



# Rebooting education: Leadership and professionalism of vocational school teachers in the era of socio-cultural transformation

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**Abstract:** The rapid expansion of digital technology is reshaping social and cultural values, fundamentally altering how individuals learn, work, and interact. This transformation compels vocational education to undergo substantive restructuring beyond mere technological adoption. This study investigates how vocational secondary school (SMK) teachers reconstruct learning leadership practices, reinterpret teacher professionalism, and integrate local wisdom in response to curriculum reform, digital disruption, and socio-cultural transformation within the Indonesian context. Drawing on Interpretative Phenomenological Analysis (IPA), this research engaged twelve purposively selected vocational school teachers across urban, semi-urban, and rural settings in the Bangka Belitung Islands as primary participants. Data were generated through in-depth interviews, classroom observations, and document analysis and subjected to thematic coding using the IPA protocol. Findings reveal three interdependent dimensions: (1) contextual instructional leadership that shifts from administrative to adaptive-reflective modes; (2) digital-cultural professionalism that integrates technological literacy with indigenous values; and (3) a locally-grounded Teaching Factory (TeFa) ecosystem that negotiates between industrial standards and community identity. These dimensions constitute the Rebooting Education conceptual model, which extends instructional leadership theory (Hallinger, 2020), expands TPACK toward digital-cultural integration (Mishra & Koehler, 2006), and operationalises glocalisation in vocational practice (Robertson, 2020). The study contributes a theoretically-grounded framework for policy and teacher professional development in contexts where global educational pressures intersect with strong local cultural systems

**Keywords:** Digital Culture; Educational Leadership; Phenomenological Approach; Vocational Education.

## Introduction

The accelerating pace of digital transformation has generated profound socio-cultural disruptions that challenge the foundational assumptions of vocational education systems worldwide (OECD, 2023; Sahlberg, 2021). Teachers and school leaders in vocational settings navigate a complex, often contradictory terrain: they must remain responsive to the demands of Industry 4.0 and 5.0 while simultaneously safeguarding the cultural identities and community values upon which meaningful educational practice depends (Appadurai, 1996; Hargreaves & Fullan, 2012). This tension is nowhere more acutely experienced than in Indonesia's Vocational Secondary Schools (*Sekolah Menengah Kejuruan*, SMK), where national curriculum mandates, industrial expectations, and local cultural imperatives converge in contested and often under-researched ways.

Indonesia's Bangka Belitung Islands provide a theoretically productive research site. The region's distinctive economic ecology, shaped by tin mining, maritime culture, and palm oil agribusiness, creates a living context in which vocational education must operate at the intersection of industrial modernity and deeply rooted local epistemologies. The provincial character of this setting allows examination of how national educational reform policies, including the "*Kurikulum Merdeka*" (Curriculum of Freedom), are enacted, adapted, and occasionally resisted at the school level. More significantly, it provides empirical grounding for theoretical claims about educational glocalisation, the process by which global educational norms are recontextualised within local cultural logics (Robertson, 2020).

The emergence of "Rebooting Education" as a conceptual frame reflects the need to move beyond incremental reform toward a more fundamental re-imagining of vocational educational practice. Unlike metaphors that imply smooth evolution, the "reboot" metaphor signals a deliberate, structured restart, one that preserves valuable existing data while clearing outdated operational configurations (Rakhimgalieva et al., 2021). In the context of this study, rebooting encompasses three interlocking processes: the reconstitution of leadership as contextually-informed and distributive; the reimagining of teacher professionalism as digital-cultural competence; and the transformation of the Teaching Factory (TeFa) from an industrial simulation space into a socio-culturally embedded learning ecosystem.

Instructional leadership has evolved substantially from its original focus on principals as direct supervisors of teaching and learning. Contemporary scholarship conceptualises instructional leadership as a distributed, context-sensitive practice that involves cultivating shared purpose, professional learning communities, and adaptive curriculum governance (Hallinger, 2020; Leithwood et al., 2008). In the context of digital transformation, this evolution has accelerated: school leaders are now expected to serve as "sensemakers" (Weick, 1995), interpreting complex, often contradictory signals from technology platforms, policy frameworks, and community expectations.

