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Roles, Challenges and Strategies of School Administrators in Implementing TVET Policy in Secondary Schools: A Conceptual Framework

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Abstract

Technical and Vocational Education and Training (TVET) is a national strategic agenda in Malaysia, articulated in the Malaysia Education Blueprint 2013–2025 and the National TVET Policy 2030. In secondary schools, the success of this agenda depends on how effectively school administrators translate policy intentions into workshop management, practical teaching and learning and collaboration with industry. However, syntheses that connect administrators' roles, implementation challenges and improvement strategies within a single framework at the secondary level remain scarce. This concept paper therefore seeks to identify the key roles of administrators in TVET policy implementation, to analyse the challenges that constrain these roles and to propose theory-informed improvement strategies. Drawing on a conceptual narrative review of policy documents, seminal leadership theories and empirical studies published mainly between 2019 and 2026 and guided by instructional, transformational and distributed leadership theories, the paper identifies five administrator roles, six principal challenges and one cross-cutting challenge, namely leadership capacity. Each challenge is matched with a specific strategy and the synthesis is presented as a conceptual framework with five empirically testable propositions. The framework contributes to the literature on TVET leadership and offers practical guidance to school administrators, District Education Offices and policymakers.

Keywords: School Leadership, Policy Implementation, Technical and Vocational Education and Training, Secondary School, Conceptual Framework

Introduction

Technical and Vocational Education and Training (TVET) is increasingly recognised as a key driver of economic and social transition. UNESCO (2022) positions TVET as a means of supporting successful and just transitions by equipping individuals with the skills that changing economies demand. In Malaysia, this commitment was reinforced by the National TVET Policy 2030, launched in 2024. The policy serves as the overarching reference for coordinating TVET provision across 12 ministries and is operationalised through five strategic

thrusts, 23 strategies and 67 initiatives (Sekretariat Majlis TVET Negara, 2024). Earlier, the Malaysia Education Blueprint (MEB) 2013–2025 had already identified the strengthening of vocational education as a valued pathway within mainstream education (Ministry of Education Malaysia, 2013).

For most students, secondary school is the first point of entry into the TVET ecosystem. In national daily secondary schools (*sekolah menengah kebangsaan harian*), for instance, Vocational Subjects (*Mata Pelajaran Vokasional*, MPV) are offered to give academic-stream students who did not secure a place in a technical secondary school (*Sekolah Menengah Teknik*) access to vocational learning (Rosman & Rozali, 2023). It is at this level that policy intentions are translated into concrete organisational decisions, such as scheduling practical sessions, managing workshops, assessing competencies and building relationships with local industry. These decisions fall squarely within the remit of school administrators.

The international literature consistently shows that school leadership exerts a significant influence on school organisational conditions, which in turn shape the quality of teaching and learning (Leithwood, Harris, & Hopkins, 2020). In vocational education specifically, teachers and institutional leaders are regarded as central to TVET quality and TVET institutions require well-prepared leaders (OECD, 2021). Local evidence is consistent with this view. Principals' instructional leadership practices have been found to be significantly associated with the work motivation of TVET teachers in secondary schools (Mohd Shafri & Ahmad, 2025), while transformational and instructional leadership styles have been shown to influence TVET teachers' motivation to implement information and communication technology (Mohd Siraj, Md Rami, Omar, Abdul Aziz, & Mohd Anuar, 2023).

Nevertheless, TVET implementation continues to face recurring challenges. Curriculum development has been identified as the central implementation challenge at the secondary level, particularly with respect to its misalignment with technological and labour market change (Muhamad Nor & Mohd Noor, 2026). Partnerships between institutions and industry are constrained by issues of governance, funding, management and organisational culture (Mohamad et al., 2023) and leadership and management structures in TVET institutions are frequently judged to be weak (Zaini, Nur Yunus, & Mohd Affandi, 2025).

The secondary school context also differs from that of post-secondary TVET institutions. In a national daily secondary school, TVET is only one of several streams that the principal must manage, alongside public examinations, co-curricular activities and student discipline. Most principals, moreover, do not have a technical or vocational background. A study of technical-vocational secondary schools in Chile found that, under such conditions, leadership tends to be delegative and management teams have limited capacity to take on tasks specific to vocational specialisations (Sepúlveda & Valdebenito, 2019). This underscores the need to understand the role of TVET administrators in secondary schools in its own right, rather than simply transferring findings from post-secondary institutions.

