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Soft Skills-Based Curriculum Implementation: a Response to Educational Challenges in the Vuca and Tuna Era

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ABSTRACT

In the context of rapid global transformation conditions marked by volatility, uncertainty, complexity, and ambiguity (VUCA), with turbulence, uncertainty, novelty, and ambiguity (TUNA), conventional education systems are progressively insufficient in equipping students for future problems. This study examines the deployment of syllabuses focused on soft skills as a strategic response to educational disruptions. This research examines the integration of soft skills—namely communication, critical thinking, adaptability, and emotional intelligence—into curriculum design, pedagogy, and evaluation using qualitative case studies from various geopolitical contexts. The findings indicate that incorporating soft skills cultivates learner resilience, improves collaborative problem-solving, and provides students with competences necessary for addressing the evolving challenges of the 21st century. The study emphasises that policy implications, curriculum, and institutional support are essential elements affecting successful implementation. The research proposes a transformative educational approach that aligns curriculum development with the requirements of the VUCA-TUNA environment, emphasising human-centred, future-ready learning.

1. Introduction

In a period characterized by volatility, uncertainty, complexity, and ambiguity (VUCA), along with turbulence, uncertainty, novelty, and ambiguity (TUNA), educational institutions face increasing pressure to shift from knowledge-centric frameworks to more comprehensive, future-oriented paradigms(Belrzaeg, 2025). The global trends, exacerbated by the pandemic and the rapid growth of technology and labor requirements, have highlighted the essential necessity for soft skills—such as communication, emotional intelligence, adaptability, and collaboration—to be integral components of the educational curriculum(Gnecco et al., 2024).

These soft skills are now very essential, not simply auxiliary in helping student be ready for a world when change is the only constant. Schools have to change their instructional strategies to create settings that not only share knowledge but also develop critical thinking, resilience, ethical judgment, and creativity(Poláková et al., 2023). Combining practical learning, project-based approaches, and multidisciplinary education helps students to meet difficult tasks and grab new

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opportunities. Furthermore, including these abilities into evaluation systems guarantees their deliberate and quantifiable growth, thereby connecting the outcomes of education with the competencies required of the labor market of the twenty-first century. This paradigm changes calls for notions in institutional policies, curriculum reform, educator professional development, and a society stressing lifelong learning and thorough growth(Sipii et al., 2024).

Teachers are an essential foundation for educational success, providing the most immediate human connection to students during their daily learning encounters. Teachers, as important players to educational quality, possess the capacity to utilize diverse materials and transform them into impactful, effective teaching methodologies. In an age of (VUCA), alongside (TUNA), the significance of educators is becoming dominant(Astuti et al., 2021). They must not only provide content but also cultivate adaptation, critical thinking, and emotional resilience in students. To excel in a dynamic and unpredictable environment, educators must exemplify lifelong learning, adaptability, and new teaching methodologies that equip students to navigate and prosper in a constantly evolving world(Zheng, 2022).

Furthermore, Teachers should be not just subject-matter specialists but also facilitators, mentors, and change agents since this transforming role centres them in educational innovation(Nuhari et al., 2025). Teachers have to be professional autonomous, digital literate, and pedagogical agile in the face of VUCA and TUNA conditions so they may confidently and creatively meet developing difficulties. They are expected to meaningfully incorporate technology, personalize learning opportunities, and create inclusive classroom settings supporting various learning requirements(Tatto, 2021).

The implementation of TUNA (Turbulent, Uncertain, Novel, and Ambiguous) and VUCA (Volatile, Uncertain, Complex, and Ambiguous) frameworks in Indonesia's educational sector is influencing policy and practice, particularly in regions such as Aceh, which encounter unique socio-political, economic, and cultural obstacles. These frameworks underscore the necessity for agility, systems thinking, and adaptability in responding to quickly changing conditions—competencies that are vital for both students and educators, as well as school leaders(Mozgalova et al., 2021).