In vocational secondary education, instructional leadership operates under particular pressures. Leaders must negotiate between the standardised competency requirements of national curricula and the contextualised demands of local industries, while simultaneously supporting teachers whose professional identities are being reshaped by digitalisation ((Harder & Schumann, 2025). Research by Kulophas & Hallinger (2024) demonstrates that leaders' contextual knowledge

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significantly mediates leadership effectiveness in rural and peripheral educational settings, including their understanding of local social conditions, community values, and regional economic structures. This finding resonates with Leithwood et al. (2008) “seven strong claims” framework, which positions contextual responsiveness as a core component of effective educational leadership.

The concept of teacher professionalism has undergone significant theoretical expansion in response to the convergence of digital transformation and cultural globalisation. Where earlier frameworks centred on pedagogical skill and subject matter expertise (Shulman, 1987), contemporary accounts foreground digital literacy, cultural intelligence, and socio-emotional competence as constitutive dimensions of professional identity (Nurtanto et al., 2022). This shift reflects broader transformations in the social function of teaching, from knowledge transmission to what Hargreaves & Fullan (2012) call “professional capital”: the cumulative effect of human, social, and decisional capital on organisational learning and student outcomes.

Mishra & Koehler (2006) TPACK framework has been foundational in operationalising digital-pedagogical integration, demonstrating how effective technology use requires the dynamic interplay of technological, pedagogical, and content knowledge. However, scholars have noted that TPACK in its original formulation underspecifies the cultural dimensions of technology integration (Mishra & Koehler, 2006; Robertson, 2020). In multicultural and postcolonial educational contexts, teachers must navigate not only the techno-pedagogical demands of digital tools but also the cultural logics that shape how knowledge is valued, transmitted, and received within specific communities. This study extends TPACK by introducing a locality dimension (TPACK-L) that captures this cultural-technological integration in the Indonesian vocational context.

Research on vocational teacher professionalism further highlights the unique demands of identity reconstruction in rapidly changing occupational fields. Mitev et al. (2024) and Krantz & Fritzen (2022) document how teachers undergo significant identity renegotiation as they adapt to technological disruption, with those embedded in supportive professional learning communities demonstrating greater adaptive capacity and lower rates of professional burnout (Liu et al., 2024). These findings align with Fullan’s (2016) argument that sustainable educational change requires not merely individual teacher development, but systemic transformation of the institutional conditions that shape professional practice.

Robertson (2020) concept of glocalisation provides the theoretical scaffold for understanding how global educational norms are appropriated, modified, and re-embedded within local contexts. Rather than positioning globalisation and localisation as antagonistic forces, glocalisation theory recognises the productive tensions that arise when universal standards encounter particular cultural logics. In the context of Indonesian vocational education, this manifests in the negotiation between the competency frameworks of Industry 4.0 and the work-cultural values of maritime, agricultural, and artisanal communities. Appadurai (1996) concept of “globalisation from below” extends this analysis by highlighting the agency of local communities in selectively incorporating and resisting global flows, suggesting that effective vocational education must be co-constructed with, not merely delivered to, local communities.

The Teaching Factory model, originating in European vocational education traditions (Tisch et al., 2013), has been adopted in the Indonesian SMK system to bridge the gap between school-based learning and industrial practice. Saputro et al.

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(2021) demonstrate that TeFa implementation produces significant gains in students' technical competence and work readiness when supported by adequate infrastructure and industry partnerships. However, the cultural dimensions of TeFa and its potential to serve as a site of value formation, community identity, and moral education remain theoretically underdeveloped in the existing literature.

Despite growing scholarly attention to digital transformation in education (Bitar & Davidovich, 2024; Cattaneo et al., 2025) and to instructional leadership in vocational contexts (Hallinger, 2020; Kulophas & Hallinger, 2024), critical gaps remain in the literature. *First*, research that integrates instructional leadership, digital-cultural teacher professionalism, and local wisdom within a single analytical framework is limited, particularly in non-Western contexts where local epistemologies carry significant pedagogical weight (Webber, 2023). *Second*, phenomenologically grounded studies that capture teachers' lived experiences as they navigate this multidimensional transformation are scarce (Smith et al., 2021). *Third*, the literature on Teaching Factory implementation rarely addresses the cultural dimensions of localised curriculum adaptation (Saputro et al., 2021). This study addresses these gaps by developing a conceptual model of Rebooting Education grounded in the authentic experiences of vocational teachers in a culturally distinctive Indonesian setting.

