



The Implementation of Service-Learning Malaysia-University for Society (SULAM) Programme at Universiti Teknologi MARA Perak Branch, Malaysia

Junainah Mohamad*
mjunainah@uitm.edu.my
College of Built Environment
Universiti Teknologi MARA Seri Iskandar, Perak, Malaysia

Norhayati Baharun
norha603@uitm.edu.my
College of Computing, Informatics and Mathematics
Universiti Teknologi MARA Tapah, Perak, Malaysia

Daljeet Singh Sedhu
drdaljeetss@uitm.edu.my
Academy of Language Studies
Universiti Teknologi MARA Seri Iskandar, Perak, Malaysia

Corresponding author*

Received: 4 April 2024

Accepted: 16 July 2024

Published: 30 September 2024

CITE THIS ARTICLE:

Mohamad, J., Baharun, N., & Sedhu, D. S. (2024). The implementation of Service-Learning Malaysia-University for Society (SULAM) Programme at Universiti Teknologi MARA Perak Branch, Malaysia. *Journal of Creative Practices in Language Learning and Teaching*, 12(2), 49-62. 10.24191/cplt.v12i2.3617

ABSTRACT

This research concentrates on the advantages of implementing the SULAM program among students and lecturers at Universiti Teknologi MARA, Perak Branch Seri Iskandar Campus, Perak Malaysia. This study employed a quantitative approach. The questionnaires were distributed to students and lecturers involved in the SULAM program. The total number of returned questionnaires by students was 107, and 19 by lecturers. The data was subsequently assessed using the Statistical Package for the Social Sciences (SPSS). The results of this research discovered that integrating the SULAM program with the academic curriculum of students and lecturers had positive impacts. These included: 1) students were able to utilize their knowledge and achieve a deeper comprehension of executing a service-learning program, 2) students



enhanced their functional work skills, and 3) students demonstrated outstanding ethics and professionalism within the SULAM program at the public university, 4) the lecturers can strengthening the relationship between stakeholders, 5) helps to transform lecturer teaching styles, 6) suitable way to design courses, 7) enhancing lecturer's teaching ability, productivity, 8) allows lecturers to assist students by offering pertinent practical examples from real-life situations, 9) discover solutions and grasp new concepts and theories, and 10) offers a chance to conduct action research.

Keywords: Service-Learning Malaysia-University for Society (SULAM); Universiti Teknologi MARA Perak Branch; Malaysia

INTRODUCTION

SULAM, an abbreviation of Service-Learning Malaysia - University for Society, is a Ministry of Education initiative aimed at fulfilling Shift 1 of the Malaysia Education Blueprint 2013–2025 (Malaysian Ministry of Education, 2012). SULAM is widely recognized as a form of experiential education in which students engage in activities that address community needs, coupled with structured opportunities intentionally designed to enrich student learning (Petersen et al., 2012). It is distinct from student community service or volunteerism.

SULAM is a multifaceted concept that combines both curricular and co-curricular approaches to provide service and educational opportunities (Rashid et al., 2023). The terms “service” and “learning” in SULAM suggest a balance between learning outcomes and service outcomes, achievable only through their integration. Typically, SULAM is defined as a form of experiential education where students engage in activities that address community needs alongside structured opportunities specifically designed to enhance their learning (Hanum et al., 2021; Welch, 2009).

SULAM differs from student community service or volunteerism (Naufal et al., 2024). Although both involve “service,” SULAM typically centers around a student organization adopting a local village, with less emphasis on a structured learning agenda. In contrast, SULAM deliberately aims to engage students in planned and purposeful learning linked to their service experiences. Student community service activities are integrated into an academic course, using the service experience as a basis for both academic and civic learning.

LITERATURE REVIEW

SULAM community services are defined as services acknowledged by higher learning institutions (HLIs) through formal or informal consultations with local non-profit organizations, government bodies, and community-based organizations. These services aim to improve the quality of life for community residents, particularly low-income individuals, or to address specific issues related to their needs.

