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DEVELOPING CULTURALLY RESPONSIVE INDICATORS TO ENHANCE PROFESSIONAL LEADERSHIP IN MALAYSIAN PRE- SERVICE TEACHER EDUCATION: A MODIFIED FUZZY DELPHI STUDY

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ABSTRACT

The focus of this study is to examine how Empowering Professional Leadership (EPL) can enhance the understanding of the concept of teacher leadership among Malaysian pre-service teachers. While conventional leadership models often emphasize positional authority and technical tasks, this domain highlights culturally grounded, future-oriented dimensions that are crucial for holistic teacher development. The five main EPL themes that relate to this positive outlook are Pioneering the Attitude of Servitude, Practicing Futuristic Thinking, Catalyzing Change, Leading a Research Culture, and Triggering Entrepreneurial Values. These EPL themes are also in line and reflect the Malaysian National Philosophy of Education, which is the hope towards the balance in the individuals' intellectual, spiritual, emotional, and social development. EPL also served to develop and assess a set of indicators of culturally responsive leadership that can be used as part of the Malaysian teacher educator programs. A Modified Delphi Method was employed across three rounds. In round 1, qualitative data were collected through semi-structured interviews with six educational leadership experts, resulting in the identification of initial themes and 74 proposed indicators. Round 2 involved expert review using an open-ended questionnaire, leading to refinement of the indicators based on conceptual clarity and contextual relevance. In round 3, a Fuzzy Delphi Method (FDM) was applied, involving 27 local experts comprising teacher educators, school leaders, and ministry officers. Fuzzy logic procedures, including defuzzification and threshold analysis ($d \leq 0.2$), were used to establish expert consensus at a minimum agreement level of 75%. The study validated 74 indicators across the five themes, highlighting leadership as an evolving process rooted in service, critical inquiry, and innovative thinking. With these findings, a new validated framework that is culturally responsive and empirically sound, and which prepares future educators as teacher leaders with the new required competencies has been defined. This study adds to the decolonial reconceptualisation of teacher leadership, with implications for teacher education reform in Malaysia and similar Global South contexts.

Keywords: Pre-service teacher leadership, professional leadership, Fuzzy Delphi Method, educational innovation, teacher education, Malaysia.



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INTRODUCTION

The educational programs implemented internationally, particularly in Malaysia, have incorporated developing leadership skills in pre-service teachers as a key element in educating teachers and in educational reforms. The Malaysia Education Blueprint (2013-2025) emphasizes that teachers' ability to maneuver through complicated and continuously evolving educational changes is crucial, as teachers are the most important element within a school in determining the academic success of students (Ministry of Education Malaysia, 2013). Correspondingly, the Organization of Economic Co-operation and Development OECD (2025), through the Teaching and Learning International Surveys (TALIS), considers teacher leadership as the bedrock of professional self-direction, creativity, and innovative collaborative educational environments.

Culturally Responsive Leadership (CRL) offers an essential lens for understanding leadership preparation in Malaysia's multicultural and postcolonial context. CRL, following Khalifa et al. (2016), emphasizes inclusive, equitable, and context-sensitive leadership. In teacher education, it integrates three core elements: ethical responsibility, professional agency, and future-readiness. Ethical responsibility aligns with *khidmat* and *adab* in the National Philosophy of Education; agency reflects reflective and contextually responsive action (Molla & Nolan, 2020); and future-readiness corresponds to anticipatory competence required in rapidly changing educational environments (Beutel & Tangen, 2018; Schleicher, 2016).

CRL also addresses limitations of dominant Western leadership paradigms that prioritize managerialism and accountability, often resulting in conceptual misalignment in non-Western systems (Ball, 2015; Wenner & Campbell, 2017). In contrast, Malaysian educational traditions view leadership as moral, reflective, and service-oriented. Within this study, CRL forms the foundation for the Empowering Professional Leadership (EPL) model, where its principles are operationalized through five dimensions: Servitude, Futuristic Thinking, Catalyzing Change, Research Culture, and Entrepreneurial Values. These dimensions collectively position pre-service teachers as culturally attuned, ethically grounded, and future-ready leaders.

The educational literature also highlights that there is not enough attention to the pre-service leadership development in Malaysia (Norlia Mat Norwani et al., 2016). Furthermore, Mangin and Stoelinga (2008) as well as Wenner and Campbell (2017) note that there are several hegemonic Western teacher leadership paradigms which emphasize accountability, performance measures, and top-down administration. Ball (2015) further argues that such frameworks tend to marginalize moral reasoning, relational trust, and collective agency. Walker and Riordan (2010), together with Schleicher (2016), caution that transplanting externally derived leadership models into culturally distinct systems risks conceptual misalignment and weakens the moral and social purpose of education.

In contrast, Malaysian educational philosophy positions leadership as a moral, reflective, and service-oriented process. Pre-service teachers are expected to demonstrate *adab* (ethical comportment), social responsibility, and intellectual inquiry. This conception departs from managerial paradigms by emphasizing communal harmony, ethical influence, and spiritual accountability. Consequently, teacher education in Malaysia requires a reconceptualization of leadership that situates professional competence within ethical and cultural frameworks while equipping teachers to lead in future-oriented and globally connected environments.

This study responds to that need by developing and validating culturally responsive indicators for Empowering Professional Leadership (EPL), a central domain within a broader model of pre-service teacher leadership. EPL conceptualizes leadership as ethical influence, proactive engagement, and responsiveness to educational and societal needs. Employing the Modified Fuzzy Delphi Method, this study establishes expert consensus on leadership indicators that reflect Malaysia's cultural, ethical, and educational context. Thus far, there has been no prior research that has operationalized the EPL domain using a culturally grounded Delphi approach. Therefore, this research contributes a proposed and empirically validated framework to the interconnection of culturally



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responsive leadership and the reform of teacher education, enhancing the conversations nationally and internationally on leadership within the postcolonial and Global South.

LITERATURE REVIEW

Global Perspectives and Debates

Teacher leadership has shifted from being a marginal concept to being acknowledged as a crucial component of educational improvement. York-Barr and Duke (2004), as well as Harris and Jones (2019), state that effective teacher leadership brings about collaboration, fosters professional learning, and creates systemic innovations. Yet, as noted by Mangin and Stoelinga (2008) and Wenner and Campbell (2017), dominant Western approaches, particularly in the U.S., are shaped by managerial responsibility and hierarchical frameworks emphasizing accountability. Ball (2015) further argues that these approaches risk reducing leadership to compliance rather than professional agency and ethical purpose. Likewise, Godfrey and Munoz-Chereau (2024) show that accountability mechanisms in the U.K. can constrain teacher autonomy through standardization.