The study is guided by three research questions: (1) How do vocational school teachers and leaders reconstruct instructional leadership practices in response to curriculum reform, digitalisation, and socio-cultural transformation? (2) How do vocational teachers conceptualise and enact digital-cultural professionalism in integrating technological literacy with local wisdom? (3) What configurations of leadership, professionalism, and Teaching Factory practice constitute a contextually responsive model of Rebooting Education for Indonesian vocational schools?

The theoretical architecture of this study is organised across three levels. At the grand theory level, it draws on Appadurai's (1996) theorisation of cultural globalisation and Robertson's (2020) concept of glocalisation to frame the macro-structural context within which vocational education reform is enacted. At the middle-range theory level, Hallinger's (2020) instructional leadership framework and Hargreaves and Fullan's (2015) professional capital theory provide analytical lenses for examining leadership and professionalism, respectively. Fullan's (2016) theory of educational change furnishes a broader account of how systemic transformation unfolds in institutional contexts. At the applied theory level, Mishra and Koehler's (2006) Technological Pedagogical Content Knowledge (TPACK) framework is extended to incorporate local cultural dimensions, producing what this study terms TPACK-L (Locality), which captures the unique integration demands facing vocational teachers in culturally embedded educational settings.

A central theoretical contribution of this study lies in its extension of the TPACK framework into TPACK-L (Locality), addressing a persistent critique that the original model underspecifies the cultural dimensions of technology integration (Mishra & Koehler, 2006; Robertson, 2020). Recent Scopus-indexed scholarship has begun to document how local wisdom can be embedded within curriculum and digital-literacy practice in Indonesian educational settings: Asmayawati et al. (2024) demonstrate that a local-wisdom approach mediates the relationship between pedagogical innovation, curricular adaptation, and digital literacy in early childhood education, while Fathurrochman et al. (2025) show that the systematic integration of local wisdom into local-content curricula strengthens cultural

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identity alongside academic achievement in rural Indonesian schools. However, these studies operate primarily at the level of curriculum design and learning outcomes, leaving the professional-competence dimension, namely how individual teachers experientially integrate digital, pedagogical, content, and local-cultural knowledge, theoretically underdeveloped. By grounding TPACK-L in the phenomenological accounts of vocational teachers, this study extends the application of the framework from the curriculum level to the level of professional identity and lived practice.

A second theoretical contribution concerns the operationalisation of glocalisation theory (Robertson, 2020) at the micro level of individual professional experience. Glocalisation research has traditionally been conducted at the macro level of policy transfer and institutional governance, with comparatively few studies examining how globalising and localising forces are negotiated in the everyday, lived experience of educational practitioners. Recent qualitative work provides a useful precedent: Riley et al. (2024) demonstrate, through their work with Indigenous educators in Australia, that ethically integrating local and Indigenous knowledge into teacher education requires sustained attention to practitioners' own narratives and positionalities, while Nakar (2025) shows that vocational educators' ethical adaptations during periods of systemic disruption are best understood through close phenomenological attention to lived experience. Neither study, however, explicitly connects such micro-level accounts to glocalisation theory or to the vocational education context of the Global South. By employing IPA to examine how Indonesian vocational teachers in the Bangka Belitung Islands navigate the tension between global competency frameworks and local cultural logics, this study provides one of the first empirically grounded, phenomenologically derived accounts of glocalisation operating at the level of individual professional sensemaking.

A third theoretical contribution lies in the integrative character of the Rebooting Education model itself. The international literature on vocational education reform has tended to treat leadership, teacher professionalism, and institutional or curricular transformation, such as the greening of vocational curricula, as analytically separate domains. Albertz and Pilz's (2025) integrative review of green vocational education and training, for example, demonstrates the value of synthesising disparate strands of reform discourse but does not extend this synthesis to leadership or professional-identity dimensions. By contrast, the Rebooting Education model proposed in this study deliberately integrates the reconstitution of instructional leadership, the reconfiguration of teacher professionalism as digital-cultural competence, and the transformation of the Teaching Factory into a socio-culturally embedded ecosystem within a single, empirically grounded conceptual framework. This integrative orientation responds to calls within the literature for more holistic, systemically oriented models of vocational education reform, and offers a transferable analytical lens for other culturally distinctive, resource-constrained vocational contexts across the Global South that are simultaneously navigating digital transformation and the preservation of local cultural identity.