Two gaps motivate this paper. First, most studies of TVET leadership and implementation in Malaysia have focused on post-secondary institutions such as vocational colleges, polytechnics and skills training institutes (Ngatiman, Sulaiman, & Wong, 2023), whereas syntheses specific to TVET implementation at the secondary level remain limited (Muhamad

Nor & Mohd Noor, 2026). Second, the existing literature tends to examine roles, challenges and strategies in isolation. It seldom matches each challenge with a particular strategy and seldom links either to the leadership theories that explain why a given strategy should be effective.

To address these gaps, this concept paper pursues three objectives:

- to identify the key roles of administrators in implementing TVET policy in secondary schools;
- to analyse the challenges that constrain the performance of these roles; and
- to propose improvement strategies that are matched to each challenge and grounded in leadership theory and to synthesise them into a conceptual framework.

In this paper, the term *administrators* refers primarily to the principal as the school's chief leader, but also encompasses senior assistants, heads of department and workshop heads who share leadership responsibilities in a distributed manner. The scope of the discussion is national daily secondary schools that offer MPV, together with technical secondary schools. Findings from vocational colleges and other post-secondary institutions are drawn upon only as comparative evidence where the issue under discussion is the same and their limits are acknowledged. The principal contribution of this paper is a conceptual framework that links theoretical foundations, roles, challenges, strategies and outcomes, accompanied by five propositions that can be tested in future empirical research.

Methodology

This paper adopts a conceptual narrative review approach. Unlike a systematic review, this approach does not seek to produce an exhaustive synthesis; rather, it aims to build an argument and a new framework by integrating theory and evidence. In terms of design, the paper follows the model approach to conceptual articles outlined by Jaakkola (2020), which entails constructing a framework that explains the relationships among concepts and advancing propositions that can be tested.

Sources were drawn from three categories:

- national and international policy documents, namely the MEB 2013–2025, the National TVET Policy 2030 and strategy documents issued by UNESCO and the OECD;
- seminal works on educational leadership theory and change management; and
- empirical studies and literature reviews on TVET leadership and implementation published in peer-reviewed journals, with priority given to the Malaysian context and to publications from 2019 to 2026.

Empirical sources were identified through Google Scholar and the journal portals of Malaysian higher education institutions, using combinations of keywords such as *TVET leadership*, *principal*, *vocational subjects*, *secondary school*, *kepimpinan instruksional* (instructional leadership) and *cabaran TVET* (TVET challenges). Sources were included if they were relevant to TVET leadership or implementation, were published in a peer-reviewed outlet or as an official document and reported their findings clearly. Sources whose title or content did not relate directly to the claim they were intended to support were excluded.

The synthesis proceeded thematically in three steps. First, findings were coded into three categories: roles, challenges and strategies. Second, each category was mapped onto the

leadership theory best able to explain it. Third, the relationships among the categories were synthesised into a conceptual framework and a set of propositions. The limitations of this approach are discussed later in the paper.

TVET and the Policy Landscape in Secondary Schools

The Concept of TVET

UNESCO (2016) defines TVET as education, training and skills development relating to a wide range of occupational fields, production, services and livelihoods. TVET emphasises practice-based learning that combines theoretical knowledge with hands-on skills, the use of technology and the formation of professional work attitudes. Competency-Based Education and Training (CBET) underpins the design of contemporary TVET programmes. Under this approach, students are assessed on their ability to perform tasks to a prescribed standard, rather than solely on their mastery of content.

In the Malaysian context, TVET is more than an alternative to the academic stream. It constitutes an important component of the development of the skilled human capital that industry requires. The pathway is also relevant to students who are oriented towards practical skills, as it offers a more inclusive educational route (Muhamad Nor & Mohd Noor, 2026).

The Policy Landscape

Two policy documents form the principal frame of reference for TVET implementation in secondary schools. The MEB 2013–2025 sets the direction for strengthening vocational education within the national education system (Ministry of Education Malaysia, 2013). The National TVET Policy 2030, for its part, functions as an umbrella policy that coordinates TVET provision by all public and private providers. Its aim is to move Malaysia towards developed-nation status on the basis of skilled human capital, through TVET programmes that are responsive, flexible and inclusive (Sekretariat Majlis TVET Negara, 2024). One of its thrusts, Thrust E (*TVET Pilihan* or TVET as a preferred choice), is specifically directed at making TVET a first choice rather than a last resort. This thrust implicitly acknowledges that public perception remains a barrier.

These policies reach schools through a layered implementation chain that runs from the ministry to State Education Departments and District Education Offices before they are translated by school administrators. Each layer has the potential to alter or dilute the original intent of the policy. At school level, broad policy statements must be converted into specific decisions, such as the number of practical hours per week, the teachers assigned, the equipment prioritised and the industry partners approached. It is the quality of this translation that ultimately determines students' learning experience.