In contrast, Salleh Hairon (2017), Chung (2023), and Fullan and Hargreaves (2016) illustrate that systems such as Singapore, Finland, and Canada employ more trust-oriented approaches centered on professional judgement, collaborative decision-making, and learning-focused leadership. These global debates highlight an international tension between managerial systems and developmental professionalism. This contrast underscores the need for Malaysia to adopt leadership models that prioritize ethics, reflection, and cultural responsiveness rather than managerial compliance.

Teacher Leadership in the Malaysian Context

The Malaysian Education Blueprint 2013-2025 and the Transformasi IPG Framework (2022) also recognize the significance of leadership as a dimension of teacher quality (Ministry of Education Malaysia, 2013; 2022). Despite this, pre-service leadership is primarily critiqued by Norlia Mat Norwani et al. (2016) and Hamidah Yusof et al. (2020) as being patchy and almost exclusively of an administrative nature. According to Saiful Akmal et al. (2019), leadership is insufficient in the primary determination of a teacher's role, as this is often limited to classroom management and practicum leadership. Therefore, this results in a disparity in the leadership competencies of pre-service teachers within the profession (Amirul Fahmie Abdul Razak et al., 2024).

Structural constraints such as hierarchical school cultures and transmission-oriented pedagogies (Chua et al., 2020; Lee and Low, 2014) further limit opportunities for collaboration, reflection, and innovation. These challenges indicate that Malaysia requires leadership frameworks grounded in ethical responsibility, professional agency, and community engagement, the same values that align with CRL and underpin the EPL model. Although Transformasi IPG aims to strengthen leadership preparation, the absence of validated, context-specific indicators limits its effective implementation. This gap underscores the need for a culturally grounded and empirically validated leadership framework for Malaysian pre-service teachers.

Theoretical Foundation for Empowering Professional Leadership

This study employs a contextually situated theoretical approach to define and operationalize Empowering Professional Leadership (EPL) pertaining to Malaysian pre-service teacher education. The framework draws on three foundational sources:

- a) National policy and philosophical documents, notably the *National Philosophy of Education* and the *Malaysia Education Blueprint 2013-2025* (Ministry of Education Malaysia, 1988, 2013);
- b) Culturally responsive and decolonial leadership frameworks (Dimmock & Walker, 2000; Khalifa et al., 2016a; Loomis, 2021); and
- c) Analytical works on transformative, ethical, and future-ready teacher leadership (Brodie, 2019; Cuéllar et al., 2020; Ghaemi & Boroushaki, 2025; Menter & Flores, 2020)



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Khalifa et al. (2016) define Culturally Responsive Leadership as a leadership approach that recognizes and values the complexity of culture and promotes equity and social justice in education. This theoretical framework situates nicely within the context of Malaysia's pluralistic and postcolonial education system, where leadership, in all its forms, must emanate from a moral center and build relational trust. In addition to this, Greenleaf (1998) and Cuéllar et al. (2020) elaborate on Servant Leadership as ethical leadership with a focus on stewardship with a humble and caring disposition, reflecting the *khidmat* (service) philosophy of education.

Molla and Nolan (2020) have defined professional agency as "the capacity for self-directed, reflective action, and is a key aspect of empowered leadership." (p. 36). Other authors, like Beutel and Tangen (2018) and Schleicher (2016), also discuss Future-Readiness as a leadership competency of having anticipation and creativity along with flexibility and adaptability to changes in society and technology. Together, ethics, agency, and future orientation form the conceptual core of EPL, providing a pluralistic and culturally grounded interpretation of leadership.

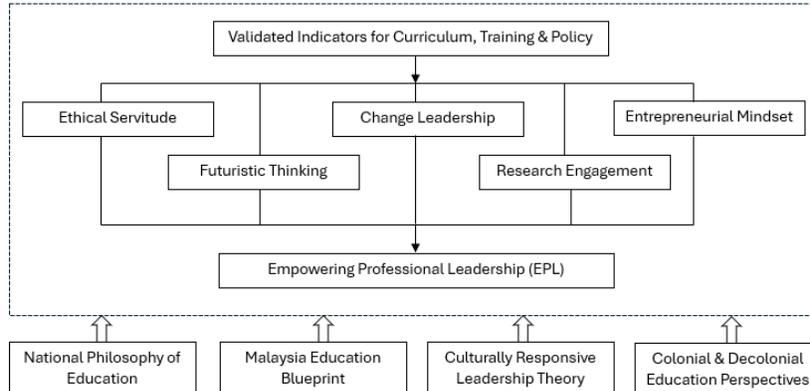
The EPL theoretical base was further specified and contextualized by expert consultation and document study in Stage 1 of this study. Five interconnected leadership dimensions were identified as the EPL core framework: Ethical Servitude, Futuristic Thinking, Catalyzing Change, Research Engagement, and Entrepreneurial Values.

- a) Ethical Servitude is the inner servitude and self-sacrifice of leadership and resonant service to the community, as is moral integrity and responsibility, which is consistent with the leadership and education traditions of Asian and Malaysian countries, where 'leadership is service and is not hierarchical' (Walker & Riordan, 2010).
- b) Futuristic Thinking represents the teachers' ability to predict and forecast in education, technology, and society in order to promote adaptability and resilience for dynamic and rapidly changing environments (Godfrey & Munoz-Chereau, 2024; Schleicher, 2016).
- c) Catalyzing Change is the ability of the teacher to bring improvement in pedagogy and school culture in collaboration with others and professional change, which reflects agency and leadership influence (Good, 2023).
- d) Research Engagement emphasizes inquiry-based professionalism, where teachers employ reflection and evidence to enhance practice (Ag-Ahmad et al., 2023).
- e) Entrepreneurial Values highlight creativity, innovation, and problem-solving, which are essential for teachers operating in resource-variable and dynamic environments (Ghaemi & Boroushaki, 2025).

These dimensions provide the theoretical and methodological foundation for developing and validating leadership indicators through the Modified Fuzzy Delphi Method. As shown in Figure 1, the Conceptual Framework of Empowering Professional Leadership (EPL) connects four foundational references: the National Philosophy of Education, the Malaysia Education Blueprint (2013-2025), Culturally Responsive Leadership Theory, and Colonial and Decolonial Education Perspectives to five core leadership dimensions: Ethical Servitude, Futuristic Thinking, Catalyzing Change, Research Engagement, and Entrepreneurial Values.