## **Method**

This study employs Interpretative Phenomenological Analysis (IPA) as its methodological framework. IPA is a qualitative approach that seeks to illuminate how individuals make sense of their lived experiences, particularly in relation to significant personal, professional, or social phenomena (Smith et al., 2021). IPA is

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distinguished from other phenomenological approaches by its dual hermeneutic commitment: the researcher engages in a two-level interpretive process, attending to both participants' self-understandings and the researcher's own analytical perspective as an interpretive agent (Smith et al., 2021). This approach is epistemologically aligned with the constructivist-interpretivist paradigm, which acknowledges that knowledge is produced through the interaction between researcher and researched rather than discovered through detached observation.

IPA was selected because the research questions demand access to the subjective, experiential dimensions of teachers' professional lives, specifically, how they interpret, negotiate, and respond to the complex pressures of socio-cultural transformation. Unlike survey-based or experimental designs, IPA enables the researcher to capture the nuanced, context-specific meanings that teachers attach to their professional practices and identities (Smith et al., 2021). The approach is further appropriate given the study's interest in professional identity reconstruction, a process that is inherently subjective and phenomenologically rich (van Heijst et al., 2026; Zhai et al., 2024).

Fieldwork was conducted across twelve state and private vocational secondary schools (SMK) in the Bangka Belitung Islands Province, Indonesia. Schools were purposively selected to represent variation in geographic location (urban, semi-urban, and rural), vocational specialisation (technology, agribusiness, maritime, and hospitality), and levels of TeFa implementation. The Bangka Belitung context was selected for its distinctive combination of industrial diversity, strong local cultural traditions, and the active implementation of the Merdeka Curriculum, making it a theoretically productive site for examining the intersections of national policy, industrial demand, and local cultural identity.

Participants comprised twelve vocational teachers who met the following purposive selection criteria: (a) minimum five years of continuous teaching experience in vocational education; (b) active participation in Merdeka Curriculum implementation; (c) direct involvement in TeFa activities; and (d) demonstrated engagement with local cultural or community-based learning initiatives. This sample size is consistent with IPA methodology, which prioritises depth of analysis over statistical representativeness (Guest et al., 2011; Smith et al., 2021). Theoretical saturation was reached when data analysis revealed no substantively new themes across successive participant accounts.

Three complementary methods of data collection were employed to generate a rich and triangulated dataset. In-depth semi-structured interviews lasting 60-90 minutes each were conducted with all 12 participants. Interview questions were designed to elicit detailed accounts of participants' professional experiences, interpretations of change, and strategies for navigating the tensions between global educational demands and local cultural values. All interviews were audio-recorded and professionally transcribed.

Non-participant classroom and TeFa observations were conducted across all 12 schools over 3 months, generating approximately 120 hours of structured field notes. Observations focused on pedagogical practices, technology integration, teacher-student interaction patterns, and the visible presence or absence of local cultural elements in learning activities. A documentary analysis was conducted of school planning documents, TeFa programme reports, curriculum adaptation records, and professional development portfolios, providing contextual and institutional data to complement the experiential accounts generated through interviews and observations.

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Data were analysed using the IPA analytical procedure outlined by Smith et al. (2021), which involves four iterative stages: (1) close reading and annotation of transcripts to identify experiential claims, concerns, and understandings; (2) transformation of annotations into emergent themes that capture the essential qualities of participants' experiences; (3) identification of connections, patterns, and tensions across emergent themes; and (4) cross-case analysis to identify superordinate themes that illuminate shared experiential structures across participants. NVivo 12 software was used to manage and organise the analytical process. Member checking was conducted with a purposively selected subset of five participants to validate analytical interpretations. Two independent researchers reviewed coding frameworks to enhance analytical rigour, and inter-rater reliability was assessed using Cohen's Kappa coefficient ( $\kappa = .81$ ).

