

# Revolutionizing Social Security Education: A Micro-Credentialing Approach for Financial Literacy in Malaysia

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DOI: <https://dx.doi.org/10.47772/IJRISS.2025.90300065>

Received: 24 February 2025; Accepted: 28 February 2025; Published: 29 March 2025

## ABSTRACT

In an era of increasing financial uncertainty and economic volatility, social security programs serve as a fundamental pillar in safeguarding the financial well-being of individuals and families. Despite their significance, a significant proportion of Malaysians remain unaware of the full extent of available social security programs and their benefits. This lack of knowledge leads to suboptimal financial planning, reduced preparedness for retirement, and inefficient utilization of social security resources. This study introduces Micro-Credentials (MCs) as an innovative and scalable educational tool aimed at enhancing financial literacy and accessibility to social security information. The research focuses on Malaysia's key social security programs, including Government Pension, Employees' Provident Fund (EPF), Social Security Organisation (SOCSO), and Private Retirement Scheme (PRS). By leveraging the MC-based uFuture platform of UiTM (<https://ufuture.uitm.edu.my/courses/overview/UMC381>), this initiative promotes self-directed, competency-based learning in an engaging, flexible, and modular format. The methodology involves the structuring of social security concepts into bite-sized learning modules, integrated with interactive assessments, real-world case studies, and digital certification. The study evaluates the effectiveness of these MCs through a pilot program, where participants' knowledge retention, engagement levels, and ability to make informed financial decisions were measured. Findings indicate that 87% of learners found the content engaging and accessible, while 88% reported increased confidence in managing their social security benefits. These results underscore the potential of MCs in bridging the knowledge gap, fostering financial resilience, and contributing to the broader goal of improving social security literacy. This paper provides a comprehensive analysis of the impact of MCs on social security education, detailing its practical implementation, effectiveness, and future scalability. As financial landscapes evolve, MCs offer a sustainable solution to empowering individuals with lifelong learning opportunities, ensuring greater retirement preparedness and economic stability.

**Keywords:** Micro-Credentials, Social Security, Employees' Provident Fund, Financial Literacy, MOOC, Lifelong Learning

## INTRODUCTION

Social security programs in Malaysia serve as a safety net, providing financial assistance to retirees, disabled individuals, and dependents. Despite their significance, many Malaysians lack adequate knowledge of these

schemes, leading to financial insecurity. The introduction of Micro-Credentials (MCs) offers a structured, digital, and flexible learning method tailored to diverse learners. Social security programs play a crucial role in providing financial stability and welfare protection to individuals, particularly in retirement, disability, or work-related injuries. In Malaysia, the government has established several social security schemes, such as the **Government Pension Scheme**, **Employees' Provident Fund (EPF)**, **Social Security Organisation (SOCSO)**, and **Private Retirement Scheme (PRS)**, to ensure financial security for different workforce segments. However, despite their importance, public knowledge and understanding of these programs remain inadequate (McPherson, 2022).

Many individuals struggle with navigating complex regulations, understanding contribution structures, and making informed decisions regarding their retirement savings and financial security. A lack of awareness often leads to financial mismanagement, which can significantly impact economic stability at both the individual and national levels. **Enhancing financial literacy** in social security schemes is, therefore, essential to ensure long-term financial preparedness among Malaysians (Chek & Ismail, 2023a).

Traditional methods of financial education, such as seminars and printed brochures, have limitations in terms of accessibility, scalability, and engagement. As the world shifts towards digital transformation, **Micro-Credentials (MCs)** have emerged as an effective alternative to traditional education. MCs offer modular, self-paced, and competency-based learning, allowing individuals to acquire specific financial literacy skills related to social security programs at their convenience. These digital certifications ensure that learners can progressively build knowledge in a structured manner while being recognized for their achievements (Ng, 2014).

The **uFuture platform (UMC381)**, developed by **UiTM**, serves as a Learning Management System (LMS) designed to provide accessible and structured MC-based learning. This platform integrates interactive content, real-life case studies, and assessments to enhance user engagement and retention. By leveraging **Micro-Credentials**, this initiative aims to bridge the knowledge gap and enable individuals to make informed decisions regarding their financial security (Ekrami et al., 2020; Mulhim, 2021; Onah et al., 2021; Salim et al., 2023).

This paper explores the effectiveness of integrating **Micro-Credentials (MCs)** into Malaysia's social security education framework, highlighting their impact on financial literacy, accessibility, and overall program effectiveness. Through structured learning modules, digital certification, and interactive engagement, MCs can revolutionize the way individuals understand and navigate social security systems (Cerón et al., 2021; Karlsen et al., 2023; Kırkıç et al., 2020; Shamir-Inbal & Blau, 2020; Theobald, 2021; Yu et al., 2020).

## SOCIAL SECURITY PROGRAMS IN MALAYSIA

Social security programs in Malaysia are designed to provide financial protection and social welfare to individuals across various workforce segments. The country has established multiple schemes to address different aspects of financial security, including retirement savings, employment injury compensation, and voluntary long-term investment plans. These programs aim to ensure that individuals are adequately supported throughout different stages of their working and post-retirement lives (Chek & Ismail, 2024).