Figure 1
Conceptual Framework of Empowering Professional Leadership (EPL)



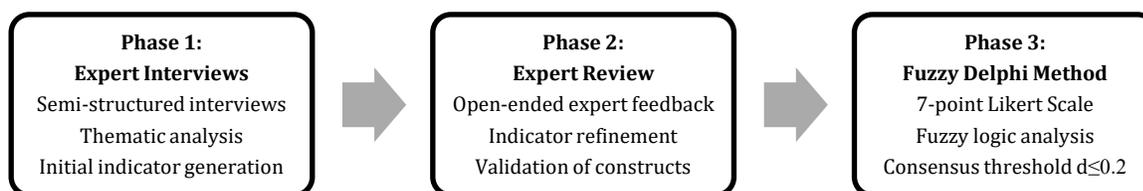
These dimensions collectively define Empowering Professional Leadership, which serves as the basis for developing validated indicators to inform curriculum, training, and policy in Malaysian teacher education. The framework reflects a culturally grounded, ethically guided, and future-oriented approach to leadership development for pre-service teachers.

METHODS

Research Design

This study utilized the Modified Fuzzy Delphi Method (MFDM) to design and validate indicators pertaining to culture responsiveness, Empowering Professional Leadership (EPL) for the Malaysian pre-service teachers. Delphi is a systematic and iterative process for achieving consensus of a group of experts by means of controlled feedback and statistical aggregation. From the Delphi classic scholars like Linstone and Turoff (1975) as well as Okoli and Pawlowski (2004) expound the Delphi technique as the best for educational constructs to be refined and any educational constructs complexities to be dealt with. However, the addition of fuzzy logic improves the Delphi technique by measuring the uncertainty of the experts, making it efficient in dealing with the abstract, such as leadership and even cultural responsiveness.

Figure 2
Research Design



The three rounds shown in Figure 2 included: (1) expert interviews to generate preliminary EPL indicators, (2) qualitative expert review for indicator refinement, and (3) consensus testing using the Fuzzy Delphi Method (FDM). This triangulated design aligns with earlier studies in educational leadership that emphasize the need for frameworks grounded in expert knowledge and culturally situated understandings (Nur Amalina Husna Mohd Razali et al., 2024).



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Sampling Technique

A purposive sampling strategy was used to recruit experts with substantial experience in teacher education, educational leadership, and pre-service teacher development. This approach ensured that participants possessed the necessary expertise to contribute meaningful insights on the development of EPL indicators (Creswell & Poth, 2016). Clear criteria were established to ensure that participants possessed the necessary competence and practical insights to evaluate the proposed leadership indicators. Experts were required to meet at least three of the following conditions:

1. A minimum of five years of professional experience in teacher education, educational leadership, or school administration.
2. Academic qualifications at the master's or doctoral level in education or a related discipline.
3. Direct involvement in curriculum design, leadership development, or teacher education program management.
4. Demonstrated practical experience mentoring pre-service teachers or leading professional development initiatives in schools.

Study Sample

Rounds 1 and 2: A total of six experts participated in the first two rounds of the study. These individuals held senior roles in teacher education and educational leadership at the institutional and policy levels. The sample size is consistent with recommendations for qualitative Delphi studies, which suggest that 4 to 10 participants are sufficient to ensure depth and representativeness in exploratory phases (Creswell & Creswell, 2005). Experts were contacted through formal invitations, and informed consent was obtained before participation.

Table 1 presents the composition of the expert panel for Rounds 1 and 2.

Table 1

Selection of Expert Panels (Rounds 1 and 2) Based on Role and Position

Position of the Experts	Total
Director of MITE Campus	1
Senior Lecturer in Public University in Leadership Field	1
Deputy Rector of MITE	1
Principal Assistant Director of Teacher Education Division	1
Principal Assistant Director of Ministry of Youth and Sports	1
Student Affairs Officer of MITE	1
Total	6

These experts were chosen for their specific roles related to the Malaysian pre-service teacher education reform. Creswell (2011) and Patton (2015) note that qualitative research is concerned with impact and thus, uses information-rich participants who can provide contextual and policy-level insights.

Round 3: In the third round, the expert panel was expanded to include 27 participants, comprising the original six and 21 additional experts identified through purposive and snowball sampling. This panel size adheres to the Delphi protocol, which recommends a panel of 10 to 50 experts for consensus-driven studies (Jones & Twiss, 1978). Table 2 summarizes the distribution of expert roles in Round 3.



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Table 2
Selection of Expert Panels (Round 3) Based on Role and Involvement

Respondent Designation	Total
Policy Makers	
Director of MITE Campus	2
Senior Lecturer in Public University in Leadership Field	2
Deputy Rector of MITE	1
Principal Assistant Director of Teacher Education Division	2
Principal Assistant Director of Ministry of Youth and Sports	1
Student Affairs Officer of MITE	2
Policy Implementers	
Director of MITE	2
Excellent Lecturer, Public/Private Higher Institution	2
Head of Student Affairs Department, MITE	2
Leadership Practitioner from Industry	2
Head of Human Development Unit, Higher Institution	2
Private School Administrator	2
Excellent Headmaster	2
Excellent Teacher, MOE	2
President, Malaysian National Council of MITE	1
Total	27

Panel selection adhered to the criteria outlined by Skulmoski et al. (2007), including subject-matter expertise, voluntary commitment, and the capacity to make informed judgments.

Data Collection and Instruments

Round 1 - Expert Interviews. Semi-structured interviews were conducted with six experts using an interview protocol derived from a comprehensive literature review on teacher leadership and professional empowerment. The interviews were audio-recorded, transcribed verbatim, and thematically analyzed to generate a preliminary list of EPL indicators. This phase aimed to ensure the indicators reflect both theoretical ideals and practical relevance (Patton, 2015; Njuangang et al., 2017).

Round 2 - Expert Review. Experts reviewed the preliminary indicators using an open-ended validation form. They evaluated the clarity, relevance, and contextual alignment of each item. The feedback informed the refinement of the indicator pool through addition, deletion, or revision, thereby strengthening construct validity before entering the consensus testing phase.

Round 3 - Fuzzy Delphi Method. In the final round, 27 experts assessed the refined indicators using a 7-point Likert scale. Responses were translated into triangular fuzzy numbers to capture nuanced judgments and reduce subjectivity. Indicators were retained if they met two criteria: a consensus threshold value (d) of ≤ 0.2 and at least 75% agreement among panel members. Defuzzification was conducted using the centroid method to finalize the ranking of indicators.



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Data Analysis

Round 1 – Thematic Analysis. Interview transcripts were analyzed thematically following Braun and Clarke's (2006) six steps using open and axial coding via Atlas.ti (version 23). Themes were developed through constant comparison and organized into interpretive matrices. Cohen's Kappa (κ) was calculated to determine inter-rater reliability. Following Landis and Koch (1977), κ values above 0.75 indicate substantial agreement, values between 0.60 and 0.74 represent moderate agreement, and values below 0.40 suggest poor consistency. High κ values confirmed strong reliability among expert judgments. Five core subdomains emerged as guiding domains of EPL.

