

PUO MechCare: Exploring Villagers' Acceptance of a Basic Vehicle and Grass Cutter Maintenance Workshop

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Abstract

Rural communities in Malaysia often face limitations in accessing affordable technical services, resulting in recurring costs for basic machinery and vehicle upkeep. This issue underscores the importance of equipping villagers with practical maintenance skills that directly support economic resilience. To address this need, the PUO MechCare Basic Vehicle and Grass Cutter Maintenance Workshop was introduced in Kampung Sahom as part of a service-learning initiative aimed at bridging the gap between academic expertise and community well-being. The objective of this study was to evaluate the acceptance of the program among villagers, focusing on its perceived usefulness, potential for skill development, and willingness to participate in future activities. The analysis was guided by the Unified Theory of Acceptance and Use of Technology (UTAUT) model, which highlights Performance Expectancy, Effort Expectancy, and Social Influence as determinants of acceptance. A total of 28 respondents provided feedback through structured surveys and interviews, and the data were analysed using regression methods to identify significant predictors. The findings indicate that Social Influence was the only significant predictor of behavioural intention, demonstrating that encouragement and endorsement from influential individuals and the surrounding community played a key role in motivating participation. In contrast, Performance Expectancy, Effort Expectancy, and Facilitating Conditions did not significantly influence behavioural intention. These results suggest that social support and community endorsement are more influential than perceived benefits, ease of participation, or available resources in promoting acceptance of the programme. Overall, the study highlights the importance of leveraging local social networks when implementing service-learning initiatives and provides a practical model for integrating technical and vocational education with sustainable rural community development in Malaysia.

Keywords: Community Empowerment; Maintenance Workshop; Rural Skills Development; Service Learning; Technical and Vocational Education and Training (TVET).

1.0 Introduction

In many rural parts of Malaysia, the ability to repair basic machinery can significantly affect daily productivity and household income. A malfunctioning motorcycle may prevent farmers from transporting goods to the market, while a faulty grass cutter can delay agricultural activities and land maintenance. In Kampung Sahom, Kampar, Perak, where agriculture and ecotourism are important economic activities, such equipment is essential for sustaining livelihoods. Consequently, equipping rural communities with practical maintenance skills can reduce dependence on external repair services, lower operating costs, and promote greater self-reliance.

To address these needs, the Department of Mechanical Engineering at Politeknik Ungku Omar implemented the PUO MechCare programme, a service-learning initiative that connects students with local communities through technical knowledge transfer. In 2025, the programme conducted a Basic Vehicle and Grass Cutter Maintenance Workshop in Kampung Sahom, providing villagers with hands-on training in troubleshooting and preventive maintenance of commonly used machinery. The initiative also offered students valuable opportunities to apply their technical knowledge in real-world settings while engaging directly with community members.

Despite the growing adoption of service-learning programmes in higher education, limited research has examined how rural communities perceive and accept such initiatives. Most existing studies have focused primarily on student learning outcomes or institutional benefits, leaving community perspectives relatively underexplored. This study addresses that gap by investigating villagers' acceptance of the PUO MechCare workshop using the Unified Theory of Acceptance and Use of Technology (UTAUT) framework. Specifically, it examines how UTAUT constructs influence behavioural intention to participate in community-based technical training. The findings are expected to contribute to the design of more effective TVET outreach programmes while providing insights for policymakers and educational institutions seeking to strengthen rural development through community engagement.

Service learning has become an increasingly important pedagogical approach in higher education, integrating academic instruction with meaningful community engagement to create reciprocal benefits for students and society (Phaik et al., 2002; Wahab et al., 2025). Unlike conventional volunteer activities, service learning is intentionally structured to connect theoretical knowledge with practical application, enabling students to develop technical competencies, problem-solving abilities, and social responsibility through authentic experiences (Jamhari et al., 2024; Hanafiah, 2024; Cheuk et al., 2020). Within Technical and Vocational Education and Training (TVET), such initiatives support experiential learning while addressing real-world community needs.