Implementation at School Level

At the secondary level, the policy is implemented through MPV in daily secondary schools and through programmes offered in technical secondary schools. Implementation entails a practical curriculum, functioning workshops, consumable materials and competency assessment. An evaluation of the implementation of the Gas and Arc Welding vocational subject in four daily secondary schools found that student readiness, the opportunities for activity provided by teachers and the adequacy and functionality of workshop facilities were all at a high level (Rosman & Rozali, 2023). This finding indicates that TVET can succeed in

daily schools when resources and teaching are well managed. The larger question is how administrators can ensure that such conditions are achieved consistently across all schools.

Theoretical Foundations

Instructional Leadership

Hallinger and Murphy's (1985) model of instructional leadership comprises three dimensions: defining the school mission, managing the instructional programme and promoting a positive school learning climate. A review of four decades of empirical research indicates that the effects of leadership on student learning are largely indirect, operating through teachers and the organisational conditions that leaders create (Hallinger, 2011). The model is highly pertinent to TVET, whose instructional programme encompasses the supervision of practical work, project assessment, adherence to work procedures and workshop safety, all of which demand closer supervision than conventional classroom teaching.

Transformational Leadership

Bass and Avolio (1994) describe transformational leadership in terms of four components: idealised influence, inspirational motivation, intellectual stimulation and individualised consideration. This form of leadership moves followers beyond self-interest towards collective goals. Because TVET evolves rapidly in response to technology and industry needs, an administrator's capacity to build a shared vision and to encourage teachers to experiment with new approaches becomes an essential condition. Local evidence shows that transformational leadership influences TVET teachers' motivation to integrate technology (Mohd Siraj et al., 2023).

Distributed Leadership

Spillane (2006) conceptualises leadership as a practice that emerges from the interactions among leaders, followers and their situation, rather than as an attribute of a single individual. In TVET, technical expertise typically resides not with the principal but with heads of department, workshop heads and teachers with industry experience. Distributed leadership provides a basis for drawing on this expertise systematically. Leithwood et al. (2020) further emphasise that leadership can be widely distributed, but that its effectiveness depends on a deliberately planned pattern of distribution.

Change Management Frameworks

The three leadership theories outlined above explain what leaders do, but they do not specifically address the process of change. This paper therefore also draws on two change management frameworks. Fullan (2016) argues that educational change is, at its core, a change in meaning and practice among those who implement it and that change introduced without shared understanding and capacity building tends to remain superficial. Kotter (2012), in turn organises organisational change into eight sequential stages:

- establishing a sense of urgency;
- creating the guiding coalition;
- developing a vision and strategy;
- communicating the change vision;
- empowering broad-based action;
- generating short-term wins;
- consolidating gains and producing more change; and

- anchoring new approaches in the culture.

Both frameworks are relevant because implementing TVET policy in schools is not a single event but a multi-year process that requires teachers to embrace new approaches to teaching, assessment and collaboration.

Integrating the Theories

The three theories are complementary. Instructional leadership explains *what* should be prioritised, namely the quality of practical teaching and learning. Transformational leadership explains *why* teachers are willing to change, namely through motivation and commitment. Distributed leadership explains *how* leadership tasks can be organised so that the burden does not rest on a single individual. The change process itself is explained through the change management frameworks of Fullan (2016) and Kotter (2012). Together, these provide the foundation for the conceptual framework developed in the sections that follow.

Roles of Administrators in Implementing TVET Policy

Instructional Leader for the Curriculum and Practical Teaching

The first role of administrators is to lead the implementation of the TVET curriculum and to monitor the quality of practical teaching and learning. This role corresponds to the dimension of managing the instructional programme in Hallinger and Murphy's (1985) model. In the TVET context, it involves:

- scheduling sufficient blocks of time for practical work;
- supervising skills-based teaching;
- monitoring adherence to work procedures and workshop safety; and
- coordinating competency assessment so that it is consistent across teachers.

A study of 246 teachers of TVET-related subjects in secondary schools in the Batu Pahat district found that principals' instructional leadership practices were significantly related to teachers' work motivation, with the dimensions of instructional resource provision and curriculum implementation showing the strongest relationships (Mohd Shafri & Ahmad, 2025). This finding suggests that monitoring accompanied by resource support is more effective than monitoring that is purely supervisory in nature.

Assessment warrants particular attention. Under a competency-based approach, the judgement as to whether a student is competent or not yet competent rests on the teacher's evaluation of practical tasks. Without clear rubrics and moderation sessions, two teachers may reach different judgements about the same piece of work. As instructional leaders, administrators are responsible for ensuring that mechanisms are in place to secure this consistency. Such mechanisms underpin both the credibility of certification and industry's confidence in students' competence.