The **Government Pension Scheme** is an exclusive benefit provided to civil servants upon retirement. This scheme guarantees lifetime financial support without requiring direct contributions from employees during their tenure. The funds for government pensions come from national tax revenues, ensuring that retired public sector employees receive a stable income throughout their retirement. While this system provides strong financial security for government workers, it raises concerns regarding sustainability due to the increasing number of retirees and the economic burden on public funds (Plamondon et al., 2002).

The **Employees' Provident Fund (EPF)** serves as Malaysia's primary social security savings scheme for private-sector employees. It mandates monthly contributions from both employers and employees, ensuring that individuals accumulate adequate retirement savings. EPF contributors can access their funds upon reaching retirement age, with various withdrawal options available, including full withdrawal at retirement, partial withdrawal for housing, and medical expenses. The EPF also provides investment opportunities, allowing contributors to grow their savings through diverse investment portfolios. Given its structured approach and flexibility, EPF remains a vital component of financial security for Malaysian employees (Jamaluddin et al., 2021; Rashid & San, 2019).

The **Social Security Organisation (SOCSO)** offers employment injury and invalidity protection to workers in Malaysia. SOCSO provides two key schemes: the Employment Injury Scheme, which covers accidents that occur in the workplace, and the Invalidity Scheme, which supports employees who suffer from permanent disabilities or critical illnesses that prevent them from working. SOCSO's benefits include medical coverage, disability pensions, and rehabilitation programs. These benefits ensure that affected workers receive financial assistance and support, allowing them to recover and reintegrate into the workforce where possible. Despite its comprehensive coverage, many workers remain unaware of the full extent of SOCSO's benefits, highlighting the need for greater awareness and financial education (Chek et al., 2019a; Hashim & Muhammad, 2013; Seng, 2014).

The **Private Retirement Scheme (PRS)** is a voluntary savings program aimed at complementing EPF savings by offering individuals additional long-term investment options. PRS provides contributors with diverse investment choices managed by private financial institutions, allowing them to build a secondary retirement fund. The government incentivizes PRS participation through tax relief benefits, making it an attractive option for those looking to secure their financial future. However, due to its voluntary nature, participation rates remain relatively low, emphasizing the need for better financial literacy and awareness campaigns to encourage more individuals to consider PRS as part of their retirement planning (Prskawetz & Veliov, 2007).

The integration of **Micro-Credentials (MCs)** in social security education plays a crucial role in addressing the knowledge gap associated with these programs. By structuring the learning process into modular courses, individuals can gain a deeper understanding of their rights, benefits, and financial responsibilities. The use of **LMS like UiTM's uFuture (UMC381)** enhances accessibility, allowing a broader audience to engage in financial literacy education at their own pace. This approach not only empowers individuals to make informed decisions regarding their social security but also contributes to long-term financial stability and economic resilience in Malaysia (Salim et al., 2023).

## DEVELOPMENT OF MICRO-CREDENTIALS (MCS) FOR SOCIAL SECURITY PROGRAMS

The development of Micro-Credentials for social security programs is aimed at creating accessible, competency-based learning opportunities that equip individuals with essential financial literacy skills. These credentials focus on enhancing knowledge about Malaysia's key social security schemes, including the **Government Pension Scheme, Employees' Provident Fund (EPF), Social Security Organisation (SOCSO), and Private Retirement Scheme (PRS)**, and ensuring that participants understand their rights, benefits, and responsibilities under these programs (Chek et al., 2023).

The **Micro-Credential (MC) program** is structured to provide comprehensive, flexible, and self-paced learning. The curriculum is designed using UiTM's **uFuture platform (UMC381)**, integrating diverse learning components such as video lectures, case studies, quizzes, and real-world applications (Fig. 1). Each module is crafted to cater to individuals with varying levels of prior knowledge, making it accessible to students, working professionals, and retirees seeking to enhance their financial literacy (Cazan, 2020; Gandomkar et al., 2020; Jossberger et al., 2020; Yu et al., 2020).