Ethical approval was obtained from the Institutional Review Board of Universitas Negeri Yogyakarta (Protocol No. [IRB-UNY-2024]). All participants provided written informed consent following full disclosure of the study's purpose, procedures, and their rights to withdraw at any point. Participant identities are protected through the use of pseudonyms and the removal of identifying contextual details. Data are stored securely and will be retained for five years in accordance with institutional research governance policy.

### **Finding and Discussion**

IPA yielded three superordinate themes that collectively constitute the empirical foundation of the Rebooting Education model: (1) Contextual Instructional Leadership as Adaptive Sensemaking; (2) Digital-Cultural Professionalism as Integrated Competence; and (3) Teaching Factory as a Localised Socio-Cultural Ecosystem. Each theme is presented through the analysis of emergent sub-themes and participant accounts, followed by a theoretical discussion that situates the findings within the international literature.

Taken together, these three superordinate themes do not operate as discrete or sequential categories but as interlocking dimensions of a single transformative process. The first theme captures the reconfiguration of leadership as the entry point through which institutional space for change is created; the second theme illuminates the professional identities and competencies that teachers develop and mobilise within that space; and the third theme situates both leadership and professionalism within the concrete institutional setting of the Teaching Factory, where they are enacted, tested, and imbued with socio-cultural meaning. Read in sequence, the themes thus trace a movement from the macro-organisational to the individual-professional to the situated-practical level, mirroring the grand, middle-range, and applied theoretical architecture outlined earlier in this study.

Within each superordinate theme, the analytical process identified two to three emergent sub-themes, each grounded in recurring patterns across the twelve participant accounts, the observational data, and the documentary records. These sub-themes are presented below with illustrative excerpts drawn from participants, who are identified throughout by pseudonyms to protect their confidentiality. Following the presentation of each sub-theme, a theoretical discussion situates the empirical findings in relation to the relevant grand, middle-range, and applied theories, as well as to comparable studies drawn from the international literature on vocational education, instructional leadership, teacher professionalism, and culturally responsive pedagogy.

It should be noted that, although the three superordinate themes are presented sequentially for analytical clarity, participants' accounts frequently traversed multiple themes within a single narrative segment. A teacher's description of adapting a Teaching Factory production schedule, for example, often simultaneously revealed dimensions of leadership negotiation, digital-cultural professional identity, and localised socio-cultural meaning-making. This interconnectedness is treated here not as an analytical complication but as substantive evidence for the central claim of this study: that Rebooting Education in the Bangka Belitung context is best understood not as three separate reforms but as a single, integrated process of contextual adaptation occurring simultaneously at the levels of leadership, professional identity, and institutional practice

### ***Contextual Instructional Leadership: Adaptive Sensemaking in Vocational Settings***

The first superordinate theme reveals a systematic transformation in how school leaders and senior teachers conceptualise and enact leadership. Participants consistently described a shift away from administrative and compliance-oriented leadership toward what they understood as more responsive, collaborative, and contextually attuned modes of professional authority.

#### *From Administrative Control to Adaptive Sensemaking*

Participants described a fundamental reorientation of leadership identity. One headteacher explained that managing documentation and regulatory compliance had become secondary to the more complex work of "reading the school's situation" and translating this understanding into meaningful learning design. This experiential account aligns with Hallinger (2020) reconceptualisation of instructional leadership as incorporating not only direct supervision of teaching but also the cultivation of conditions — professional culture, resource alignment, shared purpose — within which sustained learning improvement becomes possible.

The leadership practices observed in this study resonate with Kulophas & Hallinger (2024) identification of "learning-centred leadership" in contextually challenging settings: a form of leadership deeply embedded in local knowledge that operates through facilitative rather than directive authority. This finding extends recent scholarship by demonstrating that in peripheral and culturally distinctive vocational settings, effective instructional leadership requires not merely competence in pedagogical supervision but sophisticated capacity for what Weick conceptualises as organisational sensemaking — the ability to translate ambiguous and contradictory environmental signals into coherent institutional responses.

