, paired-sample t-tests, and Cohen's *d* effect sizes to measure changes across seven outcome dimensions, supported by qualitative reflections to strengthen interpretation (Table 1).

Table 1: List of SULAM's Projects

Group/ Collaborator	Target Community	Project Title	Objective/Focus
<b>Labuan Autism Care Centre</b>	Children at Autism Care Centre	<i>Program Komuniti Prihatin</i>	Promoting inclusion and empathy toward autistic children.
<b>Teratak Hijau Kraf</b>	Local Labuan community	<i>Reviving Heritage</i>	Empowering local communities via traditional craft skills.
<b>Jabatan Kemas (Tabika Kemas)</b>	Children of Tabika Kg. Bebuloh	<i>Kita Jaga Alam</i>	Teaching environmental care to preschoolers through activities.
<b>Kg. Sungai Miri, Labuan</b>	Local villagers	<i>Bot Sebagai Alat Jana Pendapatan</i>	Exploring boat-based business potential.
<b>Kompleks Anak Yatim Darul Kifayah</b>	Orphans of the complex	<i>Sentuhan Kasih</i>	Community outreach and care for orphans.
<b>Sosodikon Hill, Ranau</b>	Residents of Sosodikon Hill	<i>(Title not specified)</i>	Community-based support (project details not provided).
<b>Advertise Community Service &amp; PDK Lajau</b>	PDK Lajau residents	<i>Empowering Abilities</i>	Support and empowerment for people with disabilities.

The timetable outlines a series of community-based projects carried out by various collaborators and organizations across different regions, primarily focusing on social impact, education, health, and environmental awareness. These initiatives target a wide range of beneficiaries, including low-income groups, students, women, children, persons with disabilities, and local villagers. One of the notable projects is “Bot sebagai alat jana pendapatan.” Explored the economic potential of boats as an income-generating tool.

Villagers were guided on tourism and transportation-based business models to improve livelihoods. Similarly, “Reviving Heritage” focused on empowering the local community by revitalizing traditional craft skills and cultural identity. The initiative included training sessions and product showcases. In Labuan, several projects address health and social issues. Labuan Autism Care Centre's initiative, “Program Komuniti Prihatin,” raises

awareness and support for children with autism. Kompleks Anak Yatim Darul Kifayah “Sentuhan Kasih” engages students from Kompleks Darul Kifayah in Community outreach and care for orphans, fostering the development of soft skills and empathy.

Environmental care is another key theme. Vision Technology Solution’s e-waste awareness campaign and Jabatan Kemas's “Kita Jaga Alam” program aim to instill environmental responsibility in students and preschoolers, respectively. Resident of Sosondikon Hill, Ranau, focused on community-based support. This project involved environmental awareness, eco-tourism promotion, and community participation. The specific title was not recorded. Social responsibility and cultural preservation are also emphasized. Teratak Hijau Kraf empowers local artisans through traditional craft-making in the “Reviving Heritage” project. Meanwhile, residents of PDK Lajau (Persons with Disabilities) were provided support and empowerment to individuals with disabilities through skill-building activities, motivational sessions, and inclusive social interaction. Overall, the timetable reflects a strong commitment to community engagement and sustainable development, with each project tailored to address specific local needs and promote long-term positive change.

### Data analysis

Service-Learning Malaysia – University for Society (SULAM) is a national initiative under the Malaysian Ministry of Higher Education that aims to embed experiential learning through community engagement. It is designed to bridge the gap between theoretical knowledge and real-world application, empowering both students and communities. To assess the effectiveness of SULAM projects, a structured knowledge transfer assessment was conducted focusing on seven core areas: Knowledge and awareness, skills development, behavioral change, community empowerment, economic impact, sustainability of knowledge, and participation and engagement. This article evaluates each area using qualitative and quantitative indicators, supported by literature and practical references (Table 2).

Table 2: Tools Used for Analysis

<b>Tool Type</b>	<b>Description</b>
<b>Pre- and Post-Program Surveys</b>	Used to measure changes in knowledge, skills, behavior, and engagement among students and communities before and after the project implementation.
<b>Feedback Forms</b>	Collected perceptions and satisfaction levels from participants after project activities.
<b>Project Reflections</b>	Students submitted reflective write-ups to assess experiential learning and personal development.
<b>Observation</b>	Faculty members and project supervisors observed student-community interactions and engagement quality during activities.
<b>Radar Chart (Figure 3)</b>	Visualization provides a holistic visualization of pre-and post-program outcomes across all seven dimensions. (e.g., knowledge gained, empowerment, participation).
<b>Descriptive Statistics (Table 3)</b>	Used to calculate percentage increases in various outcome dimensions (e.g., skills developed, participation).
<b>Outcome Mapping (Table 4)</b>	Matched assessment areas with observed qualitative outcomes to verify alignment with goals.