SULAM entails a course-based, credit-bearing educational experience in which students participate in organized service activities addressing specific community needs. By reflecting on these experiences, students attain desired learning outcomes, leading to a deeper comprehension of course content, a greater appreciation of the discipline, and an enhanced sense of personal values and civic responsibility. SULAM pedagogy promotes humanistic and value-driven education (Rashid et al., 2023), which is essential for enhancing our education system by incorporating love, happiness, and mutual respect.

SULAM is a type of experiential education created, executed, and assessed in partnership with the community. It addresses issues identified by the community, strives to balance the service provided with the learning that takes place, enhances the curriculum by extending learning beyond the classroom, enables students to apply their knowledge to real-world situations, and provides opportunities for critical reflection (Fadzil et al., 2023).

The role of academics in SULAM is to establish a learning environment that links curricula to societal issues through civic engagement. They engage students through experiential learning, personalized attention, active scholarship, and dynamic teaching methods (Welch, 2009).



Figure 1. Quadruple Helix SULAM

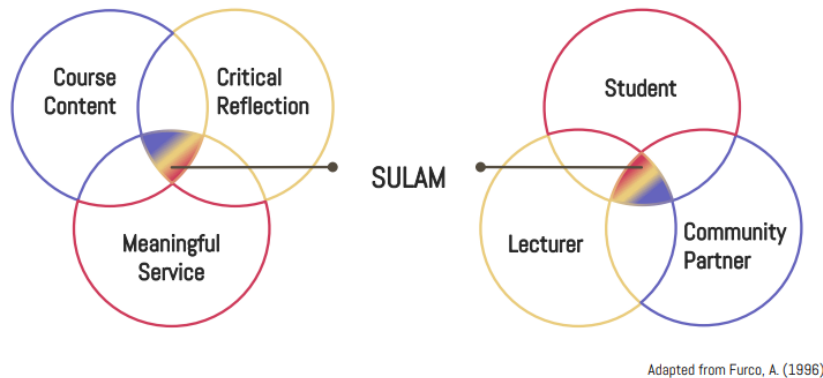


Figure 2. Key components of SULAM

The main clusters of learning outcomes in MQF 2.0 encompass five categories:

1. Knowledge and Understanding
2. Cognitive competency
3. Functional work skills
4. Personal and entrepreneurial skill
5. Ethics and Professionalism

11 Attributes/Learning Outcomes Domain Based on MQF 2.0 that can be assessed in the SULAM course:

1. Knowledge
2. Problem-Solving Scientific Skills
3. Practical skills
4. Interpersonal skills
5. Communication skills
6. Digital skills
7. Numeracy skills
8. Leadership, autonomy and responsibility
9. Personal
10. Entrepreneurial skills
11. Ethics and professionalism

Table 1. Student learning outcomes for SULAM

Student Learning Outcome	Description
Knowledge	<ul style="list-style-type: none"> ● Enables learners to connect prior knowledge in their discipline and expand it into related fields to serve the community
Problem-Solving Scientific Skills	<ul style="list-style-type: none"> ● Improves students' critical thinking abilities ● Enhances complex problem-solving skills ● Assess concepts, as well as information data ● Facilitates comprehension of new information
Practical skills	<ul style="list-style-type: none"> ● Develops the ability to plan, organize, and use techniques and skills necessary for discipline practice
Interpersonal skills	<ul style="list-style-type: none"> ● Manages relationships in teams and within the community and industrial partners (if applicable) ● Networks with diverse cultural communities ● Respect and appreciate different perspectives within a diverse population ● Fosters a lifelong commitment to social responsibility
Communication skills	<ul style="list-style-type: none"> ● Develops students' oral and written communication skills for various audiences and situations ● Utilizes multiple methods to articulate information (written, verbal, art, media, etc.) ● Negotiate to resolve conflict