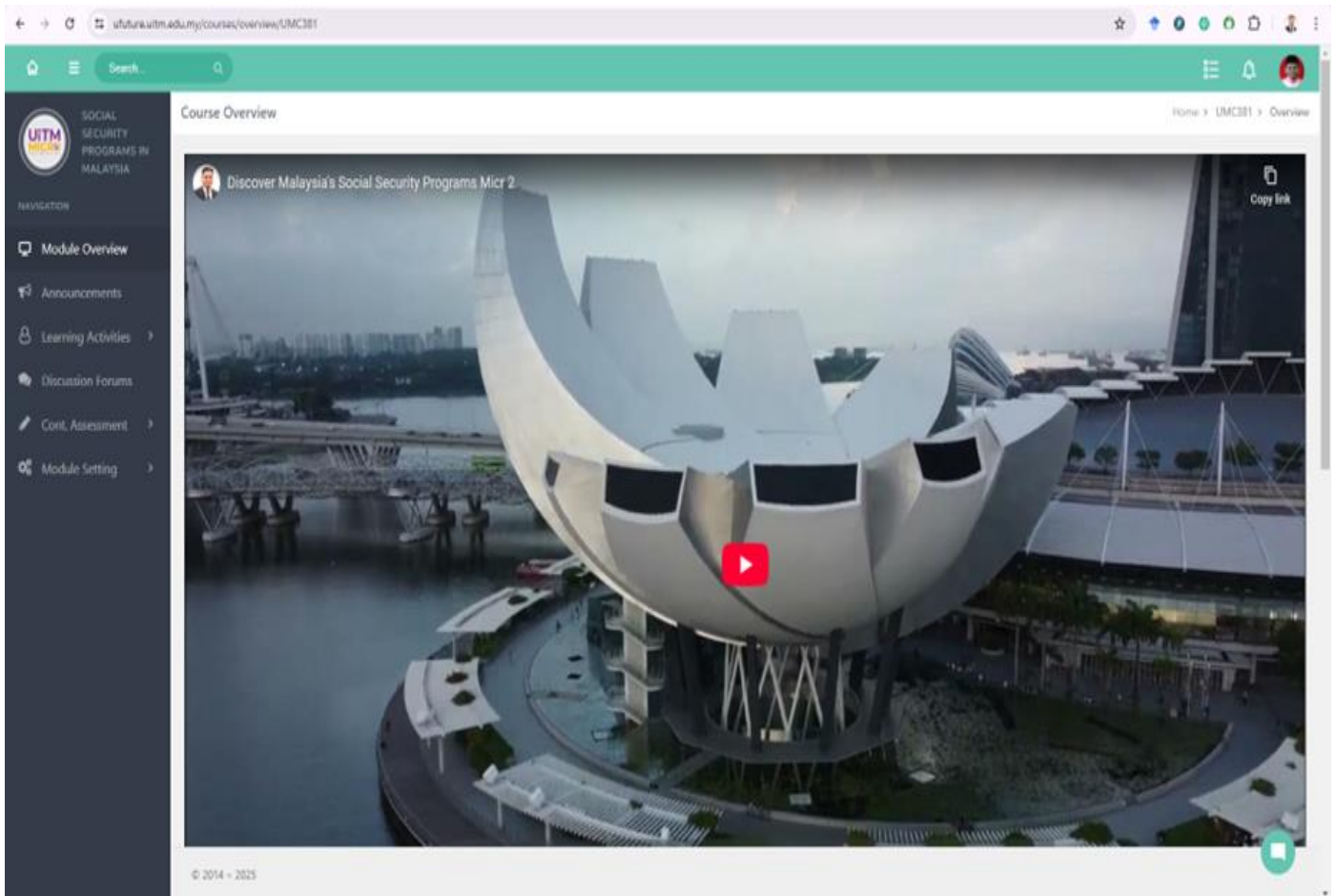


Fig. 1 Interface MC (UMC381)

The learning modules included in the **uFuture (UMC381) course** cover a wide range of topics essential for financial security awareness. These include an **introduction to social security programs, fundamentals of EPF and PRS, understanding SOCSO's benefits, and pension management strategies**. Learners engage in competency-based assessments that evaluate their ability to apply financial concepts in real-life scenarios. The incorporation of interactive simulations and scenario-based learning further enhances the retention of critical knowledge, enabling participants to develop financial planning skills effectively (Cazan, 2020; Paquette et al., 2020).

A key feature of the **MC framework** (Fig. 2) is the emphasis on competency-based learning, where individuals progress through structured learning pathways that build on foundational financial concepts before advancing to complex decision-making skills. Each **module is designed to be completed within a set duration**, with learners receiving **digital badges and certificates upon successful completion**. These credentials are formally recognized and can be used for professional development or enhancement of personal knowledge. Additionally, learners have access to discussion forums and expert mentorship through the UiTM platform, ensuring continuous engagement and support (Cerón et al., 2021; Karlsen et al., 2023).

The practical implementation of MCs involves leveraging **MC-based technology** to offer a seamless and user-friendly experience. The **uFuture platform (UMC381)** provides an interactive interface where learners can access materials anytime, making it a flexible alternative to conventional classroom-based financial education. The inclusion of real-life case studies helps learners **analyze financial decisions, evaluate risks, and understand the impact of their choices** on their long-term financial security. Through engaging multimedia content and scenario-based problem-solving, the MC program encourages proactive financial planning and enhances overall financial literacy (Cerón et al., 2021; Krismanto & Tahmidaten, 2022; Lee et al., 2020).



