THE IMPACT OF A DIGITAL MARKETING EMPOWERMENT PROGRAM (DIME 2024) ON INCOME ENHANCEMENT AMONG HARDCORE POOR ENTREPRENEURS IN SIX DISTRICTS OF KELANTAN.

Nor Sabrina Zahari [1]
Suraya Husin [2]
Azyanee Luqman [3]
Rosfatihah Che Mat [4]
Roseliza Hamid [5]
Nur Haslina Ramli [6]
Siti Sarah Mohamad [7]
Norsilawati Mohd Hassan [8]
Nur Hazelen Mat Rusok [9]

[1]Faculty of Business and Management (UiTM), Malaysia, (E-mail: sabrina207@uitm.edu.my)
[2]Faculty of Business and Management (UiTM), Malaysia, (Email: surayahusin@uitm.edu.my)
[3]Faculty of Business and Management (UiTM), Malaysia, E-mail: azyanee@uitm.edu.my)
[4]Faculty of Business and Management (UiTM), Malaysia, E-mail: rosfa407@uitm.edu.my)
[5]Faculty of Business and Management (UiTM), Malaysia, E-mail: rose286@uitm.edu.my)
[6]Faculty of Business and Management (UiTM), Malaysia, E-mail: haslina581@uitm.edu.my)
[7]Faculty of Business and Management (UiTM), Malaysia, E-mail: sarah804@uitm.edu.my)
[8]Faculty of Business and Management (UiTM), Malaysia, E-mail: norsi963@uitm.edu.my)
[9]Faculty of Business and Management (UiTM), Malaysia, E-mail: hazelen@uitm.edu.my)

**Abstract*:* *This study investigates the impact of the Digital Marketing Empowerment Program (DIME 2024) on income enhancement among hardcore poor entrepreneurs across six districts in Kelantan, Malaysia. The program aimed to equip micro-entrepreneurs with digital marketing skills to improve their business visibility, customer engagement, and sales performance and the most important to increase their income. A total of 177 participants were involved, of whom 121 had complete income data before and after the intervention. Using a paired sample t-test, the findings revealed a statistically significant increase in monthly income post-intervention compared to pre-intervention levels, with a p-value < 0.000. The results reject the null hypothesis and confirm that DIME 2024 had a positive effect on participants' income levels. The program's effectiveness was observed across all districts, with varying degrees of income improvement. These findings suggest that digital marketing training can*

serve as an effective strategy for poverty alleviation and income sustainability among the hardcore poor, particularly in underserved rural regions.

Keywords*: digital marketing, income enhancement, hardcore poor, micro-entrepreneurs, empowerment program.*

Introduction

Poverty remains a persistent socioeconomic challenge in many developing regions, including Kelantan, Malaysia. Despite various initiatives introduced to address income inequality and economic hardship, the hardcore poor those living below the poverty line with minimal resources continue to struggle, especially in rural districts (Yaacob, N. M., & Azam, S. M. F., 2019). Entrepreneurship has emerged as a viable pathway for income generation and financial independence among the poor. However, limited access to markets, low digital literacy, and lack of promotional skills have hindered the growth of small businesses run by low-income entrepreneurs.

According to the Ministry of Economy's e-Kasih database, as of November 2024, Kelantan recorded 99 households classified under the hardcore poor category. This marks a substantial improvement from previous years, aligning with the national decline from 91,789 to 2,191 hardcore poor families. However, earlier in 2024, reports indicated a rise in the number of hardcore poor households in Kelantan, increasing from 9,000 to 14,000. This suggests that while recent efforts have yielded positive results, the state has faced fluctuations in poverty levels, possibly due to various socio-economic factors.

In response to these challenges, the Digital Marketing Empowerment Program (DIME 2024) was introduced with the aim of equipping hardcore poor entrepreneurs with practical digital marketing skills, motivation, basic knowledge of business in Islam, digital marketing tools, and strategies to enhance product visibility, reach wider audiences, and ultimately increase their income. This program was implemented across six selected districts in Kelantan, targeting entrepreneurs who are officially classified under the hardcore poor category.

This study seeks to evaluate the effectiveness of the DIME 2024 program in increasing the monthly income of participants. A paired sample t-test was used to compare the income levels of the entrepreneurs before and after the intervention, providing statistical evidence on the impact of digital marketing training. The findings are expected to offer valuable insights for policymakers and development agencies aiming to design sustainable poverty reduction programs through digital inclusion and entrepreneurship development. Furthermore, the objective of this study is aligned with Sustainable Development Goal (SDG) number 1, "No Poverty," which aims to eradicate poverty in all its forms by 2030.