These objectives are aligned with Malaysia's TVET Empowerment Agenda and the Pelan Pembangunan Pendidikan Malaysia (Pendidikan Tinggi), both of which emphasise workforce readiness, lifelong learning, and community engagement (Azmi & Salleh, 2021; Baharuddin et al., 2024). Furthermore, practical outreach programmes that demonstrate the tangible value of vocational skills may help improve public perceptions of TVET, which has historically been viewed by some as a secondary educational pathway (Abd Hamid et al., 2023; Aziz & binti Zulkifli, 2020).

Although numerous studies have documented the educational benefits of service learning for students and institutions (Yusof et al., 2020; Wahab, 2024), comparatively fewer have investigated programme acceptance from the

perspective of community participants (Lau & Snell, 2020; Compare et al., 2025). Understanding the factors that influence participation is essential for designing outreach activities that achieve meaningful and sustained community impact.

The Unified Theory of Acceptance and Use of Technology (UTAUT) provide a useful theoretical lens for examining such factors. Originally developed to explain technology adoption, the model proposes that behavioural intention is influenced by constructs including Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. Although commonly applied in digital technology contexts, these constructs can also be adapted to community-based technical training, where participants evaluate the perceived usefulness of acquired skills, the ease of learning, the influence of trusted individuals, and the availability of supporting resources. Applying the UTAUT framework in this context offers a systematic approach to understanding the determinants of villagers' acceptance of service-learning programmes and extends its application beyond traditional technology adoption settings.

2.0 Methodology

2.1 Research Design

This research used a sequential explanatory mixed-methods design. In simple terms, the process began with collecting and analysing quantitative data and was then followed by a qualitative phase to gain richer, more personal insights from participants. The idea was to first see the “big picture” through statistical patterns and relationships and then hear directly from villagers about their lived experiences, giving life and context to the numbers. In practice, this meant starting with a structured survey based on the UTAUT, followed by semi-structured interviews with a smaller group of selected participants. This two-stage approach helped ensure that the findings were both evidence-based and grounded in real voices from the community.

2.2 Participants and Sampling

The study took place in Kampung Sahom, a rural village in Kampar, Perak, where agriculture and small-scale tourism are key sources of income. The target population was adult residents of the village. For the quantitative stage, convenience sampling was used to recruit 28 adult villagers (aged 19–65) during a community gathering organised for the launch of the PUO MechCare workshop as shown in Figure 1. While this method allowed data to be collected efficiently, it is acknowledged that the findings may not fully represent residents who did not attend the event. In the qualitative stage, 14 villagers were selected from the survey participants using purposive sampling to ensure diversity in age, occupation, and level of interest. This group included farmers, tourism operators, and informal sector workers, with a mix of high and low willingness to participate.



Figure 1: Villagers attending Basic Vehicle and Grass Cutter Maintenance Workshop

2.3 Data Collection Instruments

The survey instrument was built around the key constructs of the UTAUT model but adapted to a community training setting. It consisted of:

- Demographic information (age, occupation)
- UTAUT items measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), covering Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), and Behavioural Intention (BI).

To ensure clarity and cultural relevance, the instrument underwent expert review by two TVET educators and one community engagement practitioner. A pilot test with five villagers was conducted, leading to minor adjustments in wording. The final items are presented in Table 1.

Table 1: Question for survey based on UTAUT items

UTAUT Item	Question
Performance Expectancy (PE)	I believe that learning these maintenance skills will help me save money on repairs.
	I believe these skills will help me avoid losing income from broken equipment.
	Using the skills I learn will improve my work efficiency.
	Overall, I find the skills taught in this workshop to be very useful for my daily life.
Effort Expectancy (EE)	I expect that learning the skills in this workshop will be easy for me.
	The instructions provided by the polytechnic team will be clear and easy to follow.
	It will not take too much effort to become skilful at the tasks taught in this workshop.