Soft skills have increasingly been integral to curriculum design as a deliberate reaction to educational disruptions stemming from systemic challenges such as technology advancements, globalisation, and geopolitical instability, rather than solely from pandemics(Ilyas et al., 2023). Education systems defined by infrastructure fragility, outdated curriculum, or socio-economic inequalities frequently rely on soft skills—such as critical thinking, communication, and adaptability—as defences for persistent resilience(Rajaram, 2023).

Recent case studies demonstrate that institutions incorporating soft skills into vocational, higher, and adult education have achieved enhanced retention, learner satisfaction, and community cohesion(Tang, 2020). In Industry 5.0 frameworks, the development of soft skills has been emphasised to prepare students for job markets affected by automation and changing global knowledge demands(Ajani et al., 2024).

Within the wider Indonesian framework, the Ministry of Education, Culture, Research, and Technology has initiated various programs to future-proof education via digital transformation (e.g., Merdeka Belajar), reforms in competency-based curriculum, and an increased emphasis on 21st-century skills such as communication, collaboration, critical thinking, and creativity. These initiatives demonstrate an increasing acknowledgment of the significance of TUNA and VUCA concepts in equipping learners to excel in the face of global uncertainty. Soft skills, integrated within these changes, are seen as essential tools for fostering student agency, emotional intelligence, and adaptive learning practices(Sumarmi et al., 2025).

In Aceh, a province historically influenced by violence and reconstruction, the implementation of TUNA and VUCA-responsive solutions is particularly significant. Educational interventions frequently coincide with initiatives aimed at restoring trust, enhancing resilience, and promoting equitable growth(Razali et al., 2024). Pilot programs have commenced the integration of project-based and inquiry-based learning that replicate real-world ambiguity and complexity, which are fundamental characteristics of both VUCA and TUNA contexts. Educational institutions are progressively adopting teacher development frameworks that promote reflective practice, interdisciplinary collaboration, and the integration of digital resources for individualized learning. Furthermore, local curriculum modifications are increasingly prioritizing peace education, socio-emotional learning, and cultural contextualization, equipping students to address both global issues and local circumstances(Zainal et al., 2021).

Therefore, emphasizing experiential learning, reflective practice, and peer cooperation, professional development programs must thus transcend conventional approaches to guarantee instructors are always changing alongside the changing educational terrain(Smith & Seal, 2021). Concurrent with this, institutional leadership has to create a supportive environment for teachers that promotes emotional well-being, ongoing development, and creativity(Stockinger et al., 2021). In essence, the preparation and resilience of teachers will determine whether or not educational systems can flourish in an uncertain future. Not only are empowering teachers with the appropriate tools, attitudes, and support systems an investment in teaching quality; it is also a strategic need to equip children for a complex, linked, and fast changing global world(Zhang et al., 2020).

Furthermore, cultivating a culture of innovation and collaboration inside educational institutions is crucial to guarantee that educators feel appreciated, motivated, and equipped to explore new pedagogical approaches(Zhang et al., 2020). This encompasses facilitating access to ongoing educational opportunities, successfully integrating technology, and promoting interdisciplinary methodologies that reflect real-world complexities(Arufe-Giráldez et al., 2023). As educational expectations grow in response to global changes, the frameworks supporting teaching practices must also adapt. Ultimately, redefining the role of educators as adaptive, future-oriented professionals is not simply a reform initiative—it is a fundamental cornerstone for establishing resilient, pertinent, and inclusive educational institutions. This study intends to examine the implementation of soft skills-based curricula in schools, particularly within the demanding and dynamic educational context of Aceh, Indonesia, providing insights that can inform larger educational change in the VUCA and TUNA era.

2. Methodology

This study used a qualitative descriptive research method to look into how soft skills-based curriculum might help solve educational challenges in VUCA (volatile, uncertain, complex, and ambiguous) and TUNA (turbulent, uncertain, novel, and ambiguous) environments. We adopted this strategy because the literature review brings together different ideas and points of view on real-world facts to help solve research problems. This study has several steps: defining the topic of the discussion, choosing the focus of the conversation, finding literature sources, analyzing the quality of the sources, and finally presenting the data and drawing conclusions to help people understand how soft skills are used in real-world educational settings and how teachers and schools deal with volatile situations.