Round 2 – Qualitative Refinement. Experts provided narrative feedback on the relevance and clarity of indicators. This input was coded and synthesized to inform further refinement, ensuring cultural and contextual congruence before FDM testing.

Round 3 – Fuzzy Delphi Analysis. The Fuzzy Delphi Method requires converting expert linguistic judgments into quantifiable values. This study used triangular fuzzy numbers (TFNs) to represent expert agreement levels. Each indicator was assigned three values:

- a) m_1 representing the minimum perceived importance
- b) m_2 representing the most likely or central value
- c) m_3 representing the maximum perceived importance

Defuzzification was performed using the centroid method, a widely accepted technique for converting TFNs into crisp scores. The defuzzification index was calculated as:

$$A = \frac{m_1 + m_2 + m_3}{3}$$

Indicators were retained or rejected based on three criteria:

1. Threshold value (d) ≤ 0.2 , representing acceptable expert consensus.
2. Expert agreement $\geq 75\%$, ensuring adequate convergence of perspectives.
3. Defuzzification score ≥ 0.5 , indicating perceived importance above the minimum threshold.

Indicators satisfying these criteria were accepted for final validation. This process ensured consistent, transparent, and statistically reliable confirmation of expert consensus.

Validity and Reliability

The study employed several strategies to ensure methodological rigor. Content validity was strengthened through expert input at each phase and through literature-informed interview design. Reliability was addressed using Cohen's Kappa to assess inter-rater agreement on theme categorization. Triangulation was achieved through the integration of qualitative insights, expert review, and fuzzy logic validation. The Fuzzy Delphi Method's robustness was supported through fuzzy triangular number analysis to manage uncertainty and enhance judgment reliability (Chang et al., 2022). A separate pilot test was not conducted; instead, the three-round Delphi process functioned as an internal piloting mechanism through iterative expert refinement and confirmation of indicator clarity and validity.

Ethical Considerations

Ethical approval for this study was obtained from the Universiti Malaya Research Ethics Committee (Ref. No. UM.TNC2.UMREC3992) and also the Ministry of Education Educational Research Application System e-RAS (KPM.600-3/2/3-eras(18073)). All participants provided informed consent before data collection. Participation was



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voluntary, and experts were assured of anonymity and confidentiality. Data were stored securely on password-protected devices accessible only to the research team and were used solely for research purposes. No personal identifiers were included in the reporting or dissemination of findings.

FINDINGS

This study employed a three-phase Modified Delphi approach to develop and validate a comprehensive set of 74 indicators for Empowering Professional Leadership (EPL) in Malaysian pre-service teacher education. Drawing on insights from expert interviews and iterative validation using the Fuzzy Delphi Method (FDM), the finalized indicators reflect strong expert consensus on the leadership competencies necessary for future-ready, ethically grounded educators. These indicators are structured within five primary subdomains: (1) Pioneering the Attitude of Servitude, (2) Practicing Futuristic Thinking, (3) Catalyzing Changes, (4) Leading a Research Culture, and (5) Triggering Entrepreneurial Values. Each subdomain is illustrated with central themes and notable expert excerpts, which are presented in the succeeding sections.

Pioneering the Attitude of Servitude

Experts consistently emphasized that leadership in education should be anchored in the values of service, humility, and moral accountability. One expert asserted, “Leadership without a heart for service becomes transactional. We want our pre-service teachers to lead with integrity and compassion” (E6). This aligns with the view that servant leadership is fundamental in preparing educators who are ethically driven and student-centered.

Another participant stressed the pedagogical imperative of service: “The attitude of ‘serving others before self’ must be deeply instilled in their training. This is what differentiates an educator from a mere technician” (E1). This insight implies that selfless leaders help and empower educators to further integrate and take on the responsibilities of role models and moral guides in the various communities in which they are a part of.

The link between humility and influence was also highlighted: “Humility is powerful as it earns trust. Pre-service teachers must learn that respect is not demanded, but earned through service” (E3). This illustrates a culturally pertinent perspective in Malaysia, where the sociocultural norm associates personal attributes with leadership validity.

A more nuanced view was provided by another respondent, who claimed, “Being a servant-leader doesn’t mean being passive. It’s about anchoring one’s leadership in care and accountability” (E5). This insight reinforces the notion that servant leadership involves proactive ethical engagement rather than submissiveness.

Finally, the societal significance of service leadership was underscored: “This nation values leaders who work for the people, not those who seek positions for power. That principle must begin in teacher training” (E2). This suggests a broader national aspiration for ethical stewardship, positioning pre-service teacher leadership as a vehicle for cultural continuity.

To validate and quantify this domain, 13 indicators were tested in Phase 3 of the study using the Fuzzy Delphi Method (FDM). All 13 items reached agreement with thresholds ($d \leq 0.2$) and expert agreement of 75% or greater. Moreover, fuzzy scores ranging from 0.852 to 0.928 signified strong item consensus. The validated indicators are summarized in Table 3.



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Table 3
Validated Indicators for Pioneering the Attitude of Servitude

Item No.	Statement	Defuzzification Process		Triangular Fuzzy Numbers		Interpretation
		k	Fuzzy Score	d	Consensus	
Pioneering the Attitude of Servitude						
1.	PST influences students through a student welfare-oriented approach	5	0.902	0.094	93%	Accepted
2.	PST is open to criticism	12	0.859	0.158	78%	Accepted
3.	PST is appointed as leaders based on their personal competence.	13	0.852	0.152	78%	Accepted
4.	PST teaches oriented towards improving student learning rather than material rewards	7	0.893	0.101	89%	Accepted
5.	PST influences friends to become balanced individuals in physical, emotional, spiritual, intellectual and social aspects.	8	0.885	0.094	89%	Accepted
6.	PST is concerned with the Creator's command (Example: The need to pray according to Sharia)	2	0.925	0.089	93%	Accepted
7.	PST uses informal platforms to communicate with senior teachers (Example: During breaks)	6	0.900	0.105	89%	Accepted
8.	PST applies informal platforms to communicate with the school community (Example: Family Day)	8	0.885	0.094	89%	Accepted
9.	PST applies a guiding approach rather than directing for low-achieving students	4	0.904	0.106	89%	Accepted
10.	PST applies situational leadership styles when communicating (Example: A novice colleague with a problem is more guiding than a senior colleague, who is more directive)	11	0.875	0.119	85%	Accepted



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11.	PST applies the approach of Humans Being Sent as Caliphs to Prosper the Earth	10	0.880	0.157	81%	Accepted
12.	PST values diverse perspectives for self-improvement	3	0.917	0.094	93%	Accepted
13.	PST relies on the Creator after trying and praying	1	0.928	0.085	93%	Accepted

Note. Conditions: *Triangular Fuzzy Numbers:* 1) *Threshold value* (d) ≤ 0.2 , 2) *Expert Agreement percentage* $\geq 75.0\%$, *Defuzzification Process:* 3) *Fuzzy Score* (A) $\geq \alpha$ value – cut = 0.5

The findings validate that Pioneering the Attitude of Servitude is both conceptually esteemed and quantifiably assessed through substantial expert agreement. This domain includes ethical, relational, and spiritual leadership, illustrating the necessity of developing teacher leaders who are committed to servanthood, humility, and ethical stewardship.