Table 1. Student learning outcomes for SULAM

Student Learning Outcome	Description
Digital skills	<ul style="list-style-type: none"> ● Ability to use information/digital technologies to solve community problems/address community needs or concerns
Numeracy skills	<ul style="list-style-type: none"> ● Apply quantitative or qualitative tools to analyze and evaluate numerical and graphical data
Leadership, autonomy, and responsibility	<ul style="list-style-type: none"> ● Combine the expertise of all team members to complete the project ● Demonstrate necessary leadership skills such as planning, recruiting, orienting, training, motivating, evaluating, assessing needs, and creating budgets ● Develop a personal leadership style
Personal	<ul style="list-style-type: none"> ● Exhibit values, attitudes, ethics, and beliefs essential for learning from experience (e.g., confidence, self-control, social skills, and proper etiquette) ● Take risks, accept challenges ● Show independence, autonomy, assertiveness ● Show perseverance in the face of difficulty
Entrepreneurial skills	<ul style="list-style-type: none"> ● Exhibit innovation and enterprise ● Create and grow businesses through the discovery and exploitation of opportunities ● Generate ideas about business opportunities and their innovativeness
Ethics and professionalism	<ul style="list-style-type: none"> ● Contribute to the acquisition of moral and ethical values (students' capacity for moral judgment) ● Develop a strong sense of professional ethics ● Show an understanding of various emerging ethical issues in the professional context

(Rashid et al., 2023; Hanum et al., 2021; Muhamad et al., 2022; Rahim et al., 2023)

RESEARCH METHODOLOGY

This quantitative study was utilized to gather data at Universiti Teknologi MARA Cawangan Perak, involving 107 students and 19 lecturers from various colleges/faculties between March 2023 and August 2023. Simple random sampling was employed to select participants. Online questionnaires were utilized to assess students' and lecturers' perceptions and feedback on SULAM programs. The survey included a set of questionnaires adapted from a published instrument designed for evaluating SULAM implementation.

The questionnaire items were evaluated using a five-point Likert Scale to assess the implementation of SULAM as perceived by both students and lecturers. Data analysis was conducted using IBM SPSS 28, focusing on mean and standard deviation. A total of 126



completed responses were examined, enabling researchers to gain insights into the sample composition and patterns in response distribution. Table 2 shows the program and course registered as SULAM programs at the UiTM Perak Branch.

Table 2. Program and course registered as SULAM programs

Program	Course Registered as SULAM Code
CFAP117/CFAP127 - Interior Design Technology/Diploma in Interior Design	DID250 – Interior Design: Institutional and Hospitality
AS120 - Diploma in Science	FSG301 – Laboratory Management
CAAD116 - Diploma in Art and Design (Fashion Design)	FES253 – Fashion Management
CFAP115/CFAP125 - Diploma in Real Estate Management/Diploma in Estate Management	REV159 - Law of Property II
CFAP148 - Diploma in Landscape Architecture	LAN200 - Park and Community Design

Internal reliability was assessed using Cronbach’s alpha coefficient, while construct validity was evaluated through exploratory factor analysis. Cronbach’s alpha coefficient serves as an indicator of internal reliability, which rises with higher correlations among items. The questionnaire administration indicated Cronbach’s alpha values of 0.984 for students and 0.954 for lecturers. This reflects high internal reliability, as any value of over 0.6 is accepted as reliable (Cronbach, 1951).

Table 3. Cronbach’s alpha

Reliability Statistics					
Student			Lecturer		
Cronbach’s Alpha	Cronbach’s Alpha on Standardized Items	N of Items	Cronbach’s Alpha	Cronbach’s Alpha on Standardized Items	N of Items
.984	.984	16	.954	.956	7

RESULTS AND DISCUSSION

The study aimed to analyze the benefits of implementing SULAM programs among students and lecturers at the UiTM Perak Branch after they carried out SULAM programs.

Socio-demographic Characteristics

In total, 126 respondents participated in the survey, of which, for lecturers, 15% (n=7) identified as female and 85% (n=12) identified as male. While for students, 36.8% (n=16) identified as female and 63.2% (n=91) identified as male. For lecturers, a total of 94.7% (n=18) of



respondents are Malay, and 5.3% (n=1) are Iban. While for students, a total of 95.3% (n=102) of respondents are Malay, 1.9% (n=2) are Bumiputera Sabah and Dayak, Iban and Bajau are 0.9% (n=1), respectively.

