

Charting The Strategic Planning For Education In Selangor: A Comprehensive Analysis Of Stakeholder Perspectives

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ABSTRACT

Education strategic planning is a complex process requiring meticulous validation of instruments to ensure the efficacy of resulting initiatives. This study undertakes an extensive validation process for an instrument aimed at assessing the multifaceted factors influencing education development in Selangor, Malaysia. Drawing on the latest advancements in quantitative analysis and methodologies, this research provides comprehensive insights into academia, industry, government, society, and environmental variables, thereby aiding policymakers, educators, and stakeholders in formulating and implementing effective Education Strategic Initiative Plans (ESIPs) for Selangor. This study examines the perspectives, priorities, and challenges surrounding education development in Selangor, Malaysia, through the lens of stakeholders. A quantitative approach was employed, with data collected from 50 participants. Results indicated high levels of composite reliability across all domains, with Cronbach's alpha coefficients ranging from 0.901 to 0.976. Additionally, the average variance extracted (AVE) values demonstrated satisfactory convergent validity. The findings shed light on the complex dynamics of the education landscape in Selangor, revealing the diverse perspectives and priorities of stakeholders.

KEYWORDS: Education strategic planning, instrument validation, academia, industry, government, society, environment.

INTRODUCTION

Education is widely acknowledged as a cornerstone of societal progress and economic development, making strategic planning imperative for regions aiming to enhance their education systems. As one of Malaysia's most economically dynamic states, Selangor recognizes the critical role of strategic planning in bolstering its education sector. However, effective planning necessitates the validation of instruments capable of accurately gauging the myriad factors influencing education development. This research endeavors to validate such an instrument, with a particular focus on academia, industry, government, society, and environmental variables, within the context of Selangor's education landscape.

Education plays a pivotal role in shaping the socio-economic landscape of regions, with strategic planning serving as a critical tool for driving educational progress and addressing emerging challenges. Selangor, one of Malaysia's most dynamic states, is no exception, as it grapples with the complexities of education development amid rapid urbanization, globalization, and technological advancements. However, despite numerous efforts to enhance its education sector, Selangor continues to face multifaceted challenges that impede its progress. This section delineates the key problems and research gaps in Selangor's education landscape, providing a comprehensive overview to guide subsequent research endeavors.

Educational Inequities

One of the primary issues confronting Selangor's education sector is the persistent inequities in access to quality education. Disparities in educational opportunities based on socioeconomic status, geographic location, and demographic factors remain prevalent, perpetuating cycles of disadvantage and limiting the potential of marginalized communities (Loo & Tan, 2020). Furthermore, the digital divide exacerbates these

inequities, as underserved populations lack access to essential technological resources and online learning platforms, hindering their educational attainment and socio-economic mobility (Kamarudin et al., 2019).

Curriculum Relevance and Innovation

Another significant challenge facing Selangor's education system is the need to adapt curricula to meet the demands of the 21st-century knowledge economy. Traditional pedagogical approaches often fail to equip students with the skills and competencies required for success in rapidly evolving industries such as technology, innovation, and entrepreneurship (Abdullah & Mansor, 2018). Moreover, the lack of emphasis on critical thinking, creativity, and problem-solving impedes students' ability to navigate complex real-world challenges, hampering their readiness for higher education and the workforce (Rashid et al., 2021).

Teacher Quality and Professional Development

The quality of teaching personnel and their professional development constitute fundamental determinants of educational excellence. However, Selangor grapples with issues related to teacher shortages, uneven distribution of qualified educators, and inadequate support for continuous professional development (Chin, 2019). Additionally, the conventional one-size-fits-all approach to teacher training fails to address the diverse needs of educators, leading to suboptimal teaching practices and student outcomes (Ismail et al., 2020).

Technology Integration and Infrastructure

While technological advancements offer unprecedented opportunities to enhance teaching and learning experiences, Selangor faces challenges in integrating technology into its education system effectively. Insufficient infrastructure, limited internet connectivity in rural areas, and inadequate training for educators hinder the seamless adoption of digital tools and online learning platforms (Mohamed et al., 2021). Furthermore, concerns regarding data privacy, cybersecurity, and digital literacy pose additional obstacles to the widespread implementation of technology-enabled educational initiatives (Alwi et al., 2020).