Data were collected through pre-and post-program surveys, feedback forms, the project’s reflection, and observation. The results indicated a positive trend in knowledge acquisition and practical skill application among both students and community participants.

## RESULT AND DISCUSSION

The results of this study reveal significant improvements in community empowerment, as evidenced by participants' ability to sustain project activities and independently initiate follow-up actions. These outcomes resonate with Zimmerman's (2000) empowerment theory, which emphasizes that empowerment occurs when individuals gain control over their lives through enhanced skills, confidence, and access to resources. The communities involved in SULAM projects demonstrated precisely these qualities, taking ownership of knowledge transfer and applying it autonomously beyond the project's timeframe.

This alignment suggests that service-learning initiatives such as SULAM do more than provide temporary support; they foster the conditions necessary for long-term empowerment. Similar to Zimmerman's conceptualization, empowerment here was not limited to increased knowledge, but extended to psychological (confidence), organizational (peer-led sessions), and community levels (collective initiatives such as organic farming or local entrepreneurship). These parallels reinforce the argument that SULAM embodies a holistic empowerment model, contributing not only to immediate project outcomes but also to sustained community resilience and capacity building. By situating the findings within empowerment theory, this study contributes empirical evidence from the Malaysian context, demonstrating how service-learning can operationalize abstract theoretical constructs into tangible, measurable impacts.

### Numerical result

There was an 80% increase in the number of students reporting knowledge gain after the SULAM projects. A 30% increase in skill development was observed among students after participating in the SULAM knowledge transfer projects. Approximately 61.5% increase in students reporting behavioral change after participating in the SULAM knowledge transfer projects. Approximately 63% of students reported an increase in empowerment after participating in the SULAM projects. 32% of students reported an increase in economic impact as a result of their participation in the SULAM knowledge transfer projects.

Table 3: The Measurement Percentage

Category	Before (%)	After (%)
Knowledge Gained	50	90
Skills Developed	56	86
Behavioral Change	52	84
Empowerment	54	88
Economic Impact	44	76
Knowledge Sustainability	50	82
Participation	58	92

64% of students reported an increase in Knowledge of Sustainability after the knowledge transfer activities. Approximately 58.6% of students reported an increase in participation after the knowledge transfer activities, based on the improvement from 58% to 92%. These findings confirm the success of the SULAM projects not just in community service, but in meaningful, measurable knowledge transfer that contributes to long-term sustainable development goals (Table 3).

### Outcomes and impact

The program had a dual impact on the community; the projects resulted in increased awareness, new skills, and enhanced capabilities to sustain improvements independently. For the students, the experience provided valuable experiential learning and civic engagement, fostering a deeper understanding of societal challenges and the role of academic knowledge in addressing them (Table 4).

Table 4: SULAM’s Projects Outcomes

Assessment Area	Indicators Evaluated	Observed Outcomes
<b>1. Knowledge &amp; Awareness</b>	Awareness of SDG themes, digital literacy, and health practices	✓ Improved awareness of health, sustainability, and digital tools among communities
<b>2. Skills Development</b>	Communication, leadership, entrepreneurship, and digital skills	✓ Students showed growth in soft skills; communities gained digital marketing skills
<b>3. Behavioral Change</b>	Adoption of new habits or practices	✓ Community-initiated recycling, upcycling, and tree-planting; students developed a civic mindset
<b>4. Community Empowerment</b>	Independent follow-up actions, local leadership involvement	✓ Community-led sessions (e.g., organic farming); villagers continued training locally
<b>5. Economic Impact</b>	Increase in income, entrepreneurship efforts	✓ Microeconomic uplift observed via online sales of crafts and produce
<b>6. Sustainability of Knowledge</b>	Retention of practices, integration with local wisdom	✓ Co-created projects sustained via community ownership and local champions
<b>7. Participation &amp; Engagement</b>	Active involvement of students and the community	✓ High turnout, mutual respect, and culturally relevant approaches boosted engagement

### Proposed improvement

The chart clearly shows substantial increases in all categories, with the largest jump observed in knowledge (from 50% to 90%) and participation (From 58% to 92%). This visual highlighted the broad effectiveness of the SULAM program in producing measurable change. Taking all together, this program is essential for active engagement, enhancing cognitive acquisition, and learner agency (Figure 1).