Developer of Teacher Professionalism

The second role is to develop the professionalism of TVET teachers. TVET teachers require a combination of pedagogical skills and occupational knowledge that must be kept up to date as labour market needs evolve (OECD, 2021). The same report found that the pedagogical preparedness of vocational teachers is lower than that of their general education counterparts. Professional development, therefore, cannot be confined to technical skills alone.

Administrators are responsible for identifying each teacher's competency gaps and planning training that addresses them. They also need to establish professional learning communities and encourage industry exposure. From a theoretical standpoint, this role reflects the individualised consideration and intellectual stimulation components of transformational leadership (Bass & Avolio, 1994).

Manager of Resources, Infrastructure and Workshop Safety

The third role is to manage physical and financial resources, including workshop equipment, machinery, consumables, routine maintenance and safety compliance. The evaluation of MPV in daily secondary schools shows that when workshop facilities are adequate and functional, students rate the implementation of the subject favourably (Rosman & Rozali, 2023). Conversely, a study of vocational colleges identified infrastructure provision as one of the main challenges in incorporating elements of the Fourth Industrial Revolution (IR4.0) into the curriculum (Ngatiman et al., 2023). This role is closely linked to the dimension of instructional resource provision discussed above.

Workshop safety is a dimension that cannot be compromised. Administrators must ensure that standard operating procedures are in place for every machine, that risk assessments are conducted regularly, that personal protective equipment is sufficient and that incident records are kept up to date. Students should also receive a safety briefing before commencing any practical task. This responsibility is both legal and moral: a workshop accident not only causes injury to students but can also erode parents' confidence in a school's TVET programme.

Network Leader for Industry and the Community

The fourth role is to build and sustain networks with industry, government agencies and the community. Such networks open access to authentic projects, industry experts, placements and equipment. Managing them, however, requires specific managerial skills. A study of 53 TVET institution directors and 30 industry representatives classified managerial skill barriers into three categories, namely technical, human and conceptual skills. At the conceptual level, directors were found to struggle with planning long-term objectives and understanding the organisational structure of industry (Mohamad et al., 2023).

The experience of technical-vocational secondary schools in Chile offers a pertinent lesson. When management effort is concentrated on external quality assurance requirements, vocational training goals and links with local firms are relegated to secondary importance (Sepúlveda & Valdebenito, 2019). The same study proposes, as an alternative, a form of leadership that acts as an intermediary both within and between schools.

Change Agent

The fifth role is to lead change. Implementing the National TVET Policy 2030 requires adjustments to the curriculum, assessment, resource use and work culture. Fullan (2016) stresses that educational change succeeds only when the school community develops a shared understanding of what the change means and when its capacity to implement that change is also built. Following Kotter's (2012) eight stages described in the theoretical foundations, this role begins with explaining the intentions of the policy to teachers, students and parents and culminates in establishing high-quality TVET practice as a school norm.

Implementation Challenges

The literature synthesised identifies six principal challenges that hinder administrators from performing the roles described above. In addition, there is one cross-cutting challenge that affects all of them, namely leadership capacity itself.

These challenges do not operate in isolation; rather, they reinforce one another. A shortage of equipment, for example, limits teachers' opportunities to apply newly acquired skills, which in turn weakens teacher motivation and the quality of practical teaching. A heavy administrative workload reduces the time available for building industry networks and weak networks make it more difficult to align the curriculum with employers' needs. Because the challenges are interrelated, approaches that address any one of them in isolation risk failure. This argument underpins the matching of strategies presented in the next section.

Resource and Infrastructure Constraints

TVET relies on equipment, materials and workshop space that are costly and quickly become obsolete as technology changes. Infrastructure provision has been identified as one of the main challenges in updating the TVET curriculum in line with IR4.0 (Ngatiman et al., 2023). Funding and financial issues likewise constitute one of the barriers to collaboration between TVET institutions and industry (Mohamad et al., 2023). For daily secondary schools that depend on centralised allocations, the scope to upgrade workshops independently is narrower, a situation that calls for phased and creative planning.

Teacher Competency Gaps and Readiness

Shortages of qualified TVET teachers are a significant issue in many countries and their pedagogical preparation is often insufficient (OECD, 2021). In Malaysia, the provision of teaching staff capable of delivering IR4.0 elements has been identified as one of the challenges of curriculum implementation (Ngatiman et al., 2023). A recent review at the secondary level likewise underscores the urgent need to strengthen teacher professionalism (Muhamad Nor & Mohd Noor, 2026). This challenge is intensified by technologies such as automation and artificial intelligence, which require teachers to reskill continuously.