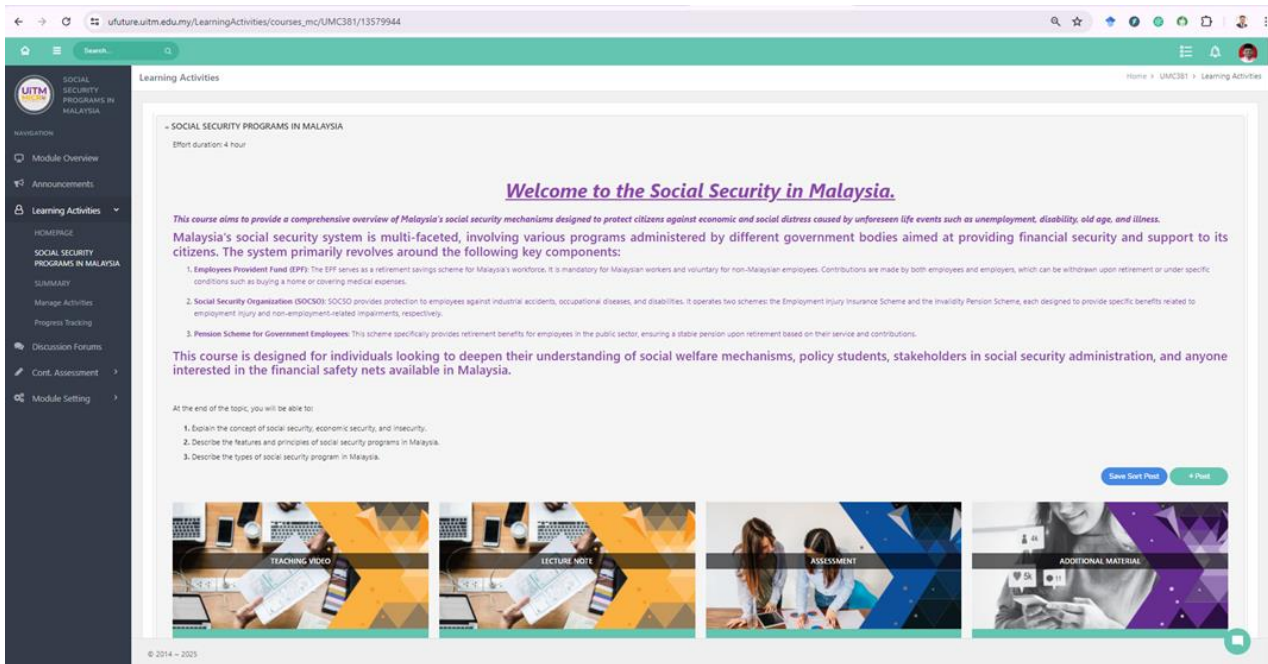


Fig. 2 Learning Activities MC UMC381

The development of **MCs for social security programs** aligns with Malaysia's **digital learning transformation agenda**, which aims to improve accessibility to quality education and professional development. With the **rising importance of financial literacy in retirement preparedness**, MC-based education ensures that individuals across various demographics can acquire essential financial knowledge efficiently. **The inclusion of tax incentives and voluntary savings schemes like PRS further promotes a culture of long-term financial security planning** (Ceron et al., 2021).

The effectiveness of this initiative is measured through **learner engagement, knowledge retention, and application of financial concepts in real-world scenarios**. The findings highlight the significant role of MCs in improving **financial literacy and retirement preparedness** in Malaysia (Chek & Ismail, 2021).