Problem Statement

Despite various poverty alleviation programs implemented in Malaysia, a significant number of individuals, particularly in rural areas like Kelantan, remain trapped in hardcore poverty. These individuals often lack access to formal education, business skills, motivation, and most critically, digital literacy. In an era where digital platforms have become vital for business growth and market expansion, the inability of poor entrepreneurs to leverage digital marketing

tools severely limits their potential to improve income and living standards (Banerjee, A., Duflo, E., Glennerster, R., & Kinnan, C., 2015).

Traditional business methods, such as word-of-mouth marketing or physical sales, are no longer sufficient to sustain micro-enterprises in a competitive and digitally driven economy (Rashid, S. M. M., & Ghani, N. A., 2019). Consequently, many micro-entrepreneurs among the hardcore poor continue to experience stagnant or declining incomes. Although both governmental and non-governmental agencies have introduced digital empowerment programs, there is limited empirical evidence measuring the actual impact of these interventions particularly on income generation among poor entrepreneurs (B40 entrepreneurs) in Kelantan.

Therefore, this study aims to address this gap by examining whether the structured Digital Marketing Empowerment Program (DIME 2024) can lead to a significant increase in income for hardcore poor entrepreneurs across six districts in Kelantan.

Literature Review

Digital Marketing and Income Improvement

Abd. Hadi, F.S et al. (2024) explored the transformative potential of digital marketing in improving the financial performance of marginalized entrepreneurial communities specifically among Orang Asli (OA) entrepreneurs in Malaysia by highlighting how strategic digital marketing engagement influences income levels and business sustainability. Their research identified that the dimensions of product, price, and place in digital marketing significantly contribute to financial improvement, whereas promotional strategies showed no notable effect. This gap suggests that while OA entrepreneurs are adapting certain digital tools, they lack sufficient skills or resources for effective online promotion. The study reinforces the need for targeted capacity-building programs, as the integration of digital strategies can bridge economic disparities and promote inclusive growth. Their findings align with broader literature advocating for the digital empowerment of rural and indigenous entrepreneurs to enhance market access, customer engagement, and long-term viability in the digital economy.

A 2023 study by Nguyen and Tran titled "The Effectiveness of Digital Marketing Training on Income Growth of Women Entrepreneurs in Vietnam" investigated how targeted digital marketing workshops influenced the business revenues of female entrepreneurs. Using a quantitative pre-test/post-test design with 150 participants, the study found a statistically significant increase in monthly income six months after completing the digital marketing training. The training covered key modules such as social media advertising, content creation, and online customer engagement strategies. The study concluded that empowering women with digital marketing skills contributes substantially to income enhancement and business sustainability in emerging economies.

A recent study by Suryani et al. (2023) investigated the impact of digital marketing training on micro and small entrepreneurs in Indonesia. Using a quasi-experimental design with 120 participants, the researchers found that participants who completed digital marketing workshops saw an average income increase of 25% within 6 months. The program focused on social media marketing, online sales platforms, and content creation. The study highlights that

targeted digital marketing training effectively empowers entrepreneurs to expand market reach and boost sales revenue.

Effectiveness and Impacts of Digital Marketing

Digital marketing has become an important tool for business performance, particularly among small and medium-sized enterprises (SMEs), which play a vital role in global economic development. Zamri et al. (2024) conducted a systematic literature review of 21 studies to investigate the effectiveness of digital marketing strategies adopted by SMEs and the factors influencing their implementation. Key internal and external factors affecting digital marketing adoption include organizational readiness, digital marketing knowledge, leadership support, budget constraints, and market competition. This study contributes to the broader understanding of how digitalization can serve as a catalyst for SME growth and offers a framework for future research to explore the dynamic and evolving landscape of SME digital transformation.

Study by Slamet, S., Adhim, M. M., & Azmala, I. (2021) examines the impact of digital marketing on the performance of Micro, Small, and Medium Enterprises (MSMEs) in Malang City. Using a quantitative research approach, the study collected primary data through questionnaires, targeting 107 MSME respondents selected via judgment sampling. The research applied the balanced scorecard perspective, focusing on customer and internal business processes. The analysis involved descriptive statistics and hypothesis testing using a paired sample t-test. Findings revealed significant differences in MSME performance before and after implementing digital marketing, demonstrating that digital marketing positively influences business operations. The study highlights the importance of digital strategies in enhancing MSME competitiveness and efficiency.

This study examines how digital marketing and information technology influence the income of micro, small, and medium enterprises (MSMEs) in Ambon City (Amirudin, A., Sangadji, M., & Leasiwal, T. C. 2024). Previously, MSMEs faced challenges due to high costs and slow, complex processes in direct sales. To address this, the research collected primary data through questionnaires, interviews, and documentation, supplemented by secondary sources. Using multiple linear regression analysis, the study found that digital marketing and information technology had a positive and significant impact on MSME income, helping businesses transition from direct sales to online platforms for better accessibility and efficiency.