Practicing Futuristic Thinking

Futuristic thinking emerged as a critical leadership trait, especially in preparing pre-service teachers to navigate the evolving complexities of tomorrow's educational landscape. Experts in the study stressed the importance of cultivating foresight and strategic awareness among teacher candidates. One respondent emphasized this need, stating, "We need teachers who think not only about the next class but about the future of the school, of education, of the nation" (E4). This viewpoint calls for a shift beyond short-term instructional goals toward visionary, systems-level planning.

Another expert provided insight regarding the pedagogy integration of foresight, stating, "It's not enough to teach what's in the syllabus: they must foresee how students will need to function in 2030 and beyond" (E2). This underscores the need for skilled teachers who understand how to teach in consideration of contemporary and future social, technological, and global shifts.

To operationalize such forward-looking mindsets, experts recommended explicit training in trend analysis and scenario planning. As noted by one participant, "Strategic thinking is a skill that can be taught. Pre-service teachers should practice analyzing trends and forecasting educational needs" (E3). In this case, leadership enables more proactive foresight, anticipating matters further down the timeline and thus allowing educators to act and plan with clear confidence and strong conviction.

The last two entries highlighted the requirement of agile and adaptive leadership. "The world is changing fast. Teachers need to be agile and prepared for what's coming, not just what is" (E6) and "Technology, climate, policy, they're all changing. We need leaders who can anticipate and adapt before crisis forces them to" (E1). Taken together, these suggestions call for a leadership style that is keenly aware, strategically responsive, and operates decisively in volatile contexts.

In Phase 3 of the study, 12 indicators were validated under this subdomain using the Fuzzy Delphi Method (FDM). Each indicator surpassed the consensus threshold, with fuzzy scores ranging from 0.878 to 0.910 and agreement levels of 81% or higher. Table 4 presents the detailed results.



Table 4
Validated Indicators for Practicing Futuristic Thinking

Item No.	Statement	Defuzzification Process		Triangular Fuzzy Numbers		Interpretation
		k	Fuzzy Score	d	Consensus	
Practicing Futuristic Thinking						
1.	PST is futuristic by considering the future impact of current decision-making	8	0.890	0.113	85%	Accepted
2.	PST applies critical thinking skills before making a decision (Example: Analyzing various sources of data and information to make a decision)	3	0.894	0.115	85%	Accepted
3.	PST designs learning activities that incorporate higher-order thinking skills (Example: Producing learning products)	6	0.891	0.086	93%	Accepted
4.	PST makes environmental issues a means to seize opportunities to improve competencies	7	0.890	0.113	85%	Accepted
5.	PST works with a focus on student welfare rather than material orientation	12	0.878	0.105	89%	Accepted
6.	PST works by combining task orientation (goal achievement) and humanitarian orientation (student welfare)	1	0.910	0.096	93%	Accepted
7.	PST enjoys challenging tasks to improve creative and innovative thinking skills	5	0.893	0.118	89%	Accepted
8.	PST seizes opportunities to improve knowledge (Example: Knowledge, skills, values and professionalism)	2	0.900	0.105	89%	Accepted
9.	PST educates students with higher-order thinking skills through the implementation of project activities	10	0.881	0.129	89%	Accepted
10.	PST applies higher-order thinking skills through	3	0.894	0.115	85%	Accepted



involvement in research activities					
11. PST applies higher-order thinking skills in decision-making because they are guided by valid school data.	11	0.880	0.119	81%	Accepted
12. PST applies a cause-and-effect approach (Example: Providing justification for the implementation of an activity)	9	0.889	0.116	89%	Accepted

Note. Conditions: *Triangular Fuzzy Numbers*: 1) Threshold value (d) ≤ 0.2 , 2) Expert Agreement percentage $\geq 75.0\%$, *Defuzzification Process*: 3) Fuzzy Score (A) $\geq \alpha$ value – cut = 0.5

The validation of these indicators affirms the importance of embedding future-oriented thinking in teacher preparation programs. It extends the concept of leadership beyond static roles into dynamic, critical foresight that positions pre-service teachers as adaptive agents in shaping the future of education.

Catalyzing Changes

The capacity to initiate and sustain meaningful change emerged as a defining feature of Empowering Professional Leadership. Experts consistently advocated that pre-service teachers must go beyond compliance and develop a change-oriented mindset grounded in reflection, initiative, and courage. One participant emphasized the importance of critical engagement: “Pre-service teachers must be exposed to real-world issues and taught to think critically about how they can make a difference from within the system” (E3). This highlights the role of teacher education in equipping candidates to interrogate and challenge systemic limitations.

As articulated in the statement, “They cannot simply follow routines or depend on others. A leader must inspire transformation, even if it starts with small initiatives such as rethinking norms in the classroom” (E1), the notion of initiative marks the statement’s theme. This complements the concept of distributed leadership where personal agency drives systemic change.

The role of scaffolding was also acknowledged by an expert who noted, “Many young teachers are passionate, but they need guidance to turn ideas into meaningful actions that impact the school community” (E2). This suggests that change leadership in pre-service contexts should be both aspirational and supported through structured mentoring and institutional support.

Several responses underscored the need for courageous leadership. “Leadership today requires someone who is not afraid to confront outdated mindsets and offer constructive alternatives” (E5) points to the value of critical courage in navigating entrenched school cultures. Likewise, “We must train them to recognize opportunities for change and more importantly, to be brave enough to lead that change” (E4) affirms the necessity of embedding transformative dispositions within teacher preparation programs.

In Phase 3 of the study, 12 indicators under this subdomain were validated using the Fuzzy Delphi Method. All indicators met the acceptance threshold ($d \leq 0.2$ and $\geq 75\%$ expert consensus), with fuzzy scores ranging from 0.856 to 0.915. These results confirm expert agreement on the specific attributes that enable pre-service teachers to serve as effective agents of change.



