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Key Factors Influencing Youth Engagement in Malaysia's Agricultural Sector

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Abstract

Malaysia is facing a critical shortage of skilled local labour, especially when it comes to meeting the demands of Industrial Revolution 4.0 (IR4.0). This study investigated the key factors that influence youths in Agricultural Technical and Vocational Education and Training (ATVET), including factors that motivate and demotivate respondents' participation. The study utilised a survey that was distributed to ATVET students in a selected region in Malaysia. It comprised 224 responses from ATVET students from four institutions. The data was analysed by first identifying the underlying structure of the data to discover potential factors within the variables without setting up a preconceived model. A confirmatory factor analysis (CFA) was then conducted to test whether the identified factor structure from the EFA was consistent with a theoretical model and a good fit to the data. The study was based on the Behavioural Insights Framework and examined the cognitive processes, social influences and contextual factors that influence decision-making related to agricultural behaviours. The results show that motivating factors such as the farm-community ecosystem, career prospects and profitability of the sector are offset by demotivating factors, particularly financial and resource-related barriers as well as socio-cultural and infrastructural barriers.

Keywords: Agricultural Technical and Vocational Education and Training (ATVET), Youth Engagement, Behavioural Insights, Motivating Factors, Demotivating Factors

Introduction

Globally, agriculture is recognised as a vital sector and the situation is no different in Malaysia. Despite its crucial role in ensuring food security, the agricultural sector in Malaysia faces major challenges, especially in retaining labour and increasing production. To ensure its sustainability, youth participation is crucial. According to the Institute for Social Science Studies (IPSAS), youths make up 43.8% of Malaysia's total population, but less than 20% are employed in agriculture. This concerning figure emphasises the need for concrete efforts to encourage young people to consider agriculture as a viable career option.

The Malaysian government has taken various initiatives to promote this sector, including digital farming technologies and smart farming projects. Agriculture also has the potential to address unemployment, but young people are still reluctant to enter this field. Several local studies attribute this reluctance to the negative perception of agriculture. Abdullah et al. (2012) found that young people perceive agriculture as an unattractive profession. However, Stapa et al. (2019) found that while many Malaysian youths have a negative attitude towards agriculture, they also recognise that hard work in this sector can lead to financial gains.

Aside from career opportunities, youth engagement in agriculture plays a crucial role in bridging the gap between food production and demand (White, 2012). Unemployment remains a pressing problem in developing countries, prompting rural youth to migrate to the cities in search of better opportunities. Studies in Nigeria (Nwanegbo, 2019) and Malaysia (Zaremohzzabieh et al., 2016; Yasin & Ngah, 2011) suggest that many young people are not realising their full potential. The agricultural sector therefore offers an important platform for creating employment opportunities and contributing to national development.

Many research instruments have been developed to measure motivating factors and barriers in agriculture-related careers. Previous studies have investigated various aspects such as factors influencing youth interest in agricultural entrepreneurship (Withanage & Damayanthi, 2019; Abdullah, 2014), youth participation in agricultural enterprises (Giwu et al., 2024), determinants of pursuing an agricultural career (Roy, 2023; Egboduku et al., 2021), and barriers and opportunities for youth engagement in agribusiness (Mulema et al., 2021). In addition, some studies have focused on the development of tools for entrepreneurial passion and agricultural entrepreneurship (Tindiwensi et al., 2023). These studies primarily targeted students, graduates or young people. Some statements of the previously developed instruments were modified and adapted to the objectives of this study. According to Husain & Aziz (2022), when adapting instruments from previous studies, researchers need to rerun the exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to ensure the validity and reliability of the constructs in the new context.

Purpose of the Study

Generally, this study examines the factors that motivate and demotivate vocational students to pursue a career in agriculture. The research instruments were developed based on relevant contextual factors in Malaysia and a behavioural insights approach. Initially, the questionnaire items were not assigned to specific constructs or dimensions. To validate the constructs, an exploratory factor analysis (EFA) was conducted to identify underlying factor structures within the data set and group related items into meaningful dimensions. A confirmatory factor analysis (CFA) was then conducted to assess the reliability and validity of these constructs. Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity test were used to determine the appropriateness of the data set for factor analysis. If necessary, iterative refinements (e.g., removing weak items or adjusting factor loadings) were made to improve the clarity and reliability of the constructs. This process ensured that the final factors accurately represented the motivational and demotivational influences on ATVET students' career decisions in agriculture.