	I am confident in my ability to master the techniques taught.
Social Influence (SI)	People who are important to me (e.g., family, friends) think I should attend this workshop.
	The community leadership (e.g., Ketua Kampung, Tok Batin) has encouraged villagers to participate.
	People whose opinions I value would approve of me participating in this training.
	Seeing my friends and neighbours participate would encourage me to join.
Facilitating Conditions (FC)	I have access to the basic tools and space needed to perform these repairs.
	I know I can get help or advice if I face a problem after the workshop is over.
	The workshop is scheduled at a convenient time and place for me.
	The polytechnic has provided the necessary resources to make this training successful.
Behavioral Intention (BI)	I intend to participate in the PUO MechCare Basic Vehicle and Grass Cutter Maintenance Workshop.
	I plan to use the skills I learn from the workshop in the future.
	I will recommend this workshop to others in my community.

The interview protocol was designed to encourage open discussion about participants' reasons for attending the workshop, the most and least useful aspects, expected impact on livelihoods or household expenses, and future support needs. The guiding questions, shown in Table 2, were informed by the tripartite community impact framework. Interviews were conducted in Bahasa Malaysia to allow participants to speak naturally and express ideas in their own words.

Table 2: Guiding Questions for End-Beneficiaries (Villagers)

No.	Question
1	What were your main reasons for deciding to participate in the PUO MechCare Basic Vehicle and Grass Cutter Maintenance Workshop? What did you hope to gain?
2	Can you describe your experience during the workshop? What parts were most helpful, and what parts were challenging?
3	In what specific ways do you think these new skills will affect your daily work or your household budget?
4	How does knowing how to do these repairs yourself make you feel? (Probes for self-reliance, confidence).
5	What kind of support or resources would you need to continue using and improving these skills in the future?

The research procedure unfolded in several steps:

1. Ethical approval and community consent: Approval was obtained from the Politeknik Ungku Omar Research Unit. The research objectives were presented to the village headman to secure community-level consent.
2. Quantitative stage: During the community gathering, the study's purpose was explained, confidentiality was assured, and verbal consent was obtained before distributing the surveys.
3. Selection for interviews: Initial survey results were reviewed to guide the purposive selection of interview participants.
4. Qualitative stage: Interviews were arranged at times and locations convenient for participants. Written consent was obtained prior to each session. Interviews lasted 15–20 minutes, were audio-recorded with permission, and later transcribed for analysis.

2.4 Data Analysis

Data from the surveys were analysed using IBM SPSS Statistics Version 26. Descriptive statistics (mean, standard deviation, frequency) were calculated to profile respondents and summarise responses for each UTAUT construct. Multiple linear regression analysis was conducted to examine the relationships between Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC) as independent variables, and Behavioural Intention (BI) as the dependent variable. A significance threshold of $p < 0.05$ was applied to all statistical tests.

Interview audio was transcribed verbatim. Analysis followed Braun and Clarke's six-phase thematic approach (Clarke & Braun, 2014): familiarisation, coding, theme generation, review, naming, and final reporting. NVivo 12 was used to organise and code the data. To strengthen credibility, a second researcher coded a subset of transcripts independently; differences were discussed until agreement was reached.

2.5 Ethical Considerations

Ethical principles were strictly followed. All participation was voluntary, with informed consent obtained before involvement. Data confidentiality was maintained by using pseudonyms and storing all materials on a password-protected server accessible only to the research team. In keeping with the principle of reciprocity, a plain-language summary of the findings was prepared for the village leadership, ensuring the community could benefit from the study's insights.

3.0 Results and Discussion

The synthesis of the quantitative and qualitative data provides a multi-layered understanding of the factors driving the acceptance of the PUO MechCare Basic Vehicle and Grass Cutter Maintenance Workshop and its perceived impact on the Kampung Sahom community. The results of the multiple regression analysis are presented in Table 3.

Table 3: Results of Multiple Regression Analysis Predicting Behavioural Intention

Variable	B	SE	β	t	Sig.
(Constant)	0.988	0.723	-	1.366	0.185
Performance Expectancy (PE)	0.060	0.174	0.148	0.345	0.733
Effort Expectancy (EE)	-0.084	0.134	-0.206	-0.622	0.540
Social Influence (SI)	0.651	0.145	1.602	4.482	0.000**
Facilitating Conditions (FC)	0.186	0.139	0.458	1.337	0.194

As shown in Table 3, the overall model was statistically significant ($F(4,23) = 17.74$, $p < 0.001$) and explained approximately 76% of the variance in villagers' intention to participate ($R^2 = 0.76$). This indicates that the UTAUT constructs collectively provide substantial explanatory power for understanding villagers' intention to participate in the PUO MechCare Basic Vehicle and Grass Cutter Maintenance Workshop.