3. Results

The World Economic Forum (WEF, 2015) reported that Indonesia's economic competitiveness ranking declined from 34th to 37th among 140 countries. Indonesia is positioned 4th, trailing Singapore, Malaysia, and Thailand. In 2019, Indonesia's rating in the Global Competitiveness Index (GCI) report published by WEF declined to 50th from 45th the previous year. Indonesia's rating declined, and its competitiveness score decreased by 0.3 points to 64.6. Considering this perspective, aligning oneself with Singapore and other nations, particularly those with substantial populations and dispersed across multiple islands, is a challenging endeavour. This necessitates autonomy for the areas to assess their own potential and distinctiveness. As of May 21, 2020, in response to the COVID-19 epidemic, 153 countries internationally enacted statewide school closures as part of social distancing measures to mitigate transmission, but several have lately resumed in-person education. UNESCO estimates that school closures have impacted 1.2 billion learners, encompassing children and adolescents, which is around 68% of pupils globally (UNESCO, 2020). The Covid-19 epidemic has transformed the educational environment to be more flexible and dynamic; yet, it has also resulted in a deterioration of cognitive and emotional involvement due to the lack of direct interaction between students and teachers.

Multiple interconnected variables have exacerbated the instability confronting global higher education systems. The foremost factor is the swift emergence of the digital economy, which has revolutionized knowledge production and dissemination, necessitating new, technologically proficient skill sets from graduates. Improved connection and the rise of online learning platforms have broadened access and altered conventional delivery patterns, compelling schools to compete internationally for students. Trade liberalization policies have further integrated national economies, establishing a highly competitive market for international students and academic talent, while compelling universities to modify their curricula to align with the demands of a global labor market marked by mobility and transnational collaboration. In the twenty-first century, this instability has significantly transformed the objectives of higher education. The objective has evolved beyond merely conveying disciplinary information or certifying students for fixed professional positions. Universities are increasingly responsible for preparing graduates to navigate a dynamic and unpredictable labor market, promoting adaptation, lifelong learning, and the capacity to handle transitions between various occupations. This transition has intensified expectations for employability outcomes and rendered colleges accountable for both academic rigor and the provision of practical, market-relevant skills.

Furthermore, the realm of education has become increasingly fragmented and competitive. Conventional institutions that previously held solid local or national monopolies are now experiencing diminishing demand for certain programs and increasing price sensitivity among students and families. The decline of market predictability has created unparalleled volatility in institutional planning and revenue models.

The issues are exacerbated by the widespread ambiguity that defines modern education. Leaders can no longer depend on historical trends to inform strategic decisions, as previous situations frequently do not forecast future shocks. Policy changes, population upheavals, and technological advancements can swiftly transform the operational landscape. Budget constraints in numerous locations have compelled institutions to implement difficult cuts, including faculty layoffs, while concurrently facing increased demands for student achievement, retention, and quantifiable

performance results. In this setting, volatility occurs when institutions possess little real-time knowledge yet must respond decisively to comprehended underlying factors and expected consequences, such as funding fluctuations or evolving student expectations. Successfully manoeuvring through this intricate and swiftly evolving landscape necessitates adaptable leadership, comprehensive scenario preparation, and an openness to innovation, all while upholding a distinct institutional mission and dedication to student learning.

3.1 *The Dynamic Educational Context of Aceh in Curriculum Reform and Implementation*

Aceh Province is regarded as a priority area for educational enhancement, with a principal initiative being the implementation of the prototype curriculum as an alternative to the national curriculum. The government's strategic response to the demands of the Fourth Industrial Revolution is outlined in the Making Indonesia 4.0 plan, which seeks to expedite the realization of Indonesia's national vision by capitalizing on opportunities offered by this technology era. The strategy aims to establish Indonesia as one of the world's top ten strongest economies by 2030 (Satya, 2018). The increase of human resource quality, deemed essential for the achievement of Making Indonesia 4.0, is central to this initiative. Consequently, a core element of the strategy entails reformulating the educational curriculum to emphasize the STEAM approach (Science, Technology, Engineering, Arts, and Mathematics), assuring its alignment with industry requirements.