Women Entrepreneurs and Digital Empowerment

The study by Zainol, N., Esa, M. M., Muhamad, N., & Mohamad, S. S. (2022) investigates the success factors of women entrepreneurs in suburban Melaka, focusing on digital entrepreneurship, digital marketing, and government support. Based on data from 310 respondents, the analysis using SPSS shows that digital entrepreneurship and digital marketing have a moderately significant positive relationship with entrepreneurial success, while government support shows a weaker correlation. The findings suggest that mastering digital tools and strategies is key to helping women entrepreneurs become more competitive and achieve greater success.

In a recent empirical study titled Impact of women's economic empowerment on technology entrepreneurship intentions via mediation of self-efficacy (2025), Al-Ayed and Alateeg

investigated how economic empowerment and self-efficacy shape the entrepreneurial intentions of women engaging in online businesses in Saudi Arabia. Using data from 256 women entrepreneurs and structural equation modeling, the study revealed that women's economic empowerment significantly boosts self-efficacy, which in turn significantly predicts intentions toward technology entrepreneurship. Economic empowerment also had a direct positive effect on entrepreneurial intention, and self-efficacy was found to mediate this relationship. These findings underscore the importance of both economic support and confidence-building initiatives in promoting women's participation in digital entrepreneurship.

Methodology

Research Design

This study adopts a quantitative research design using a pre-test and post-test approach without a control group. Study by Creswell, J. W., & Creswell, J. D. (2018) is a foundational reference for quantitative research designs, including pre- and post-test frameworks without control groups. The primary objective is to evaluate whether there is a statistically significant difference in income levels of hardcore poor entrepreneurs or B40 entrepreneurs before and after participating in the DIME 2024 implemented in six districts of Kelantan.

The DIME 2024 is a one-day initiative designed to enhance digital marketing capabilities among B40 entrepreneurs. The program consisted of a total of 8 training hours, and included hands-on workshops and interactive sessions. Participants were provided with a comprehensive handout covering seven structured modules:

1. *Inspiration from Successful Entrepreneurs*
2. *Business in Islam*
3. *Zero Marketing Strategy*
4. *Affiliate Marketing*
5. *Live Streaming for Product Promotion*
6. *Financial Management for Micro-Entrepreneurs*
7. *Content Creation and Copywriting*

These modules were tailored to equip participants with practical knowledge and tools to promote and grow their businesses in a digital environment. Following the training, participants received 3 - 6 months of follow-up support, which included online mentoring, monthly business progress tracking, and peer-to-peer learning through WhatsApp groups, coordinated by program facilitators.

Sample Selection

Study by (Tongco, M. D. C. 2007) explain a comprehensive explanation of purposive sampling and its appropriateness for targeting specific populations like B40 or hardcore poor. In this study a total of 177 participants were selected using purposive sampling, targeting individuals officially registered under the hardcore poor category (under *e-Kasih* programme) and actively involved in micro-entrepreneurship. These participants were from six districts in Kelantan, Bachok, Tanah Merah, Tumpat, Kota Bharu, Jeli and also Gua Musang. The sample size consists of only 177 participants, as only these individuals attended and were committed to the DIME 2024 program held across various districts. These participants were shortlisted by the Prime Minister's Department (ICU JPM), having applied to attend the basic entrepreneurship

course organized by ICU JPM. They are recipients of the e-Kasih assistance program and have shown a strong interest in venturing into business

Data Collection
The data was gathered through structured questionnaires and verified income records, where possible, to ensure accuracy. It is the best practices in using structured questionnaires for quantitative data collection (Rowley, J. 2014). Income data was collected at two points in time:

Before the program (pre-test)	Baseline monthly income data of each participant was recorded (on DIME 2024 training workshop for each district)
After the program (post-test)	Monthly income data was collected again after a specified period (after 3-6 months monitoring) of completing the digital marketing program.

Data Analysis
The Paired Two-Sample t-Test (also known as the Dependent Samples t-Test) was used to analyse the data. The formula for a paired t-test is: t = (mean difference) / (standard error of the mean difference). It's used to compare the means of two related groups, like before and after measurements on the same individuals. (Kim, T. K. 2015). This statistical method is appropriate when the same group of participants is measured twice, before and after an intervention.