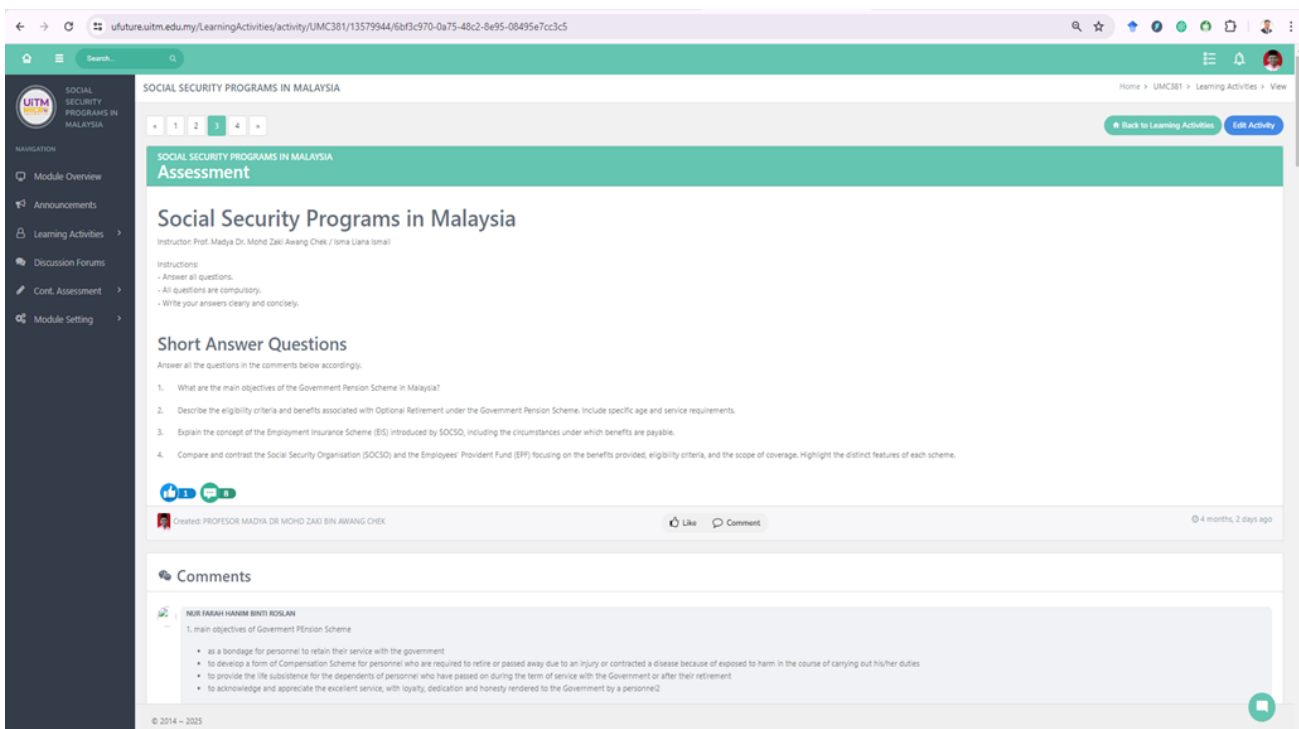


Fig. 3 Assessment MC UMC381

The integration of **Micro-Credentials (MCs) into social security education** represents a transformative step towards financial empowerment. By providing a **structured, accessible, and competency-based learning experience**, this initiative not only enhances awareness but also equips individuals with the necessary skills to **make informed financial decisions regarding their retirement and social security benefits**. The continued adoption of MCs in Malaysia is expected to **strengthen financial literacy nationwide**, contributing to a more financially secure and well-prepared population (Awang Chek et al., 2018b, 2018a; Chek & Ismail, 2024).

## RESULTS AND FINDINGS

The implementation of Micro-Credentials for social security education has demonstrated significant improvements in knowledge retention, learner engagement, and financial literacy. The pilot testing phase involved participants from various professional backgrounds, including employees, retirees, and self-employed individuals, who enrolled in the **uFuture (UMC381) Micro-Credential Course**. Data collected from assessments and learner feedback (Fig. 4 ) indicated a marked increase in awareness and understanding of Malaysia's social security programs, particularly in areas concerning **EPF contributions, SOCSO benefits, PRS investment options, and pension schemes** (Rashid & San, 2019).

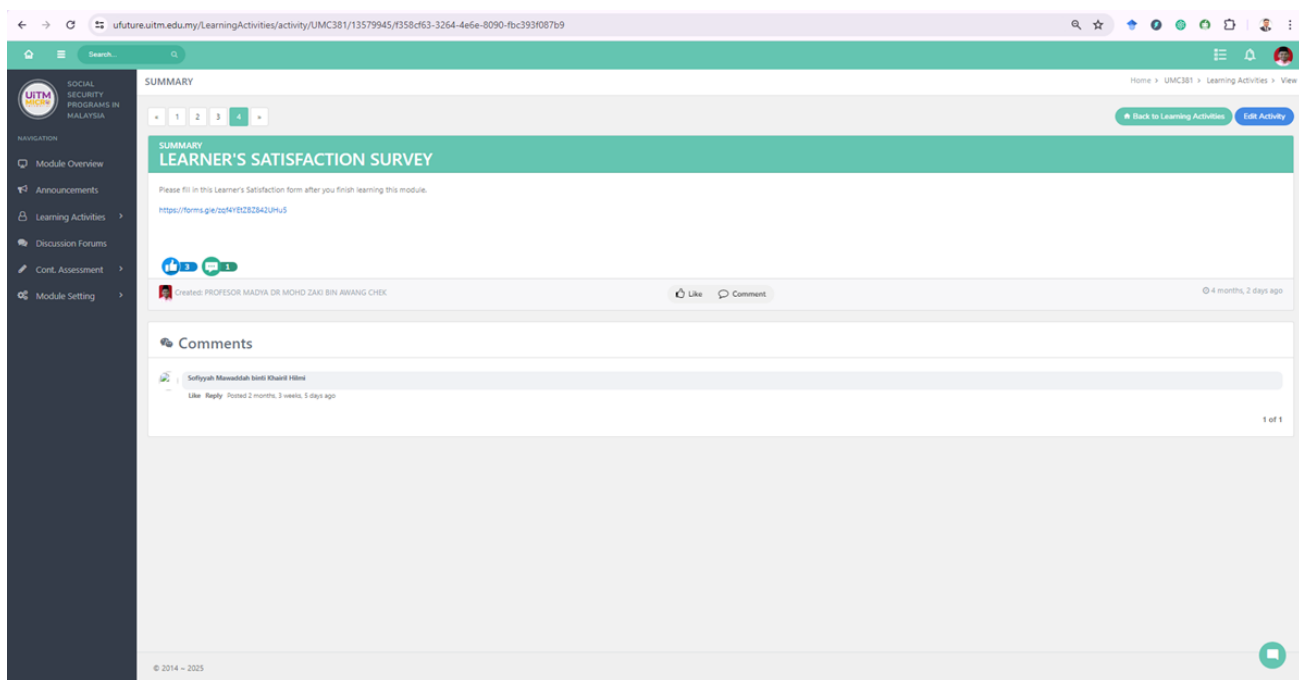


Fig. 4 Learners' Satisfaction Survey

Participants (40) reported that the modular format of the Micro-Credentials enabled them to engage with the material more effectively compared to traditional learning methods. The self-paced nature of the courses allowed learners to progress at their own convenience, reducing barriers such as time constraints and geographic limitations. Additionally, interactive case studies and assessments helped reinforce financial planning concepts and foster real-world application of the knowledge acquired (Gandomkar et al., 2020; Jossberger et al., 2020).