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Table 5
Validated Indicators for Catalyzing Changes

Item No.	Statement	Defuzzification Process		Triangular Fuzzy Numbers		Interpretation
		k	Fuzzy Score	d	Consensus	
Catalyzing Change						
1.	PST adapts the best practices of successful individuals for self-application	1	0.915	0.076	100%	Accepted
2.	PST reflects on their own daily practices	5	0.885	0.113	89%	Accepted
3.	PST analyzes data and information received before implementing changes	9	0.873	0.133	81%	Accepted
4.	PST is concerned with policy changes in education	11	0.865	0.168	81%	Accepted
5.	PST is open to environmental changes	2	0.912	0.086	96%	Accepted
6.	PST implements change starting with a change in self-attitude	8	0.880	0.119	81%	Accepted
7.	PST analyzes self-deficiencies before implementing changes	10	0.870	0.071	89%	Accepted
8.	PST changes attitudes by exploring knowledge	6	0.881	0.089	89%	Accepted
9.	PST is concerned about the changing environment in education as it impacts their teaching (Example: Digital change)	3	0.909	0.085	96%	Accepted
10.	PST changes existing practices that are not suitable for the school environment	12	0.856	0.132	78%	Accepted
11.	PST is agent of change in local communities	4	0.896	0.103	89%	Accepted
12.	PST is a pioneer in applying digital in new schools	6	0.881	0.135	78%	Accepted

These results verify that successful change leadership in educator preparation entails a synthesis of self-evaluation, context analysis, digital responsiveness, and policy comprehension. Transformative change within an educational system requires that pre-service teacher education is anchored towards a construct that is both critically and actionably focused.



Leading a Research Culture

As ‘Empowering Professional Leadership’ is also about pre-service teacher engagement in research, the expert panel viewed this shift as a fundamental change. This subdomain articulates the impact of inquiry-based practice on the dynamic of engaged leadership, analysis, and ethics as the practice of teacher leadership.

As one expert summarized, “Leaders must know how to read research, use it to inform decisions and conduct their own small studies to improve practice” (E4). This perspective reinforces the understanding that teaching practice improvement research is essential, unlike viewing it only as a scholarly pursuit. Adding on, another participant stated, “We’re not asking them to publish papers, but they must be curious, evidence-based, and open to learning from data” (E2), emphasizing the expectation that all educators, not only description-developing academics, must be research-literate.

The connection between leadership and reflective inquiry was also emphasized: “Teachers who engage in action research become more reflective, and this reflection is the seed of leadership” (E5). This aligns with calls for research-infused teacher education, in which systematic inquiry enables educators to question assumptions and reimagine classroom practices.

A further elaboration on data-informed professionalism was provided by E1: “Good intentions must be backed by data. That’s what separates guesswork from informed decisions.” This reflects the growing recognition of empirical reasoning as a critical leadership function in education. Finally, the institutionalization of a research mindset was articulated by another respondent: “We need to normalize research at the teacher level, starting with teacher trainees” (E3), suggesting that pre-service years offer a strategic entry point for building sustainable research cultures in schools.

The results from the Fuzzy Delphi Method not only confirmed these views but also validated 25 indicators for the subdomain. All indicators met the required thresholds of $d \leq 0.2$ and at least 75% consensus, receiving fuzzy scores from 0.794 to 0.927. These indicators embody a full spectrum of practices from engagement in basic research to compliance with research ethics, alignment with the SDGs, and publication.

Table 6
Validated Indicators for Leading a Research Culture

Item No.	Statement	Defuzzification Process		Triangular Fuzzy Numbers		Interpretation
		k	Fuzzy Score	d	Consensus	
Pioneering a Research Culture						
1.	PST applies research methods in the real world of teaching	12	0.878	0.132	78%	Accepted
2.	PST explains the research focus to potential study participants before conducting the study (Example: Research methods)	18	0.864	0.106	85%	Accepted
3.	PST solves school issues through research activities	20	0.863	0.117	78%	Accepted



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4.	PST is guided by IPG lecturers experienced in research activities	1	0.927	0.080	96%	Accepted
5.	PST carries out research activities based on proper methodology	3	0.894	0.115	85%	Accepted
6.	PST carries out research activities using the latest data analysis (Example: Qualitative using Atlas.ti software)	13	0.875	0.097	85%	Accepted
7.	PST seizes opportunities to collaborate in research activities with researchers outside IPG	15	0.870	0.125	78%	Accepted
8.	PST shares research findings with stakeholders to form research networks (Example: Conferences)	3	0.894	0.115	85%	Accepted
9.	PST seizes opportunity to become research fellow of external research institutions	16	0.869	0.107	81%	Accepted
10.	PST explores research methods other than action research	7	0.890	0.113	85%	Accepted
11.	PST proactively implements research activities for the Educational Research Project course (PRJP4013)	8	0.890	0.113	85%	Accepted
12.	PST conducts research to explore new knowledge	9	0.886	0.128	85%	Accepted
13.	PST shares research findings with the local community through the publication of academic materials (Example: Articles and books)	11	0.879	0.102	85%	Accepted
14.	PST shares research findings with local community at conference	21	0.859	0.113	78%	Accepted
15.	PST influences colleagues to share research findings (Example: Conferences)	18	0.864	0.106	85%	Accepted
16.	PST proactively identifies innovation competitions	22	0.856	0.155	78%	Accepted
17.	PST participates in national level competitions to assess	10	0.880	0.119	81%	Accepted



	the quality of research findings					
18.	PST cultivates curiosity about new knowledge through research activities	23	0.852	0.174	78%	Accepted
19.	PST cultivates interest in conducting research activities starting with simple types of research designs (Example: Action research)	3	0.894	0.115	85%	Accepted
20.	PST supports research culture in schools through knowledge sharing of simple research methods	23	0.852	0.152	78%	Accepted
21.	PST allocates specific time to conduct simple research (Example: Observation of student behavior)	3	0.894	0.115	85%	Accepted
22.	PST shares research findings by publishing them in academic materials	25	0.794	0.136	93%	Accepted
23.	PST proactively explores research knowledge from various sources	17	0.867	0.143	78%	Accepted
24.	PST prepares research proposal papers in line with the requirements of <i>Sustainable Development Goals</i> (SDGs)	14	0.872	0.092	85%	Accepted
25.	PST complies with research ethics before, during and after conducting research (Example: Concerned with the rights of research participants)	2	0.900	0.105	89%	Accepted

Note. Conditions: *Triangular Fuzzy Numbers*: 1) *Threshold value* (d) ≤ 0.2 , 2) *Expert Agreement percentage* $\geq 75.0\%$, *Defuzzification Process*: 3) *Fuzzy Score* (A) $\geq \alpha$ value – cut = 0.5

These findings underscore that cultivating a research-oriented mindset is not an ancillary function but a core competency for future-ready teacher leaders. The indicators validated in this study provide a structured foundation for embedding research as a normative component of pre-service teacher preparation.

