



From Policy to Practice: Exploring Inclusive School Culture in Vocational Education through the Index for Inclusion

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Abstract: This study aims to explore inclusive school culture through a vocationally adapted Index for Inclusion framework, focusing on multistakeholder perspectives and the factors shaping inclusive practices in vocational school settings. Employing a qualitative case study design at a vocational high school (SMK) in Surabaya, Indonesia, the study applies an Index for Inclusion framework extended with a fourth dimension, Vocational Accessibility & Transition Readiness (VATR), which integrates vocational pedagogy, Universal Design for Learning, and a school-to-work transition framework. Ten stakeholders were purposively selected using a maximum variation sampling strategy. Data were collected through triangulation of semi-structured interviews, participant observation, and document analysis, using an instrument developed from the operationalization of 24 Index for Inclusion sub-indicators. Data were analyzed using Braun and Clarke’s six-phase thematic analysis with a deductive–inductive approach. Based on scores across 12 core Index for Inclusion indicators, the findings showed an overall inclusion attainment of only 41.67%, characterized by covert selectivity, a 1:12 special education teacher (GPK)-to-student ratio, inaccessible infrastructure, and declining academic expectations. Notably, a gap emerged between teachers’ strength-based perceptions of students with disabilities and the exclusionary experiences reported by the students themselves, indicating that students’ vocational potential is evident but remains systemically unsupported. This study proposes a Vocational Universal Design for Learning (V-UDL) framework to reconcile industry standardization with inclusive differentiation, while strengthening the VATR dimension as a policy foundation for strength-based major placement, improved special education teacher ratios, and the development of inclusive vocational learning modules at the SMK level.

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Introduction

Since the adoption of the Salamanca Statement (UNESCO, 1994), inclusive education has become an increasingly reinforced global development agenda, particularly through Sustainable Development Goal 4 on quality, inclusive, and equitable education (United Nations, 2015). In Indonesia, this commitment has been embodied through Regulation of the Minister of National Education No. 70 of 2009 and the ratification of the Convention on the Rights of Persons with Disabilities (United Nations, 2006a). However, more than a decade since these policies were enacted, the labor force participation rate of persons with disabilities in Indonesia remains at 18.7%, the lowest in the ASEAN region (ILO, 2025), while the

proportion of workers with disabilities relative to the total employed population stood at only around 0.64% in 2024, a marginal increase from 0.55% the previous year (BPS, 2024). This low labor participation cannot be separated from prior vocational education experiences: when vocational high schools (SMK), as the educational level that directly prepares students for the workforce, continue to restrict access and learning opportunities for students with special needs, the low national representation of disability employment is fundamentally a cumulative outcome of systemic failure originating at the SMK level itself.

SMKs have, in fact, become one of the dominant sites of exclusion, reflected in non-transparent selection practices, minimal infrastructure, inadequate special education teacher (GPK) ratios, and a persistent medical paradigm that positions disability as an individual deficit rather than a structural barrier (Jobir, 2024; Oliver, 2013; Shakespeare & Watson, 2001; Slee, 2019a; Suharno et al., 2020). This tension between the medical paradigm and the social model underscores that the issue of inclusion is not merely about access, but about a transformation of institutional mindsets and practices (Felder, 2025a).

Inclusive education, therefore, is not merely an expansion of access but a systemic transformation requiring simultaneous change in school culture, policy, and instructional practice (Ainscow & Miles, 2008; UNESCO, 2017). The adoption of inclusive policies does not automatically produce inclusive practices; many institutions remain trapped in "pseudo-inclusion," the physical presence of students without meaningful participation (Schwab et al., 2024; Slee et al., 2021), underscoring school culture as a determining factor (Booth, 2011; Schein, 2010) and simultaneously a precondition for the effectiveness of both policy and practice (Ainscow, 2005; Dyson et al., 2005).

This issue becomes increasingly complex within vocational education, which faces a paradox between technical competencies aligned with industry standards and the obligation to accommodate the diversity of students with special needs (Carrington & Robinson, 2006; Suharno et al., 2020). This tension is frequently resolved in favor of technical-vocational priorities, at times resulting in the diversion of students with severe disabilities to alternative pathways (Fischer & Kilpatrick, 2023), further compounded by inaccessible infrastructure, limited teacher pedagogical competence, and rigid assessment systems (Suharno et al., 2020), even as school-to-work transition is a critical yet frequently neglected issue requiring collaborative, cross-stakeholder approaches from the planning stage onward (Lindsay et al., 2019).