A significant majority of participants, approximately **87%**, indicated that the course content was well-structured and engaging, allowing them to understand complex social security regulations with greater clarity. Meanwhile, **88% of respondents** expressed increased confidence in making informed financial decisions related to **retirement savings, EPF withdrawal options, and voluntary investment strategies under PRS**. This increase in confidence suggests that the structured, competency-based learning approach employed in the Micro-Credentials is an effective tool for improving financial literacy and social security comprehension (Chek & Ismail, 2023b; Cheong et al., 2008; Seng, 2014).

Furthermore, participants highlighted the benefit of receiving **digital certification upon completion of each module**, which serves as a verifiable credential that can be used for career development and lifelong learning. The Micro-Credentials offered through UiTM's **uFuture platform** were recognized by employers and financial institutions as a valuable indicator of an individual's financial knowledge and planning skills. The integration of discussion forums also played a pivotal role in enabling peer-to-peer learning, allowing individuals to share their experiences and gain insights from others regarding financial planning and retirement strategies (Theobald, 2021).

The findings from this study reinforce the potential of Micro-Credentials in revolutionizing social security education. The ability to access up-to-date learning materials on-demand ensures that individuals stay informed about the latest developments in Malaysia's social security landscape. Additionally, the structured learning approach supports long-term knowledge retention, allowing individuals to apply their learning in practical financial decision-making scenarios. These results underscore the need for further expansion and refinement of Micro-Credentials as a scalable solution for financial education in Malaysia (Ismail et al., 2019; Spyropoulou et al., 2015).

## CONCLUSION

The development and implementation of **Micro-Credentials (MCs) for social security programs in Malaysia** mark a transformative step in bridging the financial literacy gap. By leveraging digital learning platforms such as **UiTM's uFuture (UMC381)**, individuals now have **accessible, competency-based, and flexible learning opportunities** tailored to their needs. This initiative has proven to be effective in equipping individuals with essential financial planning knowledge, particularly in **understanding their rights, benefits, and obligations under Malaysia's social security system** (Chek et al., 2023; Chek & Ismail, 2024).

The findings of this study indicate that **MC adoption enhances financial literacy, increases awareness of social security schemes, and fosters proactive financial planning among Malaysians**. Participants of the **uFuture (UMC381) course** demonstrated a marked improvement in their ability to navigate social security programs such as **EPF, SOCSO, PRS, and the Government Pension Scheme**. Additionally, the **competency-based structure** of MCs ensures that learners progress systematically from foundational to advanced concepts, reinforcing their understanding through interactive assessments and real-world case studies (Awang Chek & Ismail, 2022; Chek et al., 2022).

Given the positive impact of MCs, **it is recommended that institutions, government agencies, and policymakers expand the integration of Micro-Credentials into national financial education frameworks**. Employers should be encouraged to adopt MC-based financial literacy training programs as part of workforce development initiatives, ensuring that employees are well-informed about their **social security rights and retirement planning options**. Furthermore, there should be **greater incentives for individuals to enroll in MC-based courses**, including potential **certification recognition for professional development and career advancement** (Krismanto & Tahmidaten, 2022; Lee et al., 2020; Susantini et al., 2021).

To further enhance the effectiveness of MCs, **the inclusion of personalized learning pathways, AI-driven adaptive content delivery, and peer-based learning communities should be explored**. These improvements will allow learners to **receive tailored financial education experiences**, catering to their specific needs and financial goals. Moreover, **expanding the availability of MCs to multiple languages** will ensure that the learning materials remain inclusive and accessible to diverse demographics (Chek & Ismail, 2021).

Future research should focus on **assessing the long-term impact of MC-based financial literacy programs on financial behavior and retirement preparedness**. Additionally, further studies should explore how MCs can be integrated with financial advisory services to provide **comprehensive support for individuals navigating their social security and retirement options**. By continuously improving the **uFuture**

**(UMC381) learning experience**, Malaysia can cultivate a more financially secure population, better equipped to **manage their retirement funds, make informed social security decisions, and achieve long-term economic stability** (Chek et al., 2019b; Ismail et al., 2019).

The integration of **Micro-Credentials (MCs) in Malaysia's social security education** represents a forward-thinking approach to enhancing public financial literacy. As **digital learning continues to evolve**, MCs have the potential to play a crucial role in ensuring **greater financial preparedness and social security awareness across all levels of society**. By expanding MC accessibility and integrating it into broader national education policies, Malaysia can build a financially resilient workforce and safeguard the future financial well-being of its citizen (Shamir-Inbal & Blau, 2020)s.

## ACKNOWLEDGEMENT

We would like to express our deepest gratitude to iCEPS and **Universiti Teknologi MARA (UiTM)** for providing the **uFuture platform (UMC381)** as an essential tool for delivering Micro-Credential courses. Special thanks are extended to the **UiTM Perak Branch, Tapah Campus**, for their invaluable support in developing and implementing this initiative. We would also like to acknowledge the contributions of the research participants, faculty members, and industry professionals who provided feedback and insights that were crucial in refining the course content and ensuring its effectiveness in enhancing financial literacy. Finally, appreciation is given to the government agencies and financial institutions that supported this research by sharing relevant data and resources on Malaysia's social security programs.