In the context of this study, the paired sample t-test was used to analyze the income levels of the same group of hardcore poor entrepreneurs before and after their participation in the DIME 2024 program. By comparing pre-test (baseline income) and post-test (income after 3–6 months) data, the test assesses whether the observed difference in income is due to the program intervention or simply due to random variation.
The formula for the paired t-test is:

$$t = \frac{đ}{(\frac{Sd}{n})}$$

Where:
đ = mean of the differences between paired observations
Sd= standard deviation of the differences
n= number of paired observations

If the p-value obtained from the test is less than 0.05 (at a 95% confidence level), the result is considered statistically significant, leading to the rejection of the null hypothesis (H_0) in which states that there is no difference between the two time points.

In this study, the paired sample t-test provides empirical evidence on whether participation in the DIME 2024 digital marketing program resulted in a significant increase in participant income. The hypothesis testing of this study:

Null Hypothesis (H_0):	There is no significant difference in income before and after the program.
Alternative Hypothesis (H_1):	There is a significant difference in income before and after the program.

The test compares the mean income before the program to the mean income after the program, and checks whether any observed difference is statistically significant (usually at a 95% confidence level, and p value < 0.05). (Laerd Statistics, 2018).

Result and Analysis

This part presents the findings of the study, focusing on the impact of the Digital Marketing Empowerment Program (DIME 2024) on the income levels of hardcore poor entrepreneurs across six districts in Kelantan. Using a pre-test and post-test approach, income data was collected from 177 participants before and after their involvement in the program. A paired sample t-test was employed to determine whether the observed changes in income were statistically significant. The analysis not only highlights the overall effectiveness of the program but also explores patterns of income improvement across demographic segments.

Demographic Profile

Table 1: Demographic profile on age and gender distribution

Profile	Frequency (n)	Percentage (%)
Gender:		
Male	35	19.77
Female	142	80.23
Total	177	100.0
Age:		
20-29	21	11.86
30-39	68	38.42
40-49	71	40.11
50-59	13	7.34
60-69	3	1.69
70 and above	1	0.56
Total	**177**	**11.86**

Source: Online Survey (2024)

The dataset consists of 177 respondents, predominantly female (80.23%), with males making up 19.77% of the sample. The majority of respondents fall within the 30–39 (38.42%) and 40–49 (40.11%) age ranges, indicating a concentration of participants in their middle adulthood. Smaller proportions are represented in the younger (20–29 years: 11.86%) and older age groups (50–59: 7.34%, 60–69: 1.69%, and 70 and above: 0.56%). This demographic profile suggests that the entrepreneurial or business-related data collected is largely influenced by women in their 30s and 40s.
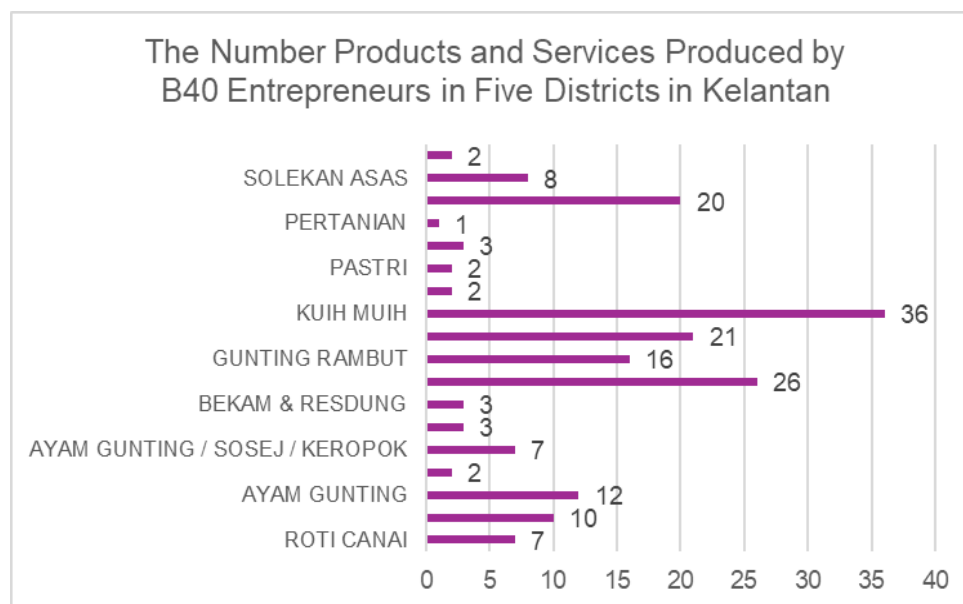
Figure 1: The Business Profile of Six Districts Entrepreneurs in Kelantan.
Source: Online Survey (2024)

The data outlines the distribution of 177 entrepreneurs across various business profile categories. The most common business type is "Kuih Muih" with 36 entrepreneurs (20%), followed by "Burger" (26 entrepreneurs, 14.4%), and "Jahitan" or tailoring (21 entrepreneurs, 11.7%). Other popular categories include "Satay" (20), "Gunting Rambut" or haircutting (16), and various fried chicken-based businesses like "Ayam Gunting" (12), "Ayam Goreng" (10), and combo offerings such as "Ayam Gunting & Lokcing" or "Ayam Gunting / Sosej / Keropok." Niche services like mobile phone repairs, wellness treatments (e.g., bekam & resdung), and marketing are represented by fewer participants. The spread of business types shows a strong lean toward food-based microenterprises, with a modest number involved in personal services and small-scale technical work.