Aligned with the objectives of 21st-century education, there is a significant focus on cultivating the 4Cs: creativity, critical thinking, communication, and cooperation. The curriculum framework is delineated into two principal categories: the 2013 curriculum (K13) and the Independent Curriculum. The Independent Curriculum consists of two models: Independent Curriculum - Changes and Independent Curriculum - Sharing. At the secondary education level, the majority of institutions are implementing the "Changes" model, necessitating adherence to directives established by the Ministry of Education and other pertinent governmental entities. The "Sharing" approach, designed for schools that may innovate autonomously and exchange best practices with colleagues, has not been extensively adopted due to constraints in local human and natural resource preparedness.

The implementation of the Independent Curriculum requires all stakeholders in schools to adjust to the swift progress of the industry 4.0 age. Educators and learners are urged to innovate and customize education by utilizing a diverse array of digital resources and networks for human resource advancement within educational institutions. In contrast to previous practices where educators largely developed lesson plans centred on content delivery, there is now an expectation for the comprehensive integration of digital resources. Field data reveals that curriculum acceptance varies by student grade level: students in grades XI and XII predominantly adhere to the 2013 curriculum, whilst grade X pupils are shifting to the Independent Curriculum (Changes model). School administrators and curriculum development teams aggressively communicate and elucidate these policy changes to educators to guarantee uniform comprehension and execution.

Additionally, curriculum development in Aceh prioritizes the incorporation of the province's distinctive culture and local resources into regional core subjects. Digital platforms, including the “Teacher Room” application for students and the “Independent Learning” application from the Ministry of Education and Culture, are enhancing communication and collaboration within the education system by aiding teachers in lesson planning, innovation, and professional development. The provincial education office, along with its district and city offices, ensures continuous coordination to supervise these improvements. Educational stakeholders often comprise local communities, parents, students, the state, and professional education administrators—often

encapsulated as schools, government, and society. The Aceh provincial education office advocates for an integrated curriculum model in senior high schools, merging national standards, religious instruction, and local wisdom. In the context of post-pandemic learning recovery (2022–2024), the Prototype Curriculum is presented as an alternative option for schools. The Ministry of Education and Culture offers overarching guidelines on curriculum structure, learning outcomes, principles, and assessments, while schools maintain the autonomy to decide how to fulfil these outcomes during each implementation phase.

4. Conclusions

The findings underscore the intricate and dynamic issues facing education in both the global and local Indonesian contexts, particularly Aceh Province. Indonesia's global competitiveness has diminished, and the COVID-19 pandemic has shown weaknesses in educational systems, interrupting learning for millions and necessitating swift transitions to flexible, technology-driven delivery methods. Higher education institutions encounter heightened competition, fragmented marketplaces, and increasing demands to create graduates with versatile, market-relevant skills for an unpredictable labor market. In Aceh, these overarching dynamics have prompted curricular modifications aimed at enhancing human resource quality and aligning education with the requirements of the Fourth Industrial Revolution. The execution of the Independent Curriculum, encompassing its Changes model, signifies an initiative to prioritize STEAM education and foster 21st-century skills, including creativity, critical thinking, communication, and teamwork. The efficacy of these reforms hinges on addressing local capacity issues, guaranteeing constant teacher readiness, and incorporating local culture and knowledge into the curriculum. Navigating these developments necessitates responsive legislative frameworks, institutional agility, and continuous investment in teacher professional development and digital infrastructure. By reconciling national priorities with local uniqueness, education systems can more effectively equip learners to succeed in a VUCA-TUNA environment, fostering both individual growth and national competitiveness.

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