## REFERENCES

1. Awang Chek, M. Z., & Ismail, I. L. (2022). UNDERSTANDING FACTORS AFFECTING CONTRIBUTION RATE OF SOCIAL INSURANCE. *International Journal of Social Sciences and Management Review*, October, 121–128. [www.ijssmr.org](http://www.ijssmr.org)
2. Awang Chek, M. Z., Ismail, I. L., & Jamal, N. F. (2018a). Descriptive Analysis of Trends in Frequency of Invalidity Pension Scheme (IPS) in Malaysia. *Multidisciplinary Informatics Journal*, 1(1), 53–61. <https://mijournal.wixsite.com/index/volume-1-issue-1>
3. Awang Chek, M. Z., Ismail, I. L., & Jamal, N. F. (2018b). Optimising Contribution Rate for SOCSO 's Invalidity Pension Scheme : Actuarial Present Value ( APV ). *International Journal of Engineering and Technology*, 7, 83–92. <https://doi.org/10.14419/ijet.v7i4.33.23491>
4. Cazan, A. (2020). An intervention study for the development of self-regulated learning skills. *Current Psychology*, 41, 6406–6423. <https://doi.org/10.1007/s12144-020-01136-x>
5. Cerón, J., Baldiris, S., Quintero, J., García, R. R., Saldarriaga, G. L. V., Graf, S., & Valentin, L. D. L. F. (2021). Self-Regulated Learning in Massive Online Open Courses: A State-of-the-Art Review. *IEEE Access*, 9, 511–528. <https://doi.org/10.1109/ACCESS.2020.3045913>
6. Chek, M. Z. A., & Ismail, I. L. (2021). Issues and Challenges Social Insurance in Malaysia. *International Journal of Research and Innovation in Social Science*, 05(04), 278–281. <https://doi.org/10.47772/ijriss.2021.5410>
7. Chek, M. Z. A., & Ismail, I. L. (2023a). Retirement Planning Issues, Problems, and Opportunities in Malaysia. *Retirement Planning Issues, Problems, and Opportunities in Malaysia*, VII(2454), 1926–1932. <https://doi.org/10.47772/IJRISS>
8. Chek, M. Z. A., & Ismail, I. L. (2023b). Retirement Planning Issues, Problems, and Opportunities in Malaysia. *International Journal of Research and Innovation in Social Science (IJRISS)*, 7(9), 1926–1931. <https://doi.org/10.47772/IJRISS.2023.71055>
9. Chek, M. Z. A., & Ismail, I. L. (2024). *Understanding Social Protection of Survivors' Pension Benefit*. Eudoxia Research Centre.
10. Chek, M. Z. A., Ismail, I. L., Hasim, H., & Mansor, A. F. (2022). Profiling Return – to – Work (RTW) Recipients in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 12(7), 925–935. <https://doi.org/10.6007/ijarbss/v12-i7/14322>