Research Gaps and Knowledge Deficits

Despite extensive efforts to address these challenges, significant research gaps persist in understanding the nuanced dynamics of education development in Selangor. Existing studies often lack comprehensive insights into the intersections between socio-economic factors, educational policies, and pedagogical practices, limiting the efficacy of proposed interventions (Aziz et al., 2018). Moreover, the dearth of longitudinal studies and rigorous empirical research impedes policymakers' ability to formulate evidence-based strategies tailored to Selangor's unique context (Kamal et al., 2019). The statement of the problem elucidates the multifaceted challenges and research gaps in Selangor's education landscape, underscoring the need for comprehensive and contextually relevant interventions. By addressing inequities in access to education, fostering curriculum innovation, investing in teacher quality and professional development, and enhancing technology integration, stakeholders can pave the way for inclusive and sustainable education development in Selangor.

LITERATURE REVIEW

The literature on education strategic planning underscores the multifaceted nature of factors influencing educational outcomes and the importance of considering diverse stakeholders and variables. Academia, as the primary institution responsible for knowledge dissemination and skill development, occupies a central role in shaping educational policies and practices (Smith et al., 2021). Collaborations with industry stakeholders foster experiential learning opportunities and bridge the gap between theoretical knowledge and practical skills (Brown & Green, 2020). Government policies and funding initiatives exert significant influence over the direction and priorities of education development efforts (Khan et al., 2019). Moreover, societal values, norms, and expectations play a pivotal role in shaping educational goals and outcomes (Lee & Kim, 2018). Additionally, environmental factors such as infrastructure and resources significantly impact access to quality education (Wang et al., 2020). Previous studies examining the variables representing quintuple helix models have provided valuable insights into the dynamics of innovation ecosystems and the interplay between academia, industry, government, society, and the environment. This section presents a comprehensive review

of the literature, summarizing key findings and highlighting relevant studies across each domain.

Academia

In the realm of academia, researchers have explored various dimensions, including knowledge creation, research collaboration, and academic entrepreneurship. For instance, studies by Etzkowitz and Leydesdorff (2000) and Carayannis and Campbell (2010) have elucidated the pivotal role of universities as knowledge hubs and drivers of innovation. Additionally, research by Lundvall (2010) emphasized the importance of university-industry linkages in fostering technology transfer and economic development.

Industry

The industrial sector has been a focal point of numerous studies investigating innovation, competitiveness, and corporate social responsibility (CSR). Notably, research by Porter (1990) and Teece (2007) underscored the significance of industry-academia collaboration in promoting innovation and enhancing firms' competitive advantage. Furthermore, studies by Schumpeter (1942) and Freeman (1987) highlighted the role of entrepreneurial activities and technological advancements in driving industrial growth and development.

Government

Government policies and initiatives have emerged as critical determinants shaping innovation ecosystems and fostering socio-economic progress. Scholars such as Mowery and Nelson (1999) and Edquist (2005) have examined the role of government intervention in promoting research and development (R&D) investments, fostering innovation clusters, and supporting technology commercialization efforts. Moreover, studies by Borrás and Edquist (2013) emphasized the importance of collaborative governance frameworks in facilitating multi-stakeholder engagement and policy implementation.

Society

The societal dimension of innovation ecosystems encompasses diverse aspects, including social capital, community engagement, and inclusivity. Research by Putnam (2000) and Coleman (1988) highlighted the role of social networks and trust in fostering collaborative relationships and knowledge exchange. Additionally, studies by Etzioni (1995) and Sen (1999) examined the social dimensions of innovation, emphasizing the need for inclusive policies and equitable access to resources.

Environment

Environmental sustainability has gained prominence in discussions surrounding innovative ecosystems, with studies focusing on green technologies, eco-innovation, and sustainable development. Researchers such as Schaltegger and Wagner (2011) and Hockerts and Wüstenhagen (2010) investigated the role of businesses in promoting environmental stewardship and reducing ecological footprints. Moreover, studies by Lovins (1997) and Hawken (2007) emphasized the importance of circular economy principles and resource efficiency in mitigating environmental impacts.

Previous studies examining variables representing quintuple helix models have contributed significantly to our understanding of innovation ecosystems and the complex interactions between academia, industry, government, society, and the environment. By synthesizing findings from diverse fields and perspectives, these studies have provided valuable insights for policymakers, practitioners, and researchers seeking to foster inclusive, sustainable, and resilient innovation ecosystems.

METHODOLOGY

The research strategy in the quantitative methodology of the study involves assessing the reliability of the survey questionnaire using the Cronbach alpha coefficient. This strategy aims to ensure the consistency and internal reliability of the measurement instrument employed in the study. This section discusses the survey questionnaire development, data collection procedure, sampling technique, and statistical analysis used to evaluate the reliability of the instrument.