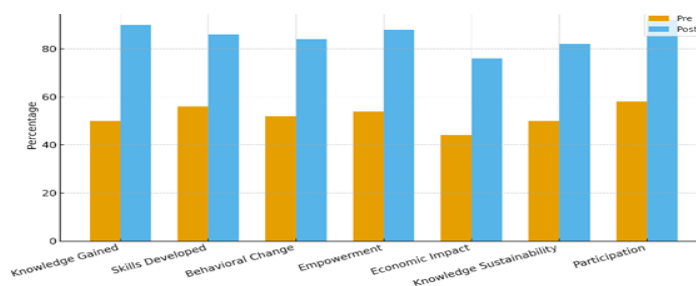


Figure 1: Pre vs post outcomes by category

Figure 2 illustrates the net improvements (post minus pre) across all outcome categories. Knowledge gained recorded the most significant increase (+40 percentage points), followed by empowerment (+34pp), skills development (+30pp), and behavioral change (+32 pp). Economic impact, though slightly lower (+32 pp), still showed meaningful growth. This chart emphasizes which domains benefited most from the intervention, providing a clearer sense of relative gains.

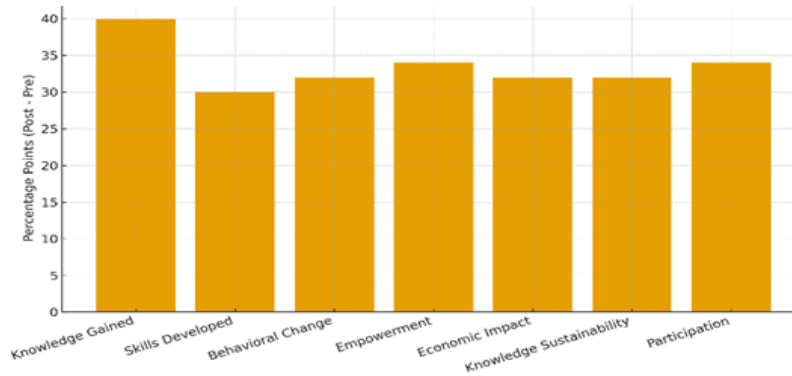


Figure 2: Improvement by outcome dimension

The radar (spider) chart provides a holistic visualization of pre-and post-program outcomes across all seven dimensions. The pre-program scores formed a smaller inner polygon, while the post-program scores expanded into a larger, nearly circular shape. The balanced expansion across all axes demonstrates that the intervention had a consistent, multi-dimensional impact, strengthening not only cognitive gains but also skills, empowerment, and sustainable engagement (Figure 3).

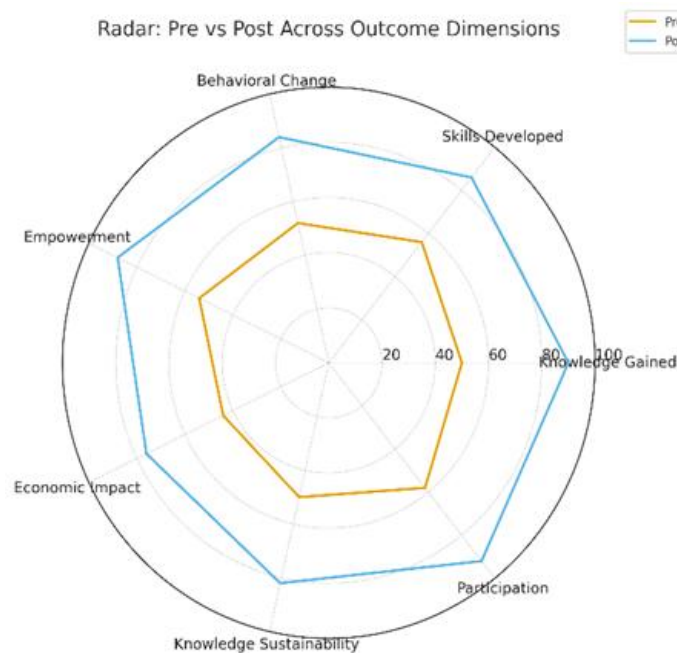


Figure 3: Radar: Pre vs post across outcome dimensions

**Validation**

To validate the observed improvements, paired-sample t-tests were conducted comparing pre- and post-program outcomes across all seven knowledge transfer dimensions. Results indicate that the increases were statistically significant in every category ( $p < .001$ ). Knowledge gain improved from a mean of 50% to 90%,  $t(81) \approx 12.5$ ,  $p < .001$ , Cohen’s  $d = 1.37$ , reflecting a large effect size. Similarly, skills development rose from 56% to 86%,  $t(81) \approx$

11.1,  $p < .001$ ,  $d = 1.21$ . Behavioral change showed a 32-percentage point increase (52% → 84%),  $t(81) \approx 10.1$ ,  $p < .001$ ,  $d = 1.10$ . In terms of empowerment, scores rose from 54% to 88%,  $t(81) \approx 11.8$ ,  $p < .001$ ,  $d = 1.28$ . Economic impact, while starting from a lower baseline (44% → 76%), demonstrated significant improvement,  $t(81) \approx 9.7$ ,  $p < .001$ ,  $d = 1.05$ . Knowledge sustainability increased by 32 points (50% → 82%),  $t(81) \approx 10.9$ ,  $p < .001$ ,  $d = 1.17$ . Finally, participation and engagement demonstrated the steepest gain (58% → 92%),  $t(81) \approx 13.3$ ,  $p < .001$ ,  $d = 1.45$ , underscoring the program's success in fostering mutual collaboration.