Administrative Workload and Accountability Demands

School administrators shoulder a broad range of administrative duties, including reporting, documentation and data management. Fullan (2016) identifies the proliferation of numerous, poorly integrated initiatives as a major factor undermining leaders' capacity to drive change. The Chilean study shows how external accountability demands can divert management attention away from vocational training goals (Sepúlveda & Valdebenito, 2019). Local empirical data on how principals of TVET-offering schools in Malaysia allocate their time were not found in the sources synthesised, which represents a gap for future research.

Misalignment between the Curriculum and Industry Needs

Curriculum development constitutes the central challenge of TVET implementation at the secondary level. It is associated with misalignment between the curriculum and the industrial technology revolution, future skills requirements and labour market change (Muhamad Nor & Mohd Noor, 2026). The same review also records an ongoing debate over whether TVET should emphasise job-specific skills or more flexible generic skills. A study of vocational colleges similarly found that a curriculum review was needed to incorporate IR4.0 elements (Ngatiman et al., 2023). Because the curriculum is determined at the national level, school

administrators cannot change it directly. They can, however, enrich its delivery through industry-based projects and more authentic forms of assessment.

Weak Industry Networks

Common barriers to collaboration between TVET institutions and industry can be classified into four categories: governance, funding and finance, partnership management and cultural differences between institutions and industry (Mohamad et al., 2023). For secondary schools, this challenge is more acute because industry does not perceive schools as primary training institutions. Most schools also lack a dedicated officer to manage partnerships and rural schools located far from industrial areas have a smaller pool of potential industry partners.

Student Perceptions and Interest

Secondary school students' interest in TVET programmes varies according to demographic factors. A study of 386 students found that male students were more interested than female students and that levels of interest differed by field of study (Azeem, Omar, Rashid, & Abdullah, 2022). At the policy level, the inclusion of Thrust E in the National TVET Policy 2030 indicates that efforts to make TVET a first choice remain unfinished (Sekretariat Majlis TVET Negara, 2024). Parents' and the wider community's perceptions also shape students' choices, so rebranding efforts cannot be directed at students alone.

Cross-Cutting Challenge: Leadership Capacity

The challenges above are compounded by leadership capacity that is not yet fully developed. Leadership and management structures in TVET institutions are often judged to be weak and ineffective, owing in part to insufficient leadership knowledge and skills (Zaini et al., 2025). Mohd Khalid and Noor (2025) observe that TVET leaders may need to draw on a range of leadership styles to address complex challenges. The OECD (2021) likewise concludes that TVET institutions need well-prepared leaders, together with strategies to better prepare and support them.

Improvement Strategies

The strategies below are matched to each of the challenges identified. Table 1 summarises the correspondence among challenges, strategies, theoretical bases and supporting sources.

Phased Infrastructure Optimisation and Alternative Resources

To address resource constraints, administrators can begin with a workshop audit to identify the equipment that is critical to safety and competency attainment. The audit then forms the basis of a phased improvement plan spanning three to five years. Alternative resources may be sought through corporate social responsibility (CSR) programmes, Parent–Teacher Associations (PTAs), alumni and facility-sharing arrangements with nearby TVET institutions. Digital simulation can also complement practical training, consistent with the OECD's (2021) emphasis on innovative technologies and pedagogical approaches. Simulation, however, should serve only as a complement to and not a substitute for, authentic practical experience.

Professional Development Based on Competency Gaps

Professional development should begin with an analysis of each teacher's competency gaps across technical, pedagogical and digital dimensions, rather than with sending teachers to courses on an ad hoc basis. The resulting training plan can combine three elements:

- short-term industry placements;
- peer coaching; and
- professional learning communities focused on workshop practice.

The effects of training are then evaluated through observation of actual teaching. This approach reflects the individualised consideration component of transformational leadership (Bass & Avolio, 1994) and is consistent with Fullan's (2016) emphasis on capacity building as a driver of change.

Distributing Leadership to Reduce Administrative Workload

Administrative workload can be reduced through a deliberately planned distribution of leadership. The operational management of workshops, inventory and safety can be delegated to workshop heads and heads of department, with clearly defined spheres of accountability (Spillane, 2006). Repetitive documentation can be digitised and fixed time slots for observing practical teaching should be protected from competing duties. These measures allow administrators to refocus on their instructional role and to avoid the situation reported by Sepúlveda and Valdebenito (2019).

Strengthening Instructional Leadership and Internal Quality Assurance

To address curriculum misalignment, administrators can enrich curriculum delivery through projects based on real industry problems and through sessions with industry practitioners. They can also strengthen internal quality assurance by introducing standardised practical assessment rubrics and moderation sessions among teachers, so that judgements of competency become more consistent. This strategy reflects the dimension of managing the instructional programme (Hallinger & Murphy, 1985). It is also consistent with the finding that instructional resource provision and curriculum implementation are most strongly related to TVET teachers' motivation (Mohd Shafri & Ahmad, 2025).