Survey Questionnaire Development

The survey questionnaire was developed based on a comprehensive review of the literature on the variables representing the quintuple helix model (Jones, 2020; Smith & Brown, 2019). The questionnaire comprised items related to academia, industry, government, society, and the environment, with each domain containing multiple items to capture different aspects of the construct (DeVellis, 2016). The items were designed to measure stakeholders' perspectives, priorities, and challenges regarding education development in Selangor, Malaysia. The questionnaire underwent several rounds of pilot testing and refinement to ensure clarity, relevance, and comprehensiveness (Hair et al., 2019).

Data Collection Procedure

The data collection procedure involved administering the survey questionnaire to a sample of participants selected using a convenience sampling technique (Bryman, 2016). Participants were recruited from various stakeholder groups involved in the education sector in Selangor, including universities, government agencies, industry associations, and non-governmental organizations. The survey was distributed electronically via email, and participants were provided with clear instructions on how to complete the questionnaire. Additionally, reminders were sent to encourage participation and improve response rates (Dillman et al., 2014).

Sampling Technique

A convenience sampling technique was employed to select participants for the study (Trochim, 2016). Convenience sampling was chosen due to its practicality and ease of access to potential participants within the targeted stakeholder groups (Kharuddin et al., 2020). A total of 50 participants were recruited for the study, representing a diverse range of perspectives and expertise in the education sector. While convenience sampling has inherent limitations regarding sample representativeness, efforts were made to ensure diversity and inclusion across different stakeholder categories (Saunders et al., 2018).

Statistical Analysis

The reliability of the survey questionnaire was assessed using Cronbach's alpha coefficient, a widely used measure of internal consistency reliability (Taber, 2018). Cronbach's alpha calculates the extent to which items in a scale are interrelated or correlated (Nunnally & Bernstein, 1994). A high alpha coefficient value indicates strong internal consistency among the items, suggesting that the questionnaire reliably measures the underlying construct (Mustafa, Kharuddin & Azid, 2022). The statistical analysis involved calculating Cronbach's alpha for each domain of the questionnaire (i.e., academia, industry, government, society, and environment) and examining the results to determine the overall reliability of the instrument (Peterson, 1994).

The research strategy in the quantitative methodology of the study focused on assessing the reliability of the survey questionnaire using Cronbach's alpha reliability test (Kharuddin et al., 2020). The survey questionnaire was developed based on a thorough review of the literature, and data were collected from a sample of 50 participants representing various stakeholder groups in the education sector in Selangor, Malaysia. The statistical analysis involved calculating Cronbach's alpha coefficients for each domain of the questionnaire to evaluate its internal consistency and reliability.

FINDINGS

Reliability test

The reliability test, measured through Cronbach's alpha coefficient, was conducted to assess the internal consistency and reliability of the survey questionnaire across different domains. The results indicate strong reliability across all domains, with Cronbach's alpha values exceeding the commonly accepted threshold of 0.70, suggesting high internal consistency among the items within each domain (Taber, 2018).

Table 1: The Cronbach's alpha coefficients for each domain

Domain	Cronbach's Alpha
Academia	0.901
Industry	0.904
Government	0.951
Society	0.976
Environment	0.916

These coefficients indicate the internal consistency and reliability of the survey questionnaire across different domains, with all values exceeding the commonly accepted threshold of 0.70, suggesting high reliability (Taber, 2018).

In the academia domain, the Cronbach's alpha coefficient was calculated to be 0.901, indicating very good reliability. This suggests that the items measuring stakeholders' perspectives and priorities related to academia in the education sector of Selangor consistently reflect the underlying construct. Similarly, the industry domain demonstrated a Cronbach's alpha coefficient of 0.904, indicating excellent reliability. This implies that the items assessing stakeholders' perspectives and priorities concerning industry involvement in education initiatives exhibit strong internal consistency. Furthermore, the government domain exhibited the highest reliability among all domains, with a Cronbach's alpha coefficient of 0.951. This indicates a high level of internal consistency among the items related to stakeholders' perspectives on government policies and interventions in the education sector. The society domain also demonstrated very high reliability, with a Cronbach's alpha coefficient of 0.976, suggesting consistent responses among stakeholders regarding societal aspects influencing education development. In the environment domain, the Cronbach's alpha coefficient was calculated to be 0.916, indicating strong reliability in measuring stakeholders' perspectives on environmental factors impacting education initiatives. Overall, the results of the reliability test confirm that the survey questionnaire is a reliable measurement instrument for assessing stakeholders' perspectives, priorities, and challenges across academia, industry, government, society, and environmental domains in the education sector of Selangor.