Table 4. Socio-demographic characteristics of the sample

Variable	Types of respondents	Group	Frequency	Percentage
Gender	Lecture	Female	7	15%
		Male	12	85%
	Student	Female	16	36.8%
		Male	91	63.2%
Race	Lecture	Malay	18	94.7%
		Iban	1	5.3%
		Student	Malay	102
		Bumiputera Sabah	2	1.9%
		Dayak	1	0.9%
		Iban	1	0.9%
		Bajau	1	0.9%
	Program Code	Lecturer	CFAP117/CFAP127	6
AS120			7	36.8%
CAAD116			2	10.5%
FAP115/CFAP125			2	10.5%
CFAP148			2	10.5%
Student		CFAP117/CFAP127	26	24.3%
		AS120	12	11.2%
		CAAD116	34	31.8%
		FAP115/CFAP125	29	27.1%
		CFAP148	6	5.6%

The Implementations of SULAM Programmes Among Students at UiTM Perak Branch

The following Table 5 presents the results of students' knowledge and understanding of SULAM programs at the UiTM Perak Branch. Knowledge and understanding are one of the main clusters of MQF 2.0 learning outcomes. There are four items measures under knowledge and understanding, which are 1) the community's requirements in SULAM initiatives, 2) grasp the implementation of the SULAM program within the community, 3) students' ability to apply theoretical concepts in practical settings, and 4) service-learning opportunities help students better grasp the application and comprehension of theories and course concepts acquired in the classroom.

Based on Table 5, the majority of students assess the advantages of integrating the SULAM program based on their knowledge and comprehension very positively. The first aspect measured was the community’s needs in SULAM programs, yielding which resulted in a mean score of 4.07 and a standard deviation (SD) of 0.882. These findings suggest that most respondents agree that integrating the SULAM program into their curriculum has beneficial effects that align with their knowledge and understanding.

Second, it demonstrates that the majority of students agreed they comprehended the implementation of the SULAM program within the community, with a 4.01 mean score and 0.947 SD, indicating widespread understanding among the students of how the SULAM program is implemented in the community.

Third, students can apply theoretical concepts in a real-world environment with a 0.935 SD and 4.05 mean score. Students agreed that implementing SULAM benefits them in terms of how the theories and concepts they learned in class are applied in real-world situations.

Lastly, the service-learning experience enables students to achieve a deeper understanding and practical application of theories and course concepts learned in the classroom, resulting in a 4.13 mean score and 0.836 SD. This indicates higher levels of student knowledge and comprehension with minimal deviation.

Table 5. Benefits of implementing SULAM in terms of students’ knowledge and understanding

Benefit	Item	Mean	Std Deviation
Student’s Knowledge and Understanding	The needs of the community in SULAM programs	4.07	0.882
	Understand how the SULAM program is implemented in the community	4.01	0.947
	Students can apply theoretical concepts in a real-world environment	4.05	0.935
	Service-learning experience enables students to better comprehend and apply the theories and course concepts they have learned in the classroom	4.13	0.836

Table 6 shows the benefits of implementing SULAM in terms of students’ work skills. After completing projects within the SULAM programs in collaboration with the community, most of the student responded that they had positive benefits where they can enhance their functional work skills. The higher mean score under students’ functional work skills indicates that students are able to enhance their leadership skills and students able to work in a team after involving with SULAM programs, with standard deviations of 0.902 and 0.848 and a mean score of 4.29, respectively.



Besides, it has improved students' communication skills, with a mean score of 4.16 and an SD of 0.859. Service learning impacts students' academic achievement and enhances their overall personality development, character building, and growth. It equips students with practical skills essential for success in real-world settings, bridging classroom learning theories with practical challenges. Lastly, by implementing SULAM students also, experiential learning is highly effective in engaging students' attention, able to enhance their leadership skills, manage time wisely.