#### *Distributed Leadership Through Professional Learning Communities*

A consistent pattern across all twelve schools was the deliberate cultivation of collaborative structures through which decision-making authority was distributed across teachers, programme leaders, and industry partners. This finding substantiates Hargreaves & Fullan (2012) argument that professional capital — specifically its social dimension — is the primary driver of sustainable improvement in complex educational organisations. The monthly reflective forums observed in this study functioned as what Hargreaves & Fullan (2012) term "professional learning communities": structured spaces for collective problem-solving, curriculum innovation, and the co-construction of culturally responsive pedagogical practices.

These findings offer a productive contrast with international research that has identified structural barriers to distributed leadership in centrally-governed

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educational systems. In the Bangka Belitung context, the strong cultural value of *gotong royong* (mutual cooperative work) appears to provide cultural scaffolding that facilitates distributed leadership practices, which may not be generalisable to more individualistically-oriented educational cultures. This finding contributes to the growing body of scholarship on culturally-specific leadership epistemologies (Webber, 2023), suggesting that effective leadership models must be understood as culturally situated rather than universally applicable.

#### *Navigating Structural Tensions*

Participants consistently articulated a fundamental tension between compliance imperatives and innovative practice. Teachers and leaders described feeling positioned between the demands of bureaucratic accountability—standardised assessments, TeFa production reports, ministry performance metrics — and the professional and moral imperative to create contextually meaningful, culturally responsive learning experiences. This tension resonates with Fullan (2016) analysis of “wrong drivers” in educational reform: external accountability mechanisms that, when applied without accompanying internal capacity building, generate compliance behaviour at the expense of genuine professional learning.

Importantly, however, participants described how this tension had become productive in several cases, generating new collaborative practices and more nuanced forms of professional dialogue. Harder & Schumann’s (2025) study of digital transformation in Swiss vocational schools similarly identifies productive tensions between regulatory compliance and innovative school management as a driver of institutional learning. The present findings suggest that when school leaders provide structural permission and relational safety for teachers to name and work through these tensions openly, compliance pressures can be transformed from constraints into catalysts for adaptive professional development.

#### ***Digital-Cultural Professionalism: Beyond TPACK Toward TPACK-L***

The second superordinate theme illuminates the distinctive professional identity configurations that vocational teachers are developing in response to the simultaneous demands of digital transformation and cultural continuity. Participants described a form of professionalism that is neither purely technical nor purely cultural, but constituted through the dynamic integration of both.

#### *Digital Literacy as Contextualised Competence*

While all participants demonstrated awareness of digital literacy as a professional expectation, their accounts revealed significant variation in how they conceptualised and enacted this competency. A subset of participants — characterised here as “digital innovators” described proactive engagement with emerging educational technologies, including learning management systems, industry simulation software, and data-driven assessment tools. These teachers demonstrated what Cattaneo et al. (2025) identify as “perceived digital competence”: not merely the ability to operate specific tools, but a confident professional orientation toward technology as a medium for enhanced pedagogical practice.

A second group, characterised as “digital adapters”, demonstrated more cautious and incremental engagement with technology, integrating digital tools primarily in response to institutional directives or student demands rather than from intrinsic professional motivation. This group’s experience aligns with Zhong and Juwaheer’s (2024) finding that digital competence development in vocational settings requires not only access to technology but sustained institutional support, including

mentoring, collaborative learning, and policy frameworks that reward pedagogical risk-taking.

A third group, “digital survivors”, described minimal and often reluctant engagement with digital technologies, citing inadequate infrastructure, insufficient training, and a perceived misalignment between digital tools and the relational, craft-oriented pedagogies they valued. The burnout risk identified by Liu et al. (2024) for teachers in this group was evident in several participant accounts, highlighting the need for institutional support structures that address both the technical and psychological dimensions of digital professional development.

#### *Integration of Local Wisdom as Cultural Professionalism*

A distinctive and theoretically significant finding of this study is the degree to which participants conceptualised the integration of local wisdom not as supplementary to their professional practice but as constitutive of it. Participants described a form of cultural professionalism in which the values, knowledge systems, and work ethics embedded in the Bangka Belitung communities, including maritime solidarity, the Malay work ethic of *senggan* (shame-based diligence), and environmental stewardship, were actively mobilised as pedagogical resources.