Methodology

This study adopted a behavioral insights approach, integrating questionnaire items from psychology, economics and sociology to understand human behaviour and decision-making (Hampton & Adams, 2018). The research instruments were adopted and adapted from previous studies (Nor et al., 2015; Inegbedion & Islam, 2021). The questionnaire contained 20 items measuring motivational factors such as "*modern agricultural technologies make agriculture more attractive to me*", "*agricultural entrepreneurship is a noble profession*" and "*the government plays an important role in promoting entrepreneurship in agriculture*". In contrast, 10 items measured demotivating factors, including "*the risk of financial loss in farming discourages me*", "*the attractiveness of the urban lifestyle discourages me from farming*" and "*family expectations of a prestigious career discourage me from farming*".

Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted with a sample of 224 respondents to analyse the structure of motivating and demotivating factors. As the study context may differ from previous research in terms of socioeconomic status, ethnicity and culture (Husain & Aziz, 2022), factor analysis was required to validate the constructs. The results were consistent with the existing literature (Abdul Aziz & Norhlilmatun Naem, 2013; Šimpachová Pechrová et al, 2013; Thephavanh et al, 2022; Nor et al, 2015). However, one item was identified in the CFA that did not fit the construct, so it was removed from the scale of motivational factors. All items were measured using a 10-point Likert scale ranging from 1 (strongly disagree) to 10 (strongly agree).

The study sample comprised 224 students from four institutions offering ATVET programmes in Melaka, Johor, Negeri Sembilan and Selangor. The sample was purposively selected, taking into account institutional arrangements, geographical proximity, duration of study, financial constraints and the cross-sectional nature of the study.

Result

A data set with 224 samples was analysed using EFA and CFA. The EFA was first conducted to determine the relationships between motivating and demotivating elements, as these were initially unknown. Once the relationships, factors and associated items were identified, the CFA was conducted to confirm the results.

Factor Analysis (Motivating Factors)

In order to determine the factorial structure of the items, a factor analysis was carried out. First, an EFA was performed to analyse the internal structure and identify items with low factor loadings that should possibly be removed. An orthogonal varimax rotation was applied to reduce the likelihood of incorrect statistical solutions and to clarify uncorrelated factors. The results of the EFA showed a Kaiser-Meyer-Olkin (KMO) value of .80 and a significant Bartlett's test ($\chi^2 = 2163$, $p < .01$), confirming the suitability of the data for factor analysis.

As shown in Table 1, the EFA revealed a three-factor structure: factor 1 consisted of 11 items (B1–B10 and B15), factor 2 comprised six items (B11–B14, B16–B17), and factor 3 consisted of three items (B18–B20). Although factor loadings above .30 were considered

acceptable (Orcan, 2018), item 15 was removed during the CFA due to its low contribution to the internal consistency of factor 1 (Cronbach's alpha).

Following previous studies (Abdul Aziz & Norhlilmatun Naem, 2013; Šimpachová Pechrová et al., 2013; Thephavanh et al., 2022; Nor et al., 2015), the three factors were categorised as Farm-to-Community Ecosystem Building (Factor 1), Future View (Factor 2) and Perceived Sector Viability (Factor 3). Table 7 shows the results of the factor analysis based on 20 items (B1–B20).

Table 1
Factor Loadings (Motivating Factors)

	Factor			
	Farm-to-community ecosystem building	Future view	Perceived sector viability	Uniqueness
B1	0.413			0.578
B2	0.519			0.536
B3	0.714			0.503
B4	0.548			0.547
B5	0.693			0.471
B6	0.697			0.504
B7	0.782			0.488
B8	0.721			0.422
B9	0.608			0.406
B10	0.543			0.485
B15	0.466			0.485
B11		0.618		0.381
B12		0.602		0.627
B13		0.872		0.266
B14		0.47		0.516
B16		0.312		0.54
B17		0.329		0.491
B18			0.652	0.458
B19			0.412	0.673
B20			0.388	0.869

Note. 'Minimum residual' extraction method was used in combination with a 'oblimin' rotation

Table 2
Confirmatory Factor Analysis (Motivating Factors)

Factor	Indicator	Estimate	SE	Z	p
Factor 1	B1	0.744	0.0793	9.38	< .001
	B2	0.784	0.0775	10.12	< .001
	B3	1.038	0.0912	11.37	< .001
	B4	1.065	0.0991	10.75	< .001
	B5	1.155	0.102	11.32	< .001
	B6	1.069	0.0933	11.46	< .001
	B7	1.135	0.103	11.02	< .001
	B8	1.114	0.0849	13.11	< .001
	B9	1.218	0.0922	13.21	< .001
	B10	1.201	0.0983	12.22	< .001
Factor 2	B11	0.909	0.0694	13.09	< .001
	B12	0.838	0.0933	8.98	< .001
	B13	0.935	0.0718	13.02	< .001
	B14	0.966	0.0846	11.42	< .001
	B16	1.034	0.0971	10.64	< .001
	B17	1.082	0.0967	11.19	< .001
Factor 3	B18	1.294	0.1455	8.9	< .001
	B19	1.238	0.1484	8.34	< .001
	B20	0.759	0.2037	3.73	< .001