Table 6. Benefits of Implementing SULAM for Students' Functional Work Skills

Benefit	Item	Mean	Std Deviation
Student's Functional Work Skills / Vital Skills	Able to manage time wisely	4.07	0.865
	Able to improve communication skills	4.16	0.859
	Able to enhance leadership skills	4.09	0.927
	Able to work independently	4.19	0.902
	Able to work in a team	4.19	0.848
	Experiential learning is very effective in capturing students' attention	4.11	0.894
	Service learning is not only effective for students' academic learning but also for their overall personality development, character building, and personal growth	4.14	0.895
	Service learning provides practical skills necessary for effectiveness in the actual working environment, bridging the gap between classroom theories and real-life challenges	4.11	0.883

Table 7 outlines the outcomes of SULAM implementation concerning students' ethics and professionalism. According to the table, a significant majority of students acknowledged that engagement in community service-learning projects had a positive effect on their ethical development and professional growth. Specifically, with a 4.14 mean score and 0.874 SD, students indicated their agreement that participation in SULAM initiatives facilitated meaningful interactions and fostered relationships with the community under the guidance of their lecturers.

Most of the respondents indicated that they could uphold social tolerance and social responsibilities while participating in the project with a diverse community, as shown by a 4.10 mean score and 0.846 SD. Additionally, another finding highlighted a 4.08 mean score and 0.826 SD, indicating strong agreement among respondents regarding their involvement in community projects. The sustainability of the project is crucial and should be considered to ensure long-term benefits for the community. It also demonstrates the role of ethics and professionalism in community assistance.



Table 7. Benefits of implementing SULAM in terms of student’s ethics and professionalism

Benefit	Item	Mean	Std Deviation
Student’s Ethics and Professionalism	Able to engage with the community	4.14	0.874
	Able to perform social tolerance and responsibility with the community	4.10	0.846
	Able to sustain the community program	4.08	0.826

Table 8 presents the findings of implementing SULAM international programs with a 4.23 mean score and 0.864 SD. These international service-learning programs promoted students' personal and social growth by exposing them to a variety of global cultures and providing opportunities to engage and collaborate within diverse international communities in various educational settings.

Table 8. Benefits of implementing SULAM in terms of international SULAM programs

Benefit	Item	Mean	Std Deviation
International SULAM Programs	International service-learning programs fostered student’s personal and social learning by exposing them to diverse global cultures and providing them with opportunities to interact and work in different international communities in assorted learning environments	4.23	0.864

The Implementations of SULAM Programmes Among Lecturers at UiTM Perak Branch

Table 9 presents the benefits of implementing SULAM among lecturers at the UiTM Perak Branch. Seven questions were posed to the lecturers, with the first focusing on SULAM as a platform for enhancing relationships among stakeholders (students, lecturers, and the community), scoring an average of mean score 4.74 with an SD of 0.452. Lecturers agreed that being involved with SULAM programmes strengthens the relationship between students and lecturers with the community. Service learning aids in transforming lecturers' teaching styles and enhances their ability to critically evaluate existing theories and their practical applicability through logical connections with real-life problems. This is reflected in a mean score of 4.68 and an SD of 0.597.

SULAM programs are an effective way to design courses that achieve both academic and institutional goals while addressing the needs of the local community, reflected in a mean score of 4.63 and an SD of 0.697. Additionally, lecturers agreed that service learning fosters a sense of self-efficacy, raises awareness about community needs, and helps design effective learning activities to meet overall course objectives, with a mean score of 4.63 and an SD of 0.597.

Lecturers also agreed that service learning is effective in enhancing their teaching ability and productivity while actively participating in fieldwork with students, reflected by a mean



score of 4.63 and an SD of 0.597. Service learning enables lecturers to facilitate students by providing relevant practical examples from real-life scenarios to help them find solutions and understand new concepts and theories, with a mean score of 4.58 and an SD of 0.582. It also offers an opportunity to perform action research, allowing scholars to test and validate existing theories in practical, real-world scenarios, with a mean score of 4.53 and an SD of 0.692.