Institutionalising Industry Networks

Industry collaboration needs to shift from personal relationships to institutional ones. Possible measures include:

- signing memoranda of understanding (MoUs) that specify concrete deliverables, such as the number of expert sessions, projects or placements, subject to annual review;
- appointing a teacher as industry network coordinator; and
- adopting a cluster approach at District Education Office level so that rural schools can share industry partners.

The four categories of barriers identified by Mohamad et al. (2023) can serve as a checklist when planning each partnership.

Rebranding and Career Guidance

To address perceptions, career guidance on TVET pathways should begin as early as lower secondary school. Such guidance should involve parents, showcase students' project work to the community and feature successful TVET alumni. Outreach should also be gender-sensitive, given that interest in TVET differs between male and female students (Azeem et al., 2022). These efforts directly support Thrust E of the National TVET Policy 2030 (Sekretariat Majlis TVET Negara, 2024).

Building Leadership Capacity

To address the cross-cutting challenge, administrators of schools that offer TVET require dedicated leadership development programmes covering workshop management, industry networking and change leadership, supported by mentoring from experienced TVET leaders. This recommendation is consistent with the OECD's (2021) conclusion that TVET institutional leaders need to be specifically prepared and supported. It also responds to evidence of weak leadership knowledge and skills in TVET institutions (Zaini et al., 2025).

Sequencing the Strategies

Not all strategies need to be or indeed can be, implemented simultaneously. Drawing on Kotter's (2012) stages of change, administrators can organise the strategies into three phases. The first phase, covering the first year, focuses on low-cost measures with quickly visible results, such as distributing workshop management tasks (S3), standardising practical assessment rubrics (S4) and conducting a workshop audit (S1). These early wins are important for building teachers' confidence. The second phase focuses on capacity building, namely a professional development plan based on competency gaps (S2) and the institutionalisation of a first industry partnership (S5). The third phase seeks to embed change in school culture through sustained rebranding and career guidance (S6), implementation of the long-term infrastructure plan (S1) and administrators' participation in leadership development programmes (S7). This phased approach accords with Fullan's (2016) view that sustainable change requires time and continuous capacity building, rather than the simultaneous launch of many initiatives.

Table 1
Correspondence among implementation challenges, matched strategies, theoretical bases and supporting sources

Challenge	Matched strategy	Theoretical basis	Supporting sources
C1 Resource and infrastructure constraints	S1 Workshop audit; phased 3–5-year improvement plan; CSR, PTA and alumni funding; facility sharing; digital simulation as a complement	Instructional (instructional resource provision)	Mohamad et al., 2023; Ngatiman et al., 2023; OECD, 2021
C2 Teacher competency gaps and readiness	S2 Competency gap analysis; short-term industry placements; peer coaching; professional learning communities; evaluation of effects on teaching	Transformational (individualised consideration, intellectual stimulation)	Fullan, 2016; Muhamad Nor & Mohd Noor, 2026; OECD, 2021
C3 Administrative workload and accountability demands	S3 Delegation of workshop management to workshop heads and heads of department; digitised documentation; protected observation slots	Distributed	Fullan, 2016; Sepúlveda & Valdebenito, 2019; Spillane, 2006
C4 Misalignment between the curriculum and industry needs	S4 Projects based on real industry problems; standardised practical assessment rubrics; moderation among teachers (internal quality assurance)	Instructional (managing the instructional programme)	Hallinger & Murphy, 1985; Mohd Shafri & Ahmad, 2025; Muhamad Nor & Mohd Noor, 2026

Challenge	Matched strategy	Theoretical basis	Supporting sources
C5 Weak industry networks	S5 MoUs with concrete deliverables and annual review; teacher network coordinator; district-level cluster approach	Transformational and distributed	Mohamad et al., 2023; Sepúlveda & Valdebenito, 2019
C6 Student perceptions and interest	S6 Career guidance from lower secondary school; parental involvement; project and alumni showcases; gender-sensitive outreach	Transformational (inspirational motivation)	Azeem et al., 2022; Sekretariat Majlis TVET Negara, 2024
C7 Leadership capacity (cross-cutting)	S7 Dedicated TVET leadership development programme; mentoring by experienced TVET leaders	All three theories	Mohd Khalid & Noor, 2025; OECD, 2021; Zaini et al., 2025

Source: Synthesised from the literature reviewed

Conceptual Framework and Propositions

Figure 1 summarises the synthesis presented in this paper. Three leadership theories underpin five administrator roles. These roles are performed within the policy context of the MEB 2013–2025 and the National TVET Policy 2030 and are constrained by six challenges and one cross-cutting challenge. The strategies matched to each challenge mitigate the effects of these constraints. Together, roles and strategies lead to three outcomes: the quality of practical teaching and learning, student competence and employability and sustainable policy implementation. Consistent with Hallinger (2011), the effects of leadership on students are expected to be indirect, operating through teachers and organisational conditions.