Triggering Entrepreneurial Values

The cultivation of entrepreneurial thinking was viewed by experts as an essential leadership trait for 21st-century educators. Within the context of Empowering Professional Leadership, entrepreneurial values were defined not narrowly in business terms, but as a mindset of creativity, initiative, and problem-solving that can be embedded across the school ecosystem.

One expert articulated this expanded understanding: “Teachers must be able to innovate—not just in teaching, but



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in how they solve problems, build partnerships, or raise resources” (E5). This reflects a leadership philosophy in which teachers are proactive agents of institutional and community development. Similarly, another participant emphasized: “Entrepreneurial doesn’t always mean starting a business. It means thinking outside the box and creating value in new ways” (E3). This reflects that educational entrepreneurship goes beyond the economic dimension while also including pedagogical as well as social and civic innovation.

Operationalizing these values within the school setting was also highlighted. One expert stated, “Schools need leaders who can propose and run programs, manage budgets, or even launch student enterprises” (E1), underscoring the link between entrepreneurial exposure and school-level impact. Another explained: “Pre-service teachers should be encouraged to experiment with new pedagogies and community projects that challenge the norm” (E6), suggesting that experimentation and risk-taking are not only permissible but necessary for growth.

E2 reaffirmed the educability of entrepreneurial thinking: “Entrepreneurship develops confidence and leadership. These skills can be taught, and they belong in teacher training.” This viewpoint legitimizes the integration of entrepreneurial competencies into formal pre-service education as a leadership development strategy.

The Fuzzy Delphi analysis supported these insights, validating 12 indicators for the domain of entrepreneurial values. All indicators surpassed the required consensus threshold ($d \leq 0.2$; $\geq 75\%$ agreement), with fuzzy scores ranging from 0.859 to 0.894. These indicators reflect entrepreneurial capacity in areas such as risk-taking, program design, delegation, financial literacy, and contextual adaptation of best practices.

Table 7
Validated Indicators for Triggering Entrepreneurial Values

Item No.	Statement	Defuzzification Process		Triangular Fuzzy Numbers		Interpretation
		k	Fuzzy Score	d	Consensus	
Triggering Entrepreneurial Values						
1.	PST deepens knowledge related to entrepreneurial leadership	3	0.878	0.084	89%	Accepted
2.	PST engages in community activities to gain entrepreneurial values (Example: Leadership)	12	0.859	0.158	78%	Accepted
3.	PST dares to take risks	1	0.894	0.115	85%	Accepted
4.	PST deepens financial knowledge (Example: Budget construction)	6	0.874	0.129	78%	Accepted
5.	PST applies entrepreneurial values across other subjects	9	0.865	0.102	81%	Accepted
6.	PST delegates some authority to students to handle a project	7	0.869	0.107	81%	Accepted
7.	PST applies entrepreneurial values in everyday life	10	0.864	0.082	85%	Accepted
8.	PST diligently completes academic and non-academic assignments	2	0.889	0.116	89%	Accepted



9.	PST adapts best practices of external entrepreneurial values based on the needs and capabilities of the local context	11	0.862	0.121	81%	Accepted
10.	PST educates students to be interested in business activities through Entrepreneurship Day	3	0.878	0.132	78%	Accepted
11.	PST influences the behavior of students from diverse backgrounds using various strategies	5	0.875	0.119	85%	Accepted
12.	PST educates students with entrepreneurial values through co-curricular platforms (Example: The Malay Language Association has community service activities)	7	0.869	0.129	81%	Accepted

Note. Conditions: *Triangular Fuzzy Numbers*: 1) *Threshold value* (d) ≤ 0.2 , 2) *Expert Agreement percentage* $\geq 75.0\%$, *Defuzzification Process*: 3) *Fuzzy Score* (A) $\geq \alpha$ value – cut = 0.5

The above findings reinforce that entrepreneurial values are teachable and observable competencies. Entrepreneurial values include initiative, fiscal literacy, risk-taking, co-curricular, and pedagogical engagement. These competencies are critical in enabling Malaysian pre-service teachers to lead beyond the classroom.

DISCUSSION AND IMPLICATIONS FOR RESEARCH AND PRACTICE

This section interprets the study's findings on Empowering Professional Leadership across five validated subdomains: (1) Pioneering the Attitude of Servitude, (2) Practicing Futuristic Thinking, (3) Catalyzing Changes, (4) Leading a Research Culture and (5) Triggering Entrepreneurial Values. Drawing on expert consensus and thematic patterns, the discussion connects these subdomains to Malaysia's current teacher education policies and international leadership frameworks, highlighting how the EPL model extends existing paradigms and contributes to teacher education reform.

Pioneering the Attitude of Servitude

Experts agreed that educational leadership in Malaysia must be rooted in service, humility, and moral accountability, echoing the Malaysia Education Blueprint 2013-2025 emphasis on moral and spiritual leadership for holistic teacher development (Ministry of Education Malaysia, 2013). High expert consensus on indicators such as student welfare orientation and service before self-reinforces ethical stewardship as a core leadership quality. This resonates with Greenleaf's (1998) Servant Leadership, and with Malaysian values of *khidmat* (service) and *adab* (comportment), reinforcing Khalifa et al.'s (2016) call for culturally and ethically grounded responsive leadership. Within the EPL framework, servitude represents ethical influence, care, and relational accountability. Accordingly, teacher education programs should incorporate service-learning and reflective ethics, consistent with the National Philosophy of Education's aim of developing balanced intellectual, spiritual, emotional, and social capacities.

Practicing Futuristic Thinking

The subdomain Futuristic Thinking shows that pre-service teachers need to anticipate and respond to emerging educational changes, consistent with Shift 7 in the Malaysia Education Blueprint (2013-2025), which focuses on



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competencies related to the future and lifelong learning. The high consensus on elements such as strategic foresight and decision-making with a long-term perspective shows that the profession understands that leadership in a volatile and complex world calls for agility. There are also frameworks on leadership like the Professional Standards for Educational Leaders (PSEL) (National Policy Board for Educational Administration, 2015) and OECD-TALIS (Organisation for Economic Cooperation and Development, 2020), which are largely concerned with the instructional and managerial performance of the education systems. Conversely, the EPL model conceptualizes leadership as anticipatory and ethically future-oriented. This perspective aligns with authors such as Beutel and Tangen (2018) as well as Yazıcı and Özgenel (2024), who consider adaptability and resilience to be the hallmarks of educational leadership. The inclusion of foresight training, scenario planning, and digital ethics in pre-service curricula can operationalize this subdomain. As Ndomba (2021) argues, teacher preparation should foster teachers' educational reflective judgment and long-range planning to help educators navigate emerging social and technological circumstances.