This finding extends the TPACK framework by demonstrating that in culturally embedded vocational contexts, effective technology integration cannot be understood independently of the cultural logics within which it is embedded. The TPACK-L (Locality) construct proposed here captures the additional competence layer required when teachers must simultaneously navigate the knowledge demands of digital technology, the pedagogical demands of vocational practice, and the cultural demands of community-responsive education. This theoretical contribution responds directly to critiques of TPACK’s cultural limitations (Adler et al., 2025). It aligns with Robertson’s (2020) argument that educational globalisation requires agents, in this case, teachers who possess both global competency frameworks and sophisticated local cultural intelligence.

#### *Professional Identity Reconstruction Under Dual Pressure*

Participants’ accounts consistently revealed the psychological complexity of navigating dual professional pressures: the imperative to become digitally proficient and the equally strong imperative to remain culturally grounded. This dynamic resonates with Mitev et al.’s (2024) analysis of identity reconstruction among higher education teachers facing technological disruption, and with Uras Eren and Atay’s (2025) finding that early-career teachers’ professional identities are significantly shaped by the institutional climates within which they practise. The present study extends these findings to experienced vocational teachers operating in post-colonial, culturally pluralistic settings, suggesting that professional identity reconstruction in these contexts involves not only adaptation to new technological demands but active negotiation of the relationship between global professional norms and local cultural obligations.

Van Heijst et al.’s (2025) longitudinal framework for understanding second-career teachers’ professional identity development provides a useful analytical lens here: professional identity is not a stable acquisition but a dynamic, contextually contingent process of continuous reconstruction. In the vocational teachers’ accounts analysed in this study, this reconstruction was most productively supported by what Zhai et al. (2024) describe as “professional reflection”, a structured, collaborative engagement with the meanings, values, and experiences that constitute professional practice.

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### ***Teaching Factory as Localised Socio-Cultural Ecosystem***

The third superordinate theme reveals a systematic transformation in how TeFa is understood and enacted across the participating schools. Rather than functioning primarily as an industrial simulation space, TeFa in these settings has evolved into what the study conceptualises as a “localised socio-cultural industrial ecosystem”, a learning environment in which technical skill development, cultural identity formation, and community-responsive innovation are pursued simultaneously.

#### *Recontextualisation of Industrial Practice*

Participants described systematic processes of curriculum adaptation in which standardised industrial competency frameworks were recontextualised to reflect local production systems, cultural work practices, and community economic realities. Schools in maritime communities adapted seafood processing and vessel maintenance programmes to incorporate traditional fishing knowledge and environmental stewardship principles; schools in mining regions integrated the cultural ethics of responsible resource extraction and community environmental accountability into technical production curricula. These practices exemplify what Saputro et al. (2021) identify as contextualised TeFa implementation, and extend their analysis by demonstrating the cultural, rather than merely industrial, dimensions of effective recontextualisation.

#### *TeFa as Character and Identity Formation*

A significant and novel finding is participants’ consistent identification of TeFa as a site of character formation and cultural identity development, not merely technical competence acquisition. Students participating in TeFa programmes were described as developing not only industry-relevant skills but also professional habitus, dispositions of diligence, social responsibility, environmental consciousness, and community solidarity, which participants associated with the distinctive occupational cultures of their regional communities. The character formation function of TeFa, as described by participants, also resonates with Freire’s (1970) argument for education as a practice of cultural conscientisation: a process through which learners come to understand and critically engage with the social and cultural conditions that shape their lives and work.

#### *Structural Challenges to Localised TeFa Implementation*

Participants also identified significant structural obstacles to the realisation of locally-grounded TeFa practice. The most frequently cited challenge was the misalignment between national curriculum standards and local industrial realities, a manifestation at the school level of the glocalisation tension identified by Robertson (2020) at the systemic level. Additional challenges included unequal access to digital infrastructure (particularly acute in rural and island contexts), inconsistent policy frameworks for development, the partnership of industry partnerships, and resistance from senior teachers whose professional identities were bound to more traditional transmission-based pedagogies.

These structural findings contribute to the literature on TeFa implementation by demonstrating that effective localisation requires not merely pedagogical adaptation but also systemic policy support, including flexible curriculum governance frameworks, targeted infrastructure investment in peripheral regions, and sustained professional development that addresses both the technical and cultural dimensions of contextualised vocational practice.