Among the four predictors, only Social Influence (SI) significantly predicted behavioural intention ($\beta = 1.602$, $p < 0.001$). This finding suggests that villagers' decisions to participate were strongly shaped by the opinions, encouragement, and endorsement of influential people within their social environment. In the context of Kampung Sahom, trusted figures such as the Tok Batin, Ketua Kampung, family members, and fellow villagers likely played an important role in legitimising the programme and motivating participation. This result is consistent with the communal nature of many rural societies, where collective decision-making and interpersonal trust often have a stronger influence than individual considerations.

In contrast, Performance Expectancy ($\beta = 0.148$, $p = 0.733$), Effort Expectancy ($\beta = -0.206$, $p = 0.540$), and Facilitating Conditions ($\beta = 0.458$, $p = 0.194$) were not statistically significant predictors of behavioural intention. These findings indicate that, after accounting for the effects of the other variables, perceived usefulness, perceived ease of learning, and the availability of supporting resources did not independently explain villagers' intention to participate in the workshop.

Nevertheless, the qualitative findings provide valuable context for interpreting these results. Participants frequently acknowledged that the workshop could help reduce repair costs, increase self-sufficiency, and equip them with useful maintenance skills, reflecting favourable perceptions of Performance Expectancy. Likewise, many respondents appreciated the practical demonstrations and hands-on teaching methods, suggesting that the learning process was manageable despite the non-significant effect of Effort Expectancy. Participants also mentioned challenges such as limited access to tools and appropriate workspaces, highlighting the practical importance of Facilitating Conditions even though these factors did not significantly predict behavioural intention in the regression model.

One possible explanation for the discrepancy between the quantitative and qualitative findings is that villagers may have generally viewed the workshop positively across multiple dimensions, resulting in limited variation in responses for PE, EE, and FC. Under such circumstances, Social Influence may have emerged as the dominant differentiating factor influencing actual participation decisions. Furthermore, the relatively small sample size ($n = 28$) may have reduced the statistical power to detect weaker relationships among the remaining constructs.

The qualitative analysis also revealed broader community benefits extending beyond technical skill acquisition. Drawing on Max-Neef's framework of fundamental human needs, participants reported that the workshop contributed to subsistence by reducing dependence on paid repair services, protection by increasing confidence and self-reliance in maintaining equipment, and creation by fostering satisfaction and pride in independently applying newly acquired skills. These outcomes suggest that the programme generated both practical and psychosocial value for the community.

Overall, the findings indicate that successful implementation of community-based TVET initiatives should not rely solely on demonstrating technical or economic benefits. Equally important is securing the active support of respected community leaders and leveraging existing social networks to encourage participation. Future programmes may therefore benefit from early engagement with local stakeholders and community champions to maximise outreach and programme acceptance.

4.0 Conclusion

This study demonstrates the value of the PUO MechCare Basic Vehicle and Grass Cutter Maintenance Workshop as a service-learning initiative that bridges technical and vocational education with rural community development. While the proposed UTAUT model effectively explained villagers' behavioural intention to participate, the findings underscore the importance of social dynamics in shaping programme acceptance within the community context. Beyond evaluating behavioural intention, the study highlights the broader contribution of community-based technical training in fostering knowledge transfer, strengthening local capacity, and supporting long-term self-reliance. These outcomes suggest that successful TVET outreach programmes should be designed not only to deliver practical skills but also to build meaningful partnerships with local communities, providing a scalable and sustainable approach for empowering rural populations through collaborative learning and engagement.

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Author Contributions

N.R. Sukri: Methodology, Software, Writing- Original Draft Preparation; **M.A. Suarin:** Data Curation, Validating; **A.F. Hat:** Writing-Reviewing and Editing.

Conflicts Of Interest

The manuscript has not been published elsewhere and is not under consideration by other journals. All authors have approved the review, agree with its Submission and declare no conflict of interest in the manuscript.

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