Catalyzing Changes

The subdomain Catalyzing Change underscores the teacher's role as a proactive agent of transformation rather than a passive policy implementer. Experts strongly agreed that leadership begins with self-change and reflective practice, confirming Harris and Jones' (2019) view that educational improvement depends on distributed and teacher-led leadership. This finding aligns with the Transformasi IPG Framework (Ministry of Education, 2022) and Shift 9 of the Malaysia Education Blueprint, which encourages partnerships between schools, families, and communities. As one expert noted, "Leadership today requires someone who is not afraid to confront outdated mindsets and offer constructive alternatives." Such perspectives resonate with Provitiera et al. (2023), who argue that ethical and intellectual courage is essential for sustained change.

Unlike Western frameworks such as the UK's National Standards of Excellence for Headteachers (Eddy-Spicer et al., 2019) or Canada's Leadership Standards for School Administrators (Alberta Education, 2018), the EPL model situates change leadership within moral purpose and community responsiveness. This distinction reinforces Mertkan and Gümüş (2024), who highlight the need for locally grounded, culturally sensitive models of educational leadership.

Leading a Research Culture

There is strong agreement concerning Leading a Research Culture as this pertains to teacher leaders having to branch out to knowledge creation and evidence-informed practice. This is also reflected in the Teacher Education Curriculum (Ministry of Education Malaysia, 2017) concerning the Educational Research Project (PRJP4013) and in the global outlook where research is regarded as a vital component of teaching (UNESCO, 2021; Zhu et al., 2019). The EPL model expands this foundation by capturing research as both a process and a factor of leadership. Teachers are not just receivers of knowledge in their field; rather, they are also in the same light as Rauteda (2024) and Constable (2018), who advocate for the construction of the pedagogical theory-practice axis, as peer "consumers" in the educational cycle theory. The incorporation of action research, data literacy, and collaborative inquiry into teacher education would make reflection a mode of practice and help establish a culture of ongoing professional development.

Triggering Entrepreneurial Values

Triggering Entrepreneurial Values broadens the scope of teacher leadership to include newness, flexibility, and opportunity generation, as provided in the National Entrepreneurship Policy of Malaysia 2030 (Ministry of Entrepreneur Development and Cooperatives Malaysia, 2019). High consensus on indicators such as risk-taking and problem-solving shows experts' shared belief that entrepreneurial thinking is vital for navigating diverse school contexts. This orientation aligns with global trends, particularly the EU's EntreComp Framework (McCallum et al., 2020), which identifies creativity and initiative as essential professional competencies. However, unlike economic entrepreneurship models, the EPL framework focuses on social entrepreneurship in creating educational and community value through innovation and collaboration. For this reason and consistent with Neck et al. (2021) and Zhiyi et al. (2024), entrepreneurial learning, as suggested for this study, should find a place in the pre-service



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curriculum through innovative interdisciplinary projects, community collaboration, and engagement. Such practices are done to prepare teachers who can keep up technologically and manage ideas to produce a positive change in the education system.

Significance and Distinctiveness of the EPL Model

The Empowering Professional Leadership (EPL) model contributes to furthering scholarship on educational practitioner leadership through its education-specific, culturally responsive, and contextually grounded frameworks for pre-service education in Malaysia. Unlike models such as Wenner and Campbell (2017) and Katzenmeyer and Moller (2009), EPL Westernization occurs in three important ways. First, EPL treats culturally responsive leadership and ethical leadership as Malaysia's National Philosophy of Education documents call for in the cultivation of morals and ethics. Second, EPL intersects professional agency, future readiness, and leadership consistency as articulated in the Malaysia Education Blueprint 2013-2025 and the educational requirements of the Fourth Industrial Revolution. Third, it represents a decolonial and context-specific reality, founded and grounded in Malaysia's sociocultural and postcolonial realities. With these aspects, EPL redefines teacher leadership as ethical influence, reflective agency, and societal responsiveness to the teacher's educational values and the global educational values in culturally responsive leadership.

The model has three main parts to its importance. Validation of the context is the model's primary value. The model is built with empirical value from the Modified Fuzzy Delphi Method, achieving both theoretical and methodological rigor. In a practical sense, the model offers measurable criteria for the integration of competences for leadership into teacher education curriculum and policy and curriculum assessments. Contributing to the paradigm of the Global South, it provides a theoretical model, culturally relevant and futuristic, which widens the scope of teacher leadership in the Global South. It offers other postcolonial and pluralistic educational systems that aim to develop leadership in a cross-cultural, ethical, and innovative manner, a model to integrate culture and innovation. Hence, the model EPL provides to Malaysia the hope of producing ethical, innovative, and transformative teachers and to other systems the hope of developmental cross-innovation.

Overall, this study contributes a culturally grounded and empirically validated leadership framework that aligns with Malaysia's teacher education reforms. The EPL model strengthens pre-service leadership preparation by foregrounding ethical, reflective, and future-ready competencies essential for professional identity development.

CONCLUSION

The focus of the study encompassed the formation and the validation of 74 indicators of EPL for Malaysian pre-service teachers. The Modified Fuzzy Delphi method was employed to capture the consensus of experts across the five dimensions: Servitude, Futuristic Thinking, Catalyzing Change, Research Engagement, and Entrepreneurial Values. These dimensions further extend the definition of teacher leadership to include ethical, anticipatory, reflective, inquiring, and innovative. The repositioned definition of leadership is moral and transformative, and thus aligned with the philosophy of education as leadership in the Malaysian context. It is no longer seen as solely an administrative function.

The study contributes to the body of knowledge in three key areas. Theoretically, it provides the first culturally responsive leadership paradigm/framework for the Malaysian context and an alternative to the Western-centric paradigm. Methodologically, it contributes to the field as an empirically validated context-responsive framework through the integration of qualitative judgment with fuzzy logic. Practically, it provides evidence-based, measurable leadership constructs that teacher education institutions can use to enhance the leadership focus of their curriculum and practicum assessment. These evidence-based constructs can encourage innovative, ethical, and contemporary educators to embed the five dimensions in their reflective practices and community engagement in order to enhance their Malaysian teacher education programs.



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Further studies are needed to investigate these measures' potential value in practice in the instructional and practicum environments. The evolution of specific leadership qualities would be the focus of longitudinal studies. Cross-cultural validations could address the portability of the EPL framework to other multicultural and post-colonial educational systems.

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