Table 9. Benefits of implementing SULAM among lecturers at UiTM Perak Branch

Benefit	Mean	Std Deviation
Serving as a platform for fostering healthy relationships between stakeholders (students, lecturer, community) – healthy relationships	4.74	0.452
Service learning transforms lecturers' teaching styles and enhances their ability to critically assess existing theories and their applicability by making logical connections with real-life problems	4.68	0.597
An effective method for designing courses that meet academic and institutional goals while addressing the needs of the local community	4.63	0.697
Service learning fosters a sense of self-efficacy, raises awareness of community needs, and creates effective learning activities to meet overall course objectives	4.63	0.597
Service learning effectively enhances lecturers' teaching abilities and productivity while they actively participate in fieldwork with students	4.63	0.597
Service learning allows lecturers to assist students by providing practical examples from real-life scenarios, helping them find solutions and grasp new concepts and theories	4.58	0.582
Offers an opportunity for action research, allowing scholars to test and validate existing theories in practical, real-world settings	4.53	0.692

CONCLUSION

The study's findings examine the advantages of implementing service-learning initiatives within the SULAM program among students and faculty at Universiti Teknologi MARA, Perak Branch. The results indicated that the introduction of service-learning projects had noticeable effects on students and faculty members engaging with the community. The research analyzed feedback from 107 students and 19 faculty members, with the majority expressing positive views on the projects. Given the favorable mean scores across various metrics and a well-distributed range of responses, it is recommended that the projects continue. The findings underscored that service-learning yields mutual benefits for all involved, significantly contributing to the overall enhancement of the local community. In summary, the SULAM program has demonstrated positive impacts, benefiting students participating in service-learning projects, as well as faculty, universities, communities, agencies, industries, and ultimately, the nation.



REFERENCES

- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297–334. <https://doi.org/10.1007/BF02310555>
- Fadzil, A. S. A., Samsuddin, S., Mustafa, N. N. S., Lazan, R. M., & Johan, N. H. (2023). Did it go accordingly? A case of community-based learning Sulam on stock trading in Malaysia. *Proceedings of the International Conference on the Future of Education*, 1(1), 8–20. <https://doi.org/10.33422/wcfeducation.v1i1.139>
- Hanum, H., Farhan, M. S., Ashikin, A. H., Faiz, M. N., Naqiyah, S. S., Rosniza, A. H., & Hasnah, H. (2021). From classes into practices: The impacts of implementing SULAM in public university on the students. *AIP Conference Proceedings*, 2347(1).
- Malaysian Ministry of Education. (2012, September). *Preliminary Report Malaysia Education Blueprint 2013-2025*. <https://teachformalaysia.org/wp-content/uploads/2019/08/Preliminary-report-Blueprint-English.pdf>
- Muhamad, H., Mustapha, M., Ni, S. W., & San, O. T. (2022). Conceptual framework of service-based learning moderating effect on the relationship between students' knowledge of ethics course content and generic skill. *Sciences*, 12(1), 1047–1059.
- Naufal, W. N. A. D. M., Aris, S. R. S., Wahi, R., Mohamed, A. M. D., Zulkipli, Z. A., Hashim, R. A., Si, E. M., & Yusof, M. M. M. (2024). Key success factors for implementation of Service-Learning Malaysia University for Society (SULAM) projects at higher education level: Community perspectives. *Asian Journal of University Education*, 20(1), 152–172.
- Petersen, J. C., Judge, L., & Pierce, D. A. (2012). Conducting a community-based experiential-learning project to address youth fitness. *Journal of Physical Education, Recreation & Dance*, 83(6), 30–36. <https://doi.org/10.1080/07303084.2012.10598793>
- Rahim, N. C. A., Ab Rashid, A. F., Yasin, N. H. M., Samsudin, N., & Omar, R. N. R. (2023). Assessment of the impact of Service-Learning Malaysia University for Society (SULAM) on undergraduate students' academic performance in Kota Bharu. In I. N. M. Shahraneer, S. S. Abdullah, N. Bukhari, & N. N. N. Omar (Eds.), *Proceeding of The 8th Inspirational Scholar Symposium (ISS) and 2nd National Conference on Sulam*, 171-180. <https://sulam-iss2023.com/>
- Rashid, I. M. A., Zaini, M. R., Jamil, M. F., Awang, A. H., Roni, M., Adanan, A., & Faisal, S. I. (2023). Nexus leadership theory to practice: Educational leadership development through Service Learning Malaysia - University For Society (Sulam). *International Journal of Academic Research in Business and Social Sciences*, 13(1), 1388 – 1397.
- Welch, M. (2009). Moving from service-learning to civic engagement. *Civic Engagement in Higher Education: Concepts and Practices*, 174–195.