Analysis of Respondent's Income

Table 2: Analysis of Respondent Income by District

District	Before DIME 2024	After DIME 2024
Gua Musang	M:761.1111 SD: 473.9306	M: 1217.778 SD: 923.0982
Bachok	M: 816.6667 SD: 431.4817	M: 1369.444 SD: 812.61
Tanah Merah	M: 869.5 SD: 470.5817	M: 1142.5 SD: 543.2056
Jeli	M: 754.5455	M: 1036.364

	SD:333.5075	SD:447.823
Kota Bharu	M: 1110 SD: 660.8606828	M: 1687.5 SD:1397.354
Tumpat	M: 871.5 SD:726.8771	M: 1260 SD:1009.137

*M=mean value, SD=standard deviation

Table 2 above show the impact of a program or intervention on entrepreneurs' income across six districts in Kelantan: Gua Musang, Bachok, Tanah Merah, Jeli, Kota Bharu, and Tumpat. Overall, all districts recorded an increase in average income after the intervention, indicating a generally positive effect. Gua Musang saw a substantial increase in mean income from RM761.11 to RM1217.78, though the standard deviation also rose significantly, suggesting that while many benefited, income gains were uneven.

Similarly, Bachok experienced an increase from RM816.67 to RM1369.44, with some variation among participants. Tanah Merah showed more modest growth, from RM869.50 to RM1142.50, with relatively small changes in income variability, indicating more consistent outcomes. Jeli followed a similar pattern, with steady improvement and the lowest variability, suggesting a uniform benefit among its entrepreneurs. Kota Bharu recorded the highest mean income after the intervention (RM1687.50) but also had the largest post-intervention income disparity, as indicated by the standard deviation of RM1397.35. Tumpat demonstrated moderate growth, increasing from RM871.50 to RM1260.00, but with high variability as well. Overall, all districts experienced an increase in average income, with Kota Bharu showing the most substantial financial uplift. This suggests that DIME 2024 across districts have yielded positive economic outcomes, with varying levels of impact.

T- test: Paired Two Sample for Means.

A total of 121 hardcore poor entrepreneurs from five districts in Kelantan participated in this study. Out of a total of 177 participants, only 121 individuals had their income recorded before and after the program because the remaining 56 participants did not take part in DIME 2024 and did not continue their business due to family and health reasons. The selection was based on purposive sampling, targeting individuals actively involved in micro-enterprise and registered under poverty databases such as *e-Kasih*.

Table 3: Paired Sample T Test Result

	Before *DIME 2024*	*After* *DIME 2024*
Mean	912.9752066	1354.793388
Variance	519636.0744	1360603.499
Observations	121	121
Pearson Correlation	0.901189485	
Hypothesized Mean Difference	0	
df	120	
t Stat	-8.04741651	
P(T<=t) one-tail	3.43531E-13	
t Critical one-tail	1.657650899	
P(T<=t) two-tail	6.87061E-13*	
t Critical two-tail	1.979930405	

*significant at 0.05 siginificant level

A paired sample t-test was conducted to compare income before and after the digital marketing program. There was a significant increase in income after the program (Mean value = RM1354.79) compared to before (Mean value = RM912.97). The results of the paired sample t-test indicated a statistically significant increase in the monthly income of participants after completing the DIME 2024. The analysis showed that the mean income after the intervention was higher compared to the mean income before the program, with a p-value less than 0.05 (typically $p < 0.000$), suggesting that the difference is not due to chance.

The t-statistic of -8.05 surpasses the critical t-value, indicating that the observed increase is statistically significant. Additionally, a strong Pearson correlation of 0.90 between pre- and post-program incomes suggests that those who earned more initially also experienced greater gains, although all participants showed improvement. As a result, the null hypothesis (H_0) is rejected in favour of the alternative hypothesis (H_1), confirming that DIME 2024 had a significant positive impact on participant income.