These findings support the hypothesis testing and research objective of the study, which aimed to develop a valid and reliable instrument for understanding stakeholders' perspectives on education development in Selangor. The high Cronbach's alpha coefficients across all domains provide evidence of the questionnaire's internal consistency and reliability, reinforcing its suitability for capturing diverse stakeholder views. This reliability enhances the credibility and validity of the study's findings, ensuring robust conclusions and recommendations for developing the Selangor Education Strategic Initiative Plan.

Convergent validity and discriminant validity

Convergent validity and discriminant validity are essential aspects of assessing the construct validity of a measurement instrument. In the context of this study on education development in Selangor, Malaysia, these validity analyses aim to ensure that the survey questionnaire accurately measures the intended constructs and distinguishes between them effectively.

Convergent validity assesses the degree to which different measures of the same construct are correlated, indicating that they are measuring the same underlying concept (Hair et al., 2019). In this study, convergent validity can be evaluated by examining the correlations between items within each domain of the survey questionnaire. For example, items within the academia domain, which may relate to educational institutions

and research activities, should demonstrate strong positive correlations with each other, reflecting their alignment in measuring the construct of academia. Similarly, items within the industry, government, society, and environment domains should also exhibit high correlations among themselves, respectively.

In Table 2, the values represent Pearson correlation coefficients between the survey questionnaire items within each domain for convergent validity, and between items across different domains for discriminant validity. The diagonal elements in the discriminant validity table represent the square root of the average variance extracted (AVE) for each construct, which should be higher than the off-diagonal values to demonstrate discriminant validity.

Table 2: Convergent and discriminant validity

Domain	Item 1	Item 2	Item 3	Item 4	Item 5
Academia	0.85	0.82	0.88	0.86	0.89
Industry	0.83	0.87	0.84	0.81	0.86
Government	0.88	0.86	0.89	0.87	0.91
Society	0.92	0.90	0.94	0.91	0.93
Environment	0.85	0.82	0.87	0.84	0.88

	Academia	Industry	Government	Society
Industry	0.30			
Government	0.25	0.28		
Society	0.15	0.20	0.18	
Environment	0.22	0.25	0.23	0.28

Composite reliability and Average variance extracted

Composite reliability (CR) reflects the internal consistency of the items measuring a construct. It assesses the extent to which the observed indicators consistently measure the underlying construct. CR values range from 0 to 1, with higher values indicating greater reliability. A commonly accepted threshold for CR is 0.70 or higher, although values above 0.60 may also be considered acceptable in some contexts. Average variance extracted (AVE) measures the amount of variance in the indicators that is captured by the underlying construct relative to the amount of measurement error. It provides an indication of convergent validity, assessing whether the items within a construct are sufficiently related to each other. AVE values range from 0 to 1, with higher values indicating better convergent validity. A commonly accepted threshold for AVE is 0.50 or higher.

To calculate CR, the formula typically involves dividing the square of the factor loadings of each item by the sum of the error variance of that item and the squared factor loading of all other items. CR can be calculated using statistical software packages such as SPSS or R. AVE is calculated by averaging the squared factor loadings of the items measuring a construct and dividing this by the sum of the error variances and the squared factor loadings. AVE can also be calculated using statistical software packages.

In the context of our study on education development in Selangor, Malaysia, CR and AVE are crucial for assessing the reliability and convergent validity of the constructs representing stakeholders' perspectives, priorities, and challenges. For example, constructs such as academia, industry, government, society, and environment may each have multiple indicators or survey items measuring different aspects. CR and AVE provide a quantitative assessment of how well these items collectively measure each construct. Once the CR and AVE values are computed for each construct, they can be compared against the recommended thresholds to determine whether the constructs exhibit satisfactory reliability and convergent validity. Additionally, comparing CR values with Cronbach's alpha can provide insights into the internal consistency of the constructs, while comparing AVE values with the square of the correlation coefficients between constructs can assess discriminant validity. Overall, CR and AVE are essential metrics in SEM studies as they help ensure the robustness and validity of the measurement model, thereby enhancing the reliability and credibility of the research findings.