The framework has three distinguishing features. First, each theory is mapped onto specific roles rather than applied in general terms:

- instructional leadership most strongly explains the roles of curriculum leader and resource manager (R1 and R3);
- transformational leadership explains the roles of professional developer and change agent (R2 and R5); and
- distributed leadership explains how the industry network role (R4) and workshop operations can be shared.

Second, challenges are positioned as factors that weaken the relationship between roles and outcomes, rather than as a separate list. This allows the challenges to be measured and their effects to be tested empirically. Third, because strategies are positioned as responses to challenges, the effectiveness of each strategy can be evaluated by the extent to which it reduces the effect of the challenge with which it is matched.

On the basis of this framework, five propositions are advanced for empirical testing:

- *P1:* Administrators' instructional leadership practices, particularly instructional resource provision and curriculum implementation, are positively related to the quality of practical TVET teaching and learning and this relationship is mediated by teacher motivation.
- *P2:* Administrators' transformational leadership is positively related to TVET teachers' readiness to implement curriculum and technological change.

- *P3:* The degree to which leadership is distributed to heads of department and workshop heads reduces the negative effect of administrative workload on the time that administrators devote to their instructional role.
- *P4:* Institutionalised industry collaboration strengthens the relationship between TVET curriculum implementation and student competence and employability.
- *P5:* Resource constraints and negative perceptions of TVET weaken the relationship between administrators' roles and student outcomes and this effect is attenuated by the matched strategies.