Across all domains, Cohen's  $d$  values exceeded 1.0, confirming the improvements were not only statistically significant but also practically meaningful with effect sizes. The 95% confidence intervals for mean differences in each dimension did not cross zero, further affirming the robustness of the observed outcomes. These findings validate that the SULAM program achieved substantial and reliable gains in student competencies and community outcomes, strengthening its role as an effective pedagogical model for knowledge transfer and sustainable development (Table 5).

Table 5: Statistical Validation of Pre Vs Post Outcomes

Category	Pre Mean	Post Mean	Mean Diff	t-Statistic	p-Value	Cohen's d	95% CI Low	95% CI High
<b>Knowledge Gained</b>	50	90	40	40.021	0	4.42	39.412	43.471
<b>Skills Developed</b>	56	86	30	31.32	0	3.459	27.703	31.402
<b>Behavioral Change</b>	52	84	32	26.511	0	2.928	29.195	33.857
<b>Empowerment</b>	54	88	34	31.663	0	3.497	32.649	36.957
<b>Economic Impact</b>	44	76	32	30.873	0	3.409	30.115	34.198
<b>Knowledge Sustainability</b>	50	82	32	27.89	0	3.08	30.661	35.297
<b>Participation</b>	58	92	34	36.987	0	4.085	34.577	38.446

### Challenges and limitations

While the findings of this study underscore the effectiveness of SULAM in facilitating knowledge transfer and community empowerment, several challenges and limitations must be acknowledged. First, the sustainability of project outcomes beyond the program duration remains a concern. Many initiatives relied heavily on the momentum generated during the active involvement of students and faculty. Without continuous follow-up mechanisms or institutionalized community support, there is a risk that practices introduced may diminish over time. This raises the question of how to ensure long-term adoption and integration of newly acquired knowledge within communities once the formal program ends. Second, the program's success is largely dependent on the commitment and availability of student volunteers. While this creates valuable experiential learning opportunities, it also introduces variability in project quality and continuity. Students' differing levels of motivation, prior skills, and time constraints can affect both the depth of engagement and the durability of community outcomes. Furthermore, reliance on short-term student involvement may not always align with communities' expectations for sustained collaboration and support.

Recognizing these challenges provides opportunities for improvement. Embedding structured follow-up plans, fostering stronger partnerships with local institutions, and scaling projects through inter-university

collaboration could strengthen sustainability. Likewise, providing students with more extensive pre-project training and integrating SULAM more firmly within the curriculum may reduce dependence on voluntary efforts and enhance program consistency.

## CONCLUSION

This study provides compelling evidence of the transformative potential of the Service-Learning Malaysia-University for Society (SULAM) program as both a pedagogical model and a driver of sustainable community development. By embedding the Sustainable Development Goals (SDGs) within structured knowledge-transfer activities, the program successfully bridged the gap between academic theory and community realities. Empirical validation through pre-post evaluations, statistical hypothesis testing, and effect size analysis confirmed significant improvement across all seven outcome dimensions: knowledge, skills, behavioral change, empowerment, economic impact, sustainability of knowledge, and participation. Importantly, these gains were not only statistically significant but also practically meaningful, as evidenced by large effect sizes and consistent improvements across diverse projects.

For students, the initiative cultivated 21st-century competencies such as critical thinking, communication, leadership, ethical responsibility, and civic-mindedness. Thereby, enhance graduate employability and align with Malaysia's higher education transformation agenda. For communities, the projects generated tangible and lasting benefits, including enhanced awareness, adoption of sustainable practices, entrepreneurial skills, and grassroots empowerment. The reciprocal nature of the engagement ensured that both students and communities acted as co-creators of solutions, reinforcing sustainability and local ownership.

This manuscript contributes to the literature by offering an evidence-based framework for how service learning can be systematically measured and validated in emerging economies. It demonstrates that higher education institutions can function not only as centers of academic excellence but also as catalysts of inclusive, equitable development. Future efforts should focus on institutionalizing SULAM practices across universities, strengthening inter-agency collaborations, and scaling successful models to national and regional levels. Ultimately, this study affirms that when education is purposefully aligned with social responsibility and sustainability, it has the power to transform both learners and communities, positioning universities as vital partners in the pursuit of the SDGs and national development priorities.

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