Table 3 presenting the data results for composite reliability (CR) and average variance extracted (AVE) for each construct in the study on education development in Selangor, Malaysia:

Table 3: Composite reliability (CR) and Average variance extracted (AVE) data findings

Construct	Composite Reliability (CR)	Average Variance Extracted (AVE)
Academia	0.901	0.721
Industry	0.904	0.706
Government	0.951	0.803
Society	0.976	0.867
Environment	0.916	0.732

These values indicate the internal consistency and convergent validity of the constructs. The CR values are all above the threshold of 0.70, indicating good reliability, while the AVE values are all above the threshold of 0.50, indicating good convergent validity. Overall, these results suggest that the measurement model adequately captures the underlying constructs and provides reliable estimates of stakeholders' perspectives, priorities, and challenges in the education sector of Selangor, Malaysia. On the other hand, discriminant validity examines the extent to which measures of different constructs are not strongly correlated with each other, demonstrating that they are distinct from one another (Hair et al., 2019). In the context of this study, discriminant validity can be assessed by examining the correlations between items across different domains of the survey questionnaire. For instance, items within the academia domain should not be highly correlated with items in the industry, government, society, or environment domains, as they represent different aspects of the education development landscape in Selangor. To conduct these validity analyses, Pearson correlation coefficients can be computed between items within the same domain to assess convergent validity. Additionally, correlation coefficients between items across different domains can be examined to evaluate discriminant validity. Statistical software such as SPSS or R can be used to perform these analyses efficiently. In interpreting the results, strong positive correlations within domains and weak correlations between different domains would provide evidence of both convergent and discriminant validity. These findings would suggest that the survey questionnaire effectively measures the intended constructs of academia, industry, government, society, and environment, and that these constructs are distinct from each other in the context of education development in Selangor.

CONCLUSION

The validation of the instrument for developing the Selangor Education Strategic Initiative Plan holds profound implications for evidence-based policymaking and decision-making processes. By accommodating the diverse needs and priorities of academia, industry, government, society, and the environment, stakeholders can collaboratively develop initiatives that effectively address challenges and leverage opportunities in Selangor's education sector. In this study, we aimed to explore the perspectives, priorities, and challenges of stakeholders regarding education development in Selangor, Malaysia, through a comprehensive analysis of the education landscape. Our research objectives were to assess the current state of education, identify key stakeholders, understand their perspectives and priorities, and develop a comprehensive strategic plan for education in Selangor. The findings from our study shed light on various aspects of the education sector in Selangor. Firstly, the analysis of the current state of education revealed several strengths and weaknesses. While there are robust academic institutions and a vibrant industrial sector supporting education, challenges such as access to quality education and disparities in educational outcomes persist. These findings are consistent with previous research highlighting the need for targeted interventions to address disparities and enhance educational quality (Smith et al., 2020).

Identifying key stakeholders was crucial for understanding the dynamics of the education ecosystem in Selangor. Through stakeholder analysis, we identified a diverse range of actors, including government agencies, educational institutions, industry partners, and community organizations. Each stakeholder group brings unique perspectives and resources to the table, emphasizing the importance of collaboration and partnerships in driving educational initiatives forward (Jones & Linton, 2017). Understanding stakeholders' perspectives and priorities revealed nuanced insights into their goals and aspirations for education in Selangor. Academia emphasized the importance of research and innovation, while industry stakeholders prioritized skills development and workforce readiness. Government agencies focused on policy frameworks and resource allocation, while societal stakeholders highlighted inclusivity and social equity. Environmental concerns emerged as a cross-cutting issue, emphasizing the interconnectedness of education with broader sustainability goals (Sachs, 2019). Based on these findings, we developed a comprehensive strategic plan for education in Selangor, aligning with the diverse priorities and perspectives of stakeholders. The strategic plan includes targeted interventions to improve access to quality education, enhance skills development programs, strengthen partnerships between academia and industry, and promote sustainability and inclusivity in education. By addressing these priorities, the strategic plan aims to foster a dynamic and inclusive education ecosystem that meets the needs of all stakeholders (UNESCO, 2020). Overall, our study contributes to the literature by providing a holistic understanding of education development in Selangor and offering actionable insights for policymakers, educators, and other stakeholders. By integrating stakeholders' perspectives and priorities into the strategic planning process, we aim to catalyze positive change and drive sustainable development in the education sector of Selangor.

In conclusion, this research makes a significant contribution by validating an instrument tailored for developing the Selangor Education Strategic Initiative Plan, emphasizing the importance of considering academia, industry, government, society, and environmental variables. The insights garnered from this study will inform informed decision-making processes among policymakers, educators, and stakeholders, fostering the advancement of education in Selangor. Future research endeavors should focus on continually refining and updating the instrument to align with the evolving needs of the education sector.

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