### ***The Rebooting Education Model: An Integrated Conceptual Framework***

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The three superordinate themes identified through IPA analysis converge to form the Rebooting Education Conceptual Model, an integrated framework for understanding and supporting contextually responsive vocational educational transformation. The model is characterised by three interlocking dimensions that operate in a dynamic and mutually reinforcing relationship.

*First*, Contextual Instructional Leadership functions as the enabling architecture of educational transformation, creating the institutional conditions, reflective culture, distributed authority, and collaborative structures within which digital-cultural professionalism and localised TeFa practice can develop and be sustained. This dimension extends Hallinger's (2020) instructional leadership framework by foregrounding the sensemaking and cultural-contextual dimensions of leadership in peripheral and culturally distinctive educational settings.

*Second*, Digital-Cultural Professionalism (TPACK-L) serves as the foundation of the model's professional competence, capturing the distinctive knowledge configuration required of teachers who must simultaneously navigate the demands of integrating digital technology and maintaining cultural continuity. This dimension extends Mishra & Koehler's (2006) TPACK framework by incorporating locality as a fourth knowledge domain. It contributes to Hargreaves & Fullan (2012) professional capital theory by specifying the cultural intelligence dimensions of professional practice in glocalised educational contexts.

*Third*, the Localised TeFa Ecosystem provides the pedagogical and physical site within which contextual leadership and digital-cultural professionalism are enacted with students, families, communities, and industry partners. This dimension extends existing TeFa research (Saputro et al., 2021) by reconceptualising TeFa as a socio-cultural learning environment rather than merely an industrial simulation space. It contributes to the glocalisation literature (Robertson, 2020) by demonstrating the specific mechanisms through which global industrial standards and local cultural values are negotiated, integrated, and co-produced in vocational educational practice.

The model's theoretical contribution lies in its specification of the relationships and dynamics between these three dimensions. Empirical analysis reveals that the model operates most effectively when leadership, professionalism, and TeFa practice are developed and supported simultaneously rather than sequentially, when institutional structures create space for cultural intelligence alongside digital literacy, and when national policy frameworks provide sufficient flexibility for the kind of contextual adaptation that glocalisation demands.

## **Conclusion**

This study has investigated how vocational school teachers and leaders in the Bangka Belitung Islands, Indonesia, are navigating the complex and often contradictory demands of curriculum reform, digital transformation, and socio-cultural change. Through Interpretative Phenomenological Analysis of twelve vocational teachers' lived experiences, the study has generated three primary theoretical contributions.

First, it extends instructional leadership theory by demonstrating that, in culturally distinctive vocational settings, effective leadership is constituted by contextual sensemaking, distributed authority, and cultural intelligence rather than by administrative control or technical supervision alone. Second, it develops the concept of Digital-Cultural Professionalism (TPACK-L) to capture the unique

professional competence configuration required of teachers who must integrate technological literacy with indigenous values and community-responsive pedagogy. Third, it reconceptualises TeFa as a localised socio-cultural ecosystem, demonstrating that the most effective implementations of production-based learning simultaneously address technical competence, cultural identity, and community-relevant innovation.

These three contributions are integrated into the Rebooting Education Conceptual Model, which provides a theoretically-grounded and empirically validated framework for vocational educational transformation in contexts where global educational pressures intersect with strong local cultural systems. The model offers practical guidance for three audiences: school leaders seeking to develop contextually responsive instructional leadership practices; teacher educators designing professional development programmes that address the digital-cultural dimensions of vocational professionalism; and policymakers developing curriculum governance frameworks that enable rather than constrain the kind of contextual adaptation that effective glocalisation requires.

Several limitations of this study merit acknowledgement. The purposive sample, while appropriate for IPA methodology, limits the generalisability of findings to other vocational contexts. The single regional focus, while theoretically productive, means that the Rebooting Education model requires validation in additional national and international settings. Future research might productively extend this study through comparative IPA analysis across Indonesian provinces with contrasting cultural and economic profiles, through longitudinal tracking of how Rebooting Education practices develop and evolve, and through participatory action research designs that engage teachers as co-researchers in the ongoing development and refinement of the model.

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### **Conflict of Interest**

The authors declare no conflict of interest in relation to this study.

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