Conflict of Interest

The authors affirmed that there is no conflict of interest in this article.

Acknowledgement

The study is fully sponsored by Universiti Teknologi MARA, Perak Branch.




Authors' Contributions

The first author carried out the experiment and wrote the manuscript with support from the second and third authors. All authors contributed to the final version of the manuscript.

About the Authors

	<p>Junainah binti Mohamad is a Senior Lecturer of Real Estate Management at Universiti Teknologi MARA Perak Branch, Seri Iskandar Campus. Currently, she holds an administrative position as Coordinator of Academic Management and Development. She received her PhD in Heritage Property Valuation from Universiti Malaysia Kelantan in 2017. Other academic qualifications include both a Master's Degree and a Bachelor's Degree in Property Management from Universiti Teknologi Malaysia. Her research interest surrounds areas like heritage property valuation and real estate modeling. She is also a regular invited speaker for heritage property valuation both locally and internationally. She has received several research grants, such as the Fundamental Research Grant (FRGS) funded by the Ministry of Higher Education, the Lestari Research Grant funded by Universiti Teknologi MARA, and the National Real Estate Research Coordinator (NAPREC) Grant. She has also won several awards, such as the best paper award and the best poster award.</p>
	<p>Norhayati Baharun is an Associate Professor of Statistics, Universiti Teknologi MARA Perak Branch, Tapah Campus. She received her PhD in Statistics Education from the University of Wollongong, Australia, in 2012. Her career started as an academic in January 2000 at the Universiti Teknologi MARA, which specializes in statistics. Other academic qualifications include both a Master's Degree and Bachelor's Degree in Statistics from Universiti Sains Malaysia and a Diploma in Statistics from Institute Teknologi MARA. Among her recent academic achievements include thirteen ongoing and completed research grants (local and international), eleven completed supervision of postgraduate students, twenty indexed journal and proceedings publications, two academic and policy books, twenty-six refereed conference proceedings and book chapter publications, a recipient of 2013 UiTM Academic Award on Teaching, and fourteen innovation projects with one registered Copyright by Intellectual Property Corporation of Malaysia (MyIPO). She is also a certified Professional Technologist (Ts.) (Information & Computing Technology) of the Malaysia Board of Technologists (MBOT), a Fellow Member of the Royal Statistical Society (RSS), London, United Kingdom, a Professional Member of the Association for Computing Machinery (ACM), New York, USA, an active member of Machine Learning and Interactive Visualization (MaLIV) Research Group, Universiti Teknologi MARA Perak Branch, a</p>



	<p>Certified Neuro Linguistic Program (NLP) Coach of the Malaysia Neuro Linguistic Program Academy, and an Associate Member of National Professors Council (MPN). To date, her research interests continue with current postgraduate students under her supervision in the decision science area, which is now expanding to a machine learning application. She can be contacted through an email at norha603@uitm.edu.my.</p>
	<p>Daljeet Singh Sedhu is a Senior Lecturer at the Academy of Language Studies, Universiti Teknologi MARA Perak Branch, Seri Iskandar Campus. He received his PhD in Education from The Islamic Science University of Malaysia in 2019. His career started as an academic in January 2005. He specialized in Educational Leadership, Second Language Acquisition Strategies, and Systematic Literature Review.</p>