11. Chek, M. Z. A., Ismail, I. L., & Jamal, N. F. (2019a). Assessing Contribution Collection: A Case of SOCSO's IPS. *International Journal of Recent Technology and Engineering*, 8, 621–623.
12. Chek, M. Z. A., Ismail, I. L., & Jamal, N. F. (2019b). Personal Financial Planning through Massive Open Online Course. *International Journal of Academic Research in Business and Social Sciences*, 9(5), 618–622. <https://doi.org/10.6007/IJARBSS/v9-i5/6004>
13. Chek, M. Z. A., Ismail, I. L., Syakir, M., & Mansor, A. F. (2023). *Development Micro-Credentials Overview Social Security*. 13(11), 2201–2211. <https://doi.org/10.6007/IJARBSS/v13-i11/19628>
14. Cheong, P. W., Jemain, A. A., & Ismail, N. (2008). Practice and pricing in non-life insurance: The Malaysian experience. *Journal of Quality Measurement and Analysis*, 4(1), 11–24.
15. Ekrami, M., Sarmadi, P., & Doust, L. V. (2020). Developing Lifelong Online Learning for Students through Constructivism and Massive Open Online Courses (MOOCs). *Journal of Management and Development Process*. <https://doi.org/10.29252/jmdp.32.4.189>
16. Gandomkar, R., Yazdani, K., Fata, L., Mehrdad, R., Mirzazadeh, A., Jalili, M., & Sandars, J. (2020). Using multiple self-regulated learning measures to understand medical students' biomedical science learning. *Medical Education*, 54, 727–737. <https://doi.org/10.1111/medu.14079>
17. Hashim, M., & Muhammad, N. M. N. (2013). *Personal financial planning* (1st ed.). UiTM Press.
18. Ismail, I. L., Jamal, N. F., Awang Chek, M. Z., & Baharuddin, M. S. (2019). Learning Basic Statistics and Probability Through MOOC. *International Journal of Modern Trends in Social Sciences*, 2(8), 99–107. <https://doi.org/10.35631/ijmtss.280010>
19. Jamaluddin, S. Z., Yuen Wah, F., & Abu Taher, M. (2021). Covid-19: a preliminary assessment on the social security framework for an aged Malaysia. *Commonwealth Law Bulletin*, 47(1), 55–71.
20. Jossberger, H., Brand-Gruwel, S., van de Wiel, M. V. D., & Boshuizen, H. (2020). Exploring Students' Self-Regulated Learning in Vocational Education and Training. *Vocations and Learning*, 13, 131–158. <https://doi.org/10.1007/s12186-019-09232-1>
21. Karlsen, J., Balsvik, E., & Rønnevik, M. (2023). A study of employees' utilization of microlearning platforms in organizations. *The Learning Organization*. <https://doi.org/10.1108/tlo-07-2022-0080>
22. Kırkıç, K. A., Sevimli, M. M., & Aydin, E. (2020). AN INVESTIGATION OF PRIMARY SCHOOL STUDENTS' SELF REGULATORY LEARNING SKILLS. <https://doi.org/10.46529/socioint.2020132>
23. Krismanto, W., & Tahmidaten, L. (2022). *Self-Regulated Learning in Online-Based Teacher Education And Training Programs*. [https://consensus.app/papers/selfregulated-learning-in-onlinebased-teacher-education-krismanto-tahmidaten/6c0ff694f2a756668146fae4a7cc3c04/?utm\\_source=chatgpt](https://consensus.app/papers/selfregulated-learning-in-onlinebased-teacher-education-krismanto-tahmidaten/6c0ff694f2a756668146fae4a7cc3c04/?utm_source=chatgpt)
24. Lee, D., Watson, S., & Watson, W. (2020). The Influence of Successful MOOC Learners' Self-Regulated Learning Strategies, Self-Efficacy, and Task Value on Their Perceived Effectiveness of a MOOC. *The International Review of Research in Open and Distributed Learning*, 21, 81–98. <https://doi.org/10.19173/irrodl.v21i3.4642>
25. McPherson, G. (2022). Self-Regulated Learning Music Microanalysis. *The Oxford Handbook of Music Performance, Volume 1*. <https://doi.org/10.1093/oxfordhb/9780190056285.013.23>
26. Mulhim, E. N. Al. (2021). Flipped Learning, Self-Regulated Learning and Learning Retention of Students with Internal/External Locus of Control. *International Journal of Instruction*. <https://doi.org/10.29333/iji.2021.14150a>
27. Ng, R. (2014). *The Teaching and Learning of Mathematics Via Online : Sharing a Lifelong Learning Experience At Open University Malaysia*. 263–269.
28. Onah, D., Pang, E., Sinclair, J., & Uhomoibhi, J. (2021). *An innovative MOOC platform: the implications of self-directed learning abilities to improve motivation in learning and to support self-regulation*. <https://doi.org/10.1108/IJILT-03-2020-0040>
29. Paquette, L., Grant, T., Zhang, Y., Biswas, G., & Baker, R. (2020). *Using Epistemic Networks to Analyze Self-regulated Learning in an Open-Ended Problem-Solving Environment*. 185–201. [https://doi.org/10.1007/978-3-030-67788-6\\_13](https://doi.org/10.1007/978-3-030-67788-6_13)
30. Plamondon, P., Drouin, A., Binet, G., Cichon, M., McGillivray, W. R., Bédard, M., & Perez-Montas, H. (2002). *Actuarial Practice in Social Security* (1st ed.). International Labour Office Geneva and International Social Security Association (ISSA).

31. Prskawetz, A., & Veliov, V. M. (2007). Age-specific dynamic labor demand and human capital investment. *Journal of Economic Dynamics and Control*, 31(12), 3741–3777. <https://doi.org/10.1016/j.jedc.2006.11.011>
32. Rashid, M., & San, W. K. C. (2019). Employee Provident Funds' Market Performance: The Case of Malaysia. *Management of Shari'ah Compliant Businesses: Case Studies on Creation of Sustainable Value*, 45–54.
33. Salim, M. H. M., Ali, N. M., Shahril, M. S., & Johari, N. F. M. (2023). Validation of Motivation Factors and Learning Strategies Based on the Use of the Open Learning System. *Journal of Information System and Technology Management*. <https://doi.org/10.35631/jistm.832010>
34. Seng, S. C. (2014). *Social Security : Challenges and issues* (No. 2014–1).
35. Shamir-Inbal, T., & Blau, I. (2020). Micro-learning in designing professional development for ICT teacher leaders: The role of self-regulation and perceived learning. *Professional Development in Education*, 48, 734–750. <https://doi.org/10.1080/19415257.2020.1763434>
36. Spyropoulou, N., Demopoulou, G., Pierrakeas, C., Koutsonikos, I., & Kameas, A. (2015). Developing a Computer Programming MOOC. *Procedia Computer Science*, 65(Iccmit), 182–191. <https://doi.org/10.1016/j.procs.2015.09.107>
37. Susantini, E., Puspitawati, R., Raharjo, & Suaidah, H. L. (2021). E-book of metacognitive learning strategies: design and implementation to activate student's self-regulation. *Research and Practice in Technology Enhanced Learning*, 16, 1–17. <https://doi.org/10.1186/s41039-021-00161-z>
38. Theobald, M. (2021). Self-Regulated Learning Training Programs Enhance University Students' Academic Performance, Self-Regulated Learning Strategies, and Motivation: A Meta-Analysis. *Contemporary Educational Psychology*. <https://doi.org/10.1016/J.CEDPSYCH.2021.101976>
39. Yu, X., Wang, C., & Spector, J. (2020). Factors that impact social networking in online self-regulated learning activities. *Educational Technology Research and Development*, 68, 3077–3095. <https://doi.org/10.1007/s11423-020-09843-9>