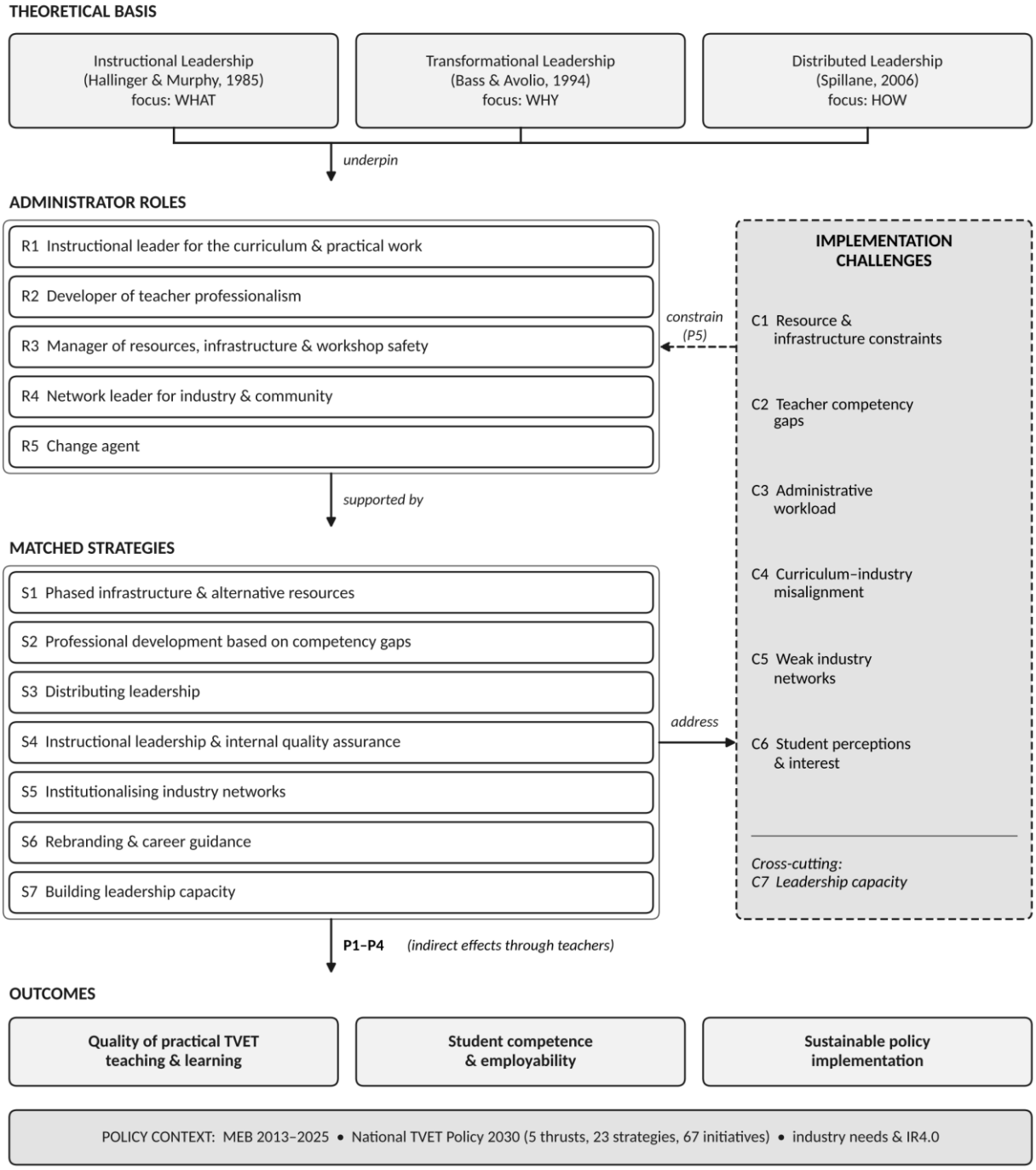

Figure 1. Conceptual framework of the roles, challenges and strategies of school administrators in implementing TVET policy in secondary schools
Source: Synthesised from the literature reviewed

Theoretical and Contextual Contribution

Theoretically, this paper integrates instructional, transformational and distributed leadership within a single framework and specifies which theory explains which administrator role, rather than treating the theories as interchangeable. It also repositions implementation challenges as moderating conditions and strategies as targeted responses, which renders the framework testable through the five propositions. Contextually, the paper shifts the focus of Malaysian TVET leadership research from post-secondary institutions to secondary schools, where TVET competes with many other priorities and principals often lack a vocational background.

Implications for Practice and Policy

For school administrators, the framework can serve as a diagnostic tool. Administrators can identify the most pressing challenges in their own school and select the corresponding strategies, rather than implementing every initiative at once. For District Education Offices and State Education Departments, cluster-based industry networks and facility sharing among schools require coordination at district level. For policymakers, the framework underscores that the success of the National TVET Policy 2030 at school level requires investment in school leadership development and not merely in infrastructure and curriculum.

In more practical terms, administrators can use Table 1 as an annual checklist in three steps:

- assessing the level of each challenge (C1 to C7) in their school using existing data, such as workshop inventory reports, teacher training records, the number of active industry partners and MPV enrolment data;
- selecting the two or three strategies that best match the most pressing challenges; and
- setting measurable performance indicators for each strategy, for example the percentage of teachers who complete an industry placement or the number of student projects involving industry partners.

This approach helps administrators move from compliance with directives towards evidence-based management.

Limitations and Future Research Directions

This paper has four limitations. First, a narrative review cannot guarantee the comprehensive coverage of a systematic review. Second, part of the evidence for the challenges and strategies is drawn from post-secondary institutions and international contexts, so its transferability to daily secondary schools requires confirmation. Third, the proposed framework has yet to be tested empirically. Fourth, some local sources are published in journals that are not yet indexed in the major international databases; future research should therefore strengthen the evidence base through more methodologically rigorous studies.

Five directions for future research are proposed:

- testing the framework and propositions P1 to P5 quantitatively through structural equation modelling (SEM) among teachers and administrators in daily secondary schools and technical secondary schools; instructional leadership could be measured using instruments based on Hallinger and Murphy's (1985) model and transformational leadership using the Multifactor Leadership Questionnaire developed by Bass and Avolio, with both instruments adapted to the TVET context and revalidated;

- examining the actual time allocation of principals of TVET-offering schools in order to address the data gap on administrative workload;
- conducting qualitative studies, using phenomenological or multiple-case designs, of administrators in urban and rural schools to understand their coping strategies;
- evaluating the effects of professional development interventions, such as industry placements, on teacher competence using quasi-experimental or longitudinal designs; and
- evaluating the effectiveness of digital simulation and virtual reality as complements to practical training in secondary schools.

Conclusion

This concept paper has argued that the success of TVET policy in secondary schools is determined not by policy documents alone, but by administrators' capacity to translate policy into everyday practice. Five administrator roles have been identified: instructional leader, developer of teacher professionalism, manager of resources and safety, network leader and change agent. These roles are constrained by six principal challenges and one cross-cutting challenge relating to leadership capacity.

The main contribution of this paper lies in matching each challenge with a specific strategy grounded in instructional, transformational and distributed leadership theory and in synthesising these matches into a conceptual framework with five testable propositions. The framework provides a foundation for future empirical research and, at the same time, offers practical guidance to administrators, district officers and policymakers seeking to realise the aspirations of the National TVET Policy 2030 at school level.

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