Discussion

The results of this study provide compelling evidence that the DIME 2024 had a positive and statistically significant impact on income enhancement among hardcore poor entrepreneurs across six districts in Kelantan. In term of demographic context, the sample of 177 entrepreneurs was predominantly female (80.23%), with the majority aged between 30–49 years (78.53%) as consistent with study by Skirbekk, V. (2004). This age group typically represents individuals in their prime working years with strong economic responsibilities and family commitments (Noor Hazlina Ahmad & T. Ramayah, 2010). The gender distribution also reflects national patterns, where women are increasingly active in microenterprise, especially in informal and food-based sectors. This study is consistent with previous study by Kabeer, N. (2005) and Alam, S. S., Jani, M. F. M., & Omar, N. A. (2011). This demographic insight suggests that interventions like DIME 2024 not only target economically vulnerable groups but also empower women is a key demographic in household-level poverty reduction.

The types of businesses run by participants were mostly food-based microenterprises such as "Kuih Muih" ,"Burger," and "Satay," with a smaller segment engaged in tailoring, haircutting, and niche services, Kabeer, N. (2005). This sectoral distribution demonstrates the relevance of digital marketing in industries where visual appeal, customer interaction, and online promotion

are crucial. Entrepreneurs in these sectors can benefit significantly from skills in content creation, social media advertising, and online ordering systems, which are all core components of digital marketing (Amirudin, A., Sangadji, M., & Leasiwal, T. C. 2024)

Referring to the descriptive income across districts shows that Kota Bharu experienced the highest mean income gain (RM1110 to RM1687.50), highlighting the district's greater exposure to markets and digital infrastructure. Gua Musang and Bachok also saw large increases, though high standard deviations in these areas indicate uneven distribution of gains some entrepreneurs thrived while others benefited less. Jeli, with the lowest variability, suggests the most uniform outcome among its participants, which might be tied to more consistent program delivery or business types. These patterns suggest that while the program is broadly effective, regional infrastructure, digital readiness, and local market dynamics can influence how benefits are distributed among participants. This study also aligns with study by Abd. Hadi, F.S et al. (2024) that the digital empowerment of rural also will improving the financial performance and income level of entrepreneurs

The paired t-test involving 121 participants who completed both pre- and post-program assessments showed a mean income increase from RM912.98 to RM1354.79, with a p-value < 0.000, indicating strong statistical significance. This result is in line with the results of a study conducted by Herawati, V. D. et. al (2022). The t-statistic (-8.05) exceeded the critical t-value, confirming that the increase is not due to random chance. The high Pearson correlation (0.90) between the before and after incomes also indicates that individuals who earned more before tended to benefit more, though all saw improvement. This leads to rejection of the null hypothesis (H_0) and acceptance of the alternative hypothesis (H_1): DIME 2024 significantly increased participant income. This result is consistent with previous study by Slamet, S., Adhim, M. M., & Azmala, I. (2021) stated that implementing digital marketing at small enterprises is able to improve their enterprise performance. Same goes to study Ali, M. A., & Bakar, R. (2015), uses a paired t-test to evaluate program effectiveness and methodologically similar to this study.

The increase in income suggests that the skills, tools, and strategies taught in the digital marketing training were effectively applied by participants in their businesses. For example, participants may have used social media platforms, e-commerce tools, and online customer engagement techniques to expand their market reach and improve sales.

From a policy and development perspective, the findings indicate that digital marketing empowerment can be a viable strategy for poverty reduction, particularly among the hardcore poor entrepreneur group. The statistically significant income gain also implies that similar programs can be replicated or scaled in other underserved regions.

Conclusion and Recommendations
This study aimed to evaluate the effectiveness of a DIME 2024 on income enhancement among hardcore poor entrepreneurs in six districts of Kelantan. The main objective is to determine the impact of the program by comparing participants' income levels before and after the intervention using a paired sample t-test. Using a paired sample t-test, the results revealed a statistically significant increase in income after the program, indicating that the intervention

had a positive economic impact on the participants. The results suggest that the digital marketing empowerment program had a significant positive impact on participants' income. The findings demonstrate that equipping low-income entrepreneurs with digital marketing skills can lead to tangible improvements in income, enabling them to reach broader markets, increase sales, and become more competitive in a digital economy. This supports the role of digital inclusion as a key tool in poverty alleviation efforts, particularly in underserved rural areas.

DIME 2024 should be scaled up and implemented across additional districts and states that face high poverty rates. Expanding its geographic reach will allow for a broader and more inclusive impact, helping to uplift more low-income individuals through digital entrepreneurship. However, for the program to remain effective and sustainable in the long run, it is essential to provide continuous digital training, mentorship, and technical support. As digital platforms and marketing trends evolve rapidly, ongoing capacity-building efforts will ensure participants remain competitive and capable of sustaining their businesses.