Factor Analysis (Demotivating Factors)

The EFA results showed a KMO value of .80 and a significant Bartlett's test (χ^2 = 1236, p < .01), confirming the suitability of the data for factor analysis. As shown in Table 3, the EFA resulted in a two-factor structure: factor 1 consisted of six items (C5–C10), and factor 2 comprised four items (C1–C4). All items were retained in the CFA due to internal consistency (Cronbach's alpha).

Following previous studies (Abdul Aziz & Norhlilmatun Naem, 2013; Šimpachová Pechrová et al, 2013; Thephavanh et al, 2022; Nor et al, 2015), the two factors were categorised as financial and resource-related barriers (Factor 1) and socio-cultural and infrastructural barriers (Factor 2). Table 4 shows the results of the factor analysis based on 10 items (C1–C10).

Table 3
Factor Loadings (Demotivating Factors)

	Factor		
	Socio-cultural & infrastructural	Financial & resource	Uniqueness
C1		0.641	0.528
C2		0.794	0.276
C3		0.753	0.337
C4		0.713	0.357
C5	0.705		0.345
C6	0.684		0.44
C7	0.621		0.501
C8	0.698		0.372
C9	0.548		0.521
C10	0.726		0.453

Note. 'Minimum residual' extraction method was used in combination with a 'varimax' rotation

Table 4
Confirmatory Factor Analysis (Demotivating Factors)

Factor	Indicator	Estimate	SE	Z	p
Factor 1	C1	1.55	0.143	10.8	< .001
	C2	1.98	0.138	14.4	< .001
	C3	2.07	0.144	14.4	< .001
	C4	2.05	0.142	14.4	< .001
Factor 2	C5	2.05	0.147	14	< .001
	C6	2.18	0.172	12.7	< .001
	C7	1.81	0.152	11.9	< .001
	C8	2.21	0.163	13.6	< .001
	C9	1.76	0.156	11.3	< .001
	C10	1.92	0.173	11.1	< .001

Discussion and Recommendation

Based on EFA and CFA analyses, this study has identified three important motivational factors that shape the attitudes of young people and students towards the agricultural sector. Despite the enormous potential of the sector, the participation of the local labour force, including graduates, remains limited. A lack of trust and understanding among the youth and society regarding the sector's opportunities contributes to this problem.

The Farm-to-Community Ecosystem Building factor, for example, highlights several critical elements that can stimulate young people's interest in agriculture. These include awareness of potential career opportunities, modernised technologies, financial grants and subsidies, access to various education and training programmes, and supportive government policies. By capitalising on these factors, stakeholders in agriculture and ATVET can cultivate youth interest in agricultural entrepreneurship. Young people's perception of the viability of the sector is crucial to encourage them to consider agriculture as a career. Even students with an academic background in agriculture need practical experience to apply their knowledge in the real world. Such practical experience can increase their motivation to pursue a career or research in agriculture (Jones et al., 2017).

However, financial constraints, limited resources, socio-cultural barriers and infrastructural challenges remain significant barriers to youth participation in agriculture. Without an integrated effort by different stakeholders, it will remain a challenge to encourage young people to engage in agriculture and thus contribute to national development and economic sustainability. Governments and policy makers should implement targeted policies, programmes and strategies to support young agricultural entrepreneurs. This could include financial assistance, online business platforms, business incubators and incentives to promote graduate agripreneurship (Che Nawi et al., 2022). The establishment of networks for young agripreneurs can also facilitate access to resources, promote knowledge sharing and open up new business opportunities within the sector.

Conclusion

To summarise, cultivating an entrepreneurial mindset is crucial for business success, especially in the agricultural sector. This initiative utilises vocational education to create opportunities for people working in agriculture and related industries. By improving agricultural skills through TVET, the aim is to strengthen food security and improve the competence of the agricultural labour force. As agriculture is often seen as less desirable by young people, it is important to change their attitudes towards self-employment in agriculture. It is equally important to change society's perception and recognise agriculture as an important sector for food security and sustainable development. A holistic approach to development and an integrated system for managing the agricultural food chain are key starting points for making agriculture a more attractive and viable career path.

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