Equally important is addressing the barriers that prevent full participation in the digital economy. Many low-income entrepreneurs still lack access to essential tools and services, such as smartphones, mobile applications, and stable internet connections. The government and its development partners should therefore focus on improving digital infrastructure and consider subsidizing access to these tools to enable effective participation. Furthermore, to measure the enduring success of the initiative, a longitudinal tracking system should be established. This system would monitor key indicators such as income growth, business development, and improvements in living standards over time, offering valuable data for continuous improvement.

Finally, strengthening collaboration with the private sector can significantly enhance the program's effectiveness. Partnerships with e-commerce platforms, technology firms, and digital marketing agencies can provide participants with greater market exposure, access to real-world industry insights, and practical opportunities to apply their skills. Such collaboration can bridge the gap between training and real market engagement, ensuring the program delivers not only knowledge but also tangible economic opportunities for Malaysia's most vulnerable communities.

Policy Implications

The positive outcomes of this study, particularly the significant increase in income among hardcore poor entrepreneurs following the digital marketing empowerment program, carry important implications for policymaking in Malaysia. As the country continues to address income inequality and transition toward a digitally driven economy, these findings highlight the critical role of inclusive digital initiatives in poverty eradication strategies. The results not only validate the effectiveness of targeted digital skills training but also underscore the need for comprehensive, data-driven, and scalable policy approaches that integrate digital empowerment into national socio-economic development agendas.

Digital Inclusion as a Core Component of Poverty Alleviation

The study's findings support the need to mainstream digital skills training into national poverty eradication programs such as e-Kasih and Program Pembasmian Kemiskinan Tegar Keluarga

Malaysia (BMTKM). The increase in income among participants shows that digital marketing training can be an effective tool to lift low-income groups out of poverty. Embed digital marketing modules into existing programs managed by agencies such as MARA, TEKUN and others to equip B40 and hardcore poor groups with marketable digital competencies.

Support for Micro-Entrepreneurship in the Digital Economy

Malaysia has emphasized digital economy development through initiatives like MyDIGITAL and Malaysia Digital Economy Blueprint. This study reinforces the idea that micro-entrepreneurship, when supported with digital tools, can generate real income growth, particularly in rural and underserved areas. Allocate dedicated funding under the Ministry of Economy, Ministry of Entrepreneur Development and Cooperatives, and MDEC to expand digital entrepreneurship training, especially for rural women, youth, and single mothers.

Bridging the Urban-Rural Digital Divide

The income improvement in Kelantan, a largely rural state, highlights the urgent need to strengthen digital infrastructure and access in less developed areas. Many hardcore poor entrepreneurs still lack affordable internet access and devices to effectively use digital platforms. Accelerate the rollout of 5G, and broadband infrastructure in rural areas and provide subsidies for smartphones/tablets to targeted B40 groups to ensure no one is left behind in Malaysia's digital transformation.

Data-Driven Social Assistance and Monitoring

The study shows that measurable interventions (like this program) can produce significant improvements. It also emphasizes the importance of tracking impact using evidence-based tools, such as income monitoring via e-Kasih or MyGovUC data integration. Besides that, use data analytics to identify, target, and track program beneficiaries' income levels, ensuring more efficient and results-based implementation of national empowerment initiatives.

Strengthening Public–Private Partnerships

The results demonstrate the potential for the private sector (e.g., Shopee, Lazada, TikTok, Facebook) to play a stronger role in empowering micro-entrepreneurs. Partnerships can help poor entrepreneurs access markets, branding tools, and mentorship. Formalize partnerships between government agencies and digital platforms to co-develop training, provide platform access, and offer promotional incentives to small entrepreneurs.

References

Abd. Hadi, F. S., Amirudin, A., Sangadji, M., & Leasiwal, T. C. (2024). Enhancing the financial performance of Orang Asli entrepreneurs in Malaysia through digital marketing initiatives. *International Journal of Academic Research in Business and Social Sciences*, *14*(12), 4005–4014. https://doi.org/10.6007/IJARBSS/v14-i12/23767

Ahmad, N. H., & Ramayah, T. (2010). Entrepreneurial traits and the success of female SMEs in Malaysia: A conceptual framework. *International Journal of Business and Management*, *5*(9), 65–73. https://doi.org/10.5539/ijbm.v5n9p65

Alam, S. S., Jani, M. F. M., & Omar, N. A. (2011). An empirical study of the relationship between entrepreneurial attitude and the success of women entrepreneurs in Malaysia. *International Journal of Business and Society*, *12*(1), 65–82.

Al-Ayed, A. S., & Alateeg, S. A. (2025). *Impact of women's economic empowerment on technology entrepreneurship intentions via mediation of self-efficacy*. Problems and Perspectives in Management, 23(1), 51–63. https://doi.org/10.21511/ppm.23(1).2025.05

Ali, M. A., & Bakar, R. (2015). Effectiveness of entrepreneurship education in developing entrepreneurial intentions among Malaysian university students. *Journal of Education and Practice*, *6*(28), 34–43.

Amirudin, A., Sangadji, M., & Leasiwal, T. C. (2024). The influence of digital marketing on the income of micro and medium enterprises in Ambon City. *Jurnal Ekonomi*, *13*(3), July–September.

Banerjee, A., Duflo, E., Glennerster, R., & Kinnan, C. (2015). The miracle of microfinance? Evidence from a randomized evaluation. *American Economic Journal: Applied Economics*, *7*(1), 22–53. https://doi.org/10.1257/app.20130533

Herawati, V. D., Rahmaningtyas, A., Zulfatirrohman, A. I., Pratiwi, H. E., Indriawan, T., Fiddien, G. D., Yang, L., Taki, S., & Suswardany, D. L. (2022). Increasing the revenue through digital marketing: A lesson learned from a small business enterprise run by volunteers of community with disability. *Voice of Community Journal of Community Service and Engagement*, *2*(2), 7–19.

Kabeer, N. (2005). Is microfinance a 'magic bullet' for women's empowerment? Analysis of findings from South Asia. *Economic and Political Weekly*, *40*(44/45), 4709–4718.

Kim, T. K. (2015). T test as a parametric statistic. *Korean Journal of Anesthesiology*, *68*(6), 540–546. https://doi.org/10.4097/kjae.2015.68.6.540

Laerd Statistics. (2018). *Paired-samples t-test using SPSS Statistics*. https://statistics.laerd.com/spss-tutorials/paired-samples-t-test-using-spss-statistics.php

Mayoux, L. (2001). Tackling the down side: Social capital, women's empowerment and micro-finance in Cameroon. *Development and Change*, *32*(3), 435–464. https://doi.org/10.1111/1467-7660.00212

Mustapa, W. N. W., Al Mamun, A., & Ibrahim, M. D. (2019). Evaluating the effectiveness of development initiatives on enterprise income, growth and assets in Peninsular Malaysia. *Economics and Sociology*, *12*(1), 39–60. https://doi.org/10.14254/2071-789X.2019/12-1/2

Nguyen, T. H., & Tran, L. T. (2023). The effectiveness of digital marketing training on income growth of women entrepreneurs in Vietnam. *Journal of Small Business and Entrepreneurship Development, 11*(2), 85–97.

Rashid, S. M. M., & Ghani, N. A. (2019). Digital literacy and e-commerce adoption among Malaysian SMEs. *International Journal of Academic Research in Business and Social Sciences*, *9*(1), 201–211. https://doi.org/10.6007/IJARBSS/v9-i1/5389

Rowley, J. (2014). Designing and using research questionnaires. *Management Research Review*, *37*(3), 308–330. https://doi.org/10.1108/MRR-02-2013-0027

Suryani, N., Rahman, F., & Putri, D. A. (2023). Impact of digital marketing training on income enhancement of micro and small entrepreneurs in Indonesia. *Journal of Small Business and Entrepreneurship Development, 12*(1), 45–58.

Skirbekk, V. (2004). Age and individual productivity: A literature survey. *Vienna Yearbook of Population Research*, *2*, 133–153. https://doi.org/10.1553/populationyearbook2004s133

Slamet, S., Adhim, M. M., & Azmala, I. (2021). Difference analysis of digital marketing implementation in enterprises performance: Balanced scorecard perspective. *Jurnal Manajemen Bisnis*, *8*(2), 236–244.

Tongco, M. D. C. (2007). Purposive sampling as a tool for informant selection. *Ethnobotany Research and Applications*, *5*, 147–158. https://doi.org/10.17348/era.5.0.147-158

Yaacob, N. M., & Azam, S. M. F. (2019). Poverty and household income disparity in Malaysia: A preliminary analysis. *International Journal of Financial Research*, *10*(5), 72–80. https://doi.org/10.5430/ijfr.v10n5p72

Zainol, N., Esa, M. M., Muhamad, N., & Mohamad, S. S. (2022). Digital entrepreneurship: A study of the success factors of digital women entrepreneurs from Melaka suburban area. *Journal of Business Innovation (Jurnal Inovasi Perniagaan)*, *7*, 81–89.

Zamri, N. A. B., Abdul Rahim, R., & Norizan, N. B. (2024). The effectiveness of digital marketing towards SMEs: A systematic literature review. *Advances in Social Sciences Research Journal*, *11*(2.2), 78–94. https://doi.org/10.14738/assrj.112.2.16427