Research on inclusive education in Indonesia to date remains dominated by a focus on primary and general secondary education, while studies at the SMK level are relatively scarce and tend to be partial, generally addressing only teacher attitudes (Kurniawati et al., 2012a), resource availability (Ediyanto et al., 2017; Sowiyah & Perdana, 2022), or macro-level policy analysis (Forlin et al., 2009; Lynch et al., 2024; Singal, 2008; Taneja-Johansson & Singal, 2025). Based on this condition, three key research gaps can be identified: (1) limited empirical studies specifically examining inclusive culture at the SMK level (Booth & Ainscow, 2016; Ro'fah et al., 2020); (2) the absence of a comprehensive application of the Index for Inclusion adapted to the Indonesian vocational context, particularly with a vocational dimension extension (Messiou et al., 2016; Carrington & Robinson, 2006; Maftuhin et al., 2020); and (3) the lack of a multistakeholder approach that authentically integrates the perspectives of students with special needs, regular students, teachers, school leaders, non-academic staff, and the surrounding community (De Boer et al., 2011; Maftuhin, 2018). These gaps indicate that inclusion approaches in SMKs remain partial and have yet to be integrated into a comprehensive analytical framework.



This study aims to explore inclusive school culture at a vocational high school (SMK) in Surabaya through a vocationally adapted Index for Inclusion framework, focusing on multistakeholder perspectives and the factors shaping inclusive practices within vocational school settings. Within this framework, inclusive culture is understood as the intersection of disability paradigms, education policy, and on-the-ground instructional practice.

Theoretically, this study contributes through the development of a fourth dimension within the Index for Inclusion, namely Vocational Accessibility & Transition Readiness (VATR), encompassing vocational learning accessibility, school-to-work transition readiness, and alignment with inclusive industry demands. In addition, this study proposes a Vocational Universal Design for Learning (V-UDL) framework as an approach to reconciling industry competency standardization with the need for instructional differentiation within inclusive settings (Compen et al., 2025; Fischer & Kilpatrick, 2023; Lindsay et al., 2019; Rao & Meo, 2016). Accordingly, this study offers a strengthened analytical framework for the study of inclusive vocational education, particularly within the Indonesian context.

Research Method

This qualitative case study explores the implementation of inclusive culture at a vocational high school (SMK) in Surabaya, selected as a critical case (Flyvbjerg, 2006) based on three considerations: A-accredited status with a documented track record of admitting students with special needs over recent years; a special education teacher (GPK)-to-student ratio of 1:12, far below the national standard, representative of the resource challenges faced by the majority of inclusive SMKs in Indonesia; and the diversity of technical majors offered, providing a rich context for testing the relevance of the vocational dimension that constitutes the novelty of this study's analytical framework. The case study design enables an in-depth examination of inclusive culture within its natural context (Yin, 2014).

Participants were purposively selected using a maximum variation strategy (Patton, 2015), comprising 10 stakeholders as detailed in Table 1. This heterogeneous sample reflects the view that inclusive culture is not solely the responsibility of teachers or school management, but a social construct involving all components of the school community (Booth & Ainscow, 2016; Messiou et al., 2016; Armstrong et al., 2010).

Table 1. Participant Profile

Code	Role/Position	Brief Background
WKS	Vice Principal	Male, Curriculum Vice Principal, 15 years at the school
GBK	Guidance Counselor	Female, 8 years of experience, inclusion program coordinator
GMP	Subject Teacher	Male, Mathematics teacher, 12 years of experience
GPK	Special Education Teacher	Female, 3 years of experience
B	Student with Special Needs 1	Male, 11th grade, diagnosed with Autism Spectrum Disorder, Software Engineering major
I	Student with Special Needs 2	Male, 11th grade, mild intellectual disability, Light Vehicle Engineering major
PY	Regular Student	Female, 11th grade, classmate of Student I
SAT	Security Guard	Male, 10 years working at the school
PED1	Local Vendor 1	Female, food vendor in front of the school
PED2	Local Vendor 2	Male, stationery vendor near the school, approximately 5 years selling



The interview and observation instruments were systematically developed by operationalizing 24 Index for Inclusion sub-indicators into 38 guiding questions and a structured observation checklist. The three-week duration (November–December 2023) constituted an intensive fieldwork immersion phase, preceded by a preliminary study for initial mapping of the school context and followed by a data verification phase through member checking after the main data collection, such that the overall research process extended beyond the immersion phase itself. During this immersion phase, data were collected through triangulation of three techniques: (1) semi-structured interviews based on Index for Inclusion dimensions (Booth & Ainscow, 2016), audio-recorded with informed consent; (2) participant observation over two field visits using a structured checklist covering 14 aspects of inclusive practice; and (3) document analysis of school policies, lesson plans, and evaluation reports. Thematic saturation was reached after the 8th interview, indicated by the absence of new themes in the two subsequent interviews, rendering the duration of this immersion phase adequate for the purpose of in-depth exploration at this single site (Guest et al., 2006).

Semi-structured interviews explored participants' experiences regarding the implementation of inclusive culture, with questions developed from three Index for Inclusion dimensions and contextually modified for vocational education. Interview duration ranged from 45–90 minutes per participant, verbatim transcribed from a total of 12 hours of recordings. Participant observation was conducted across various school spaces, regular classrooms, practice workshops, laboratories, and public areas, focusing on physical accessibility, social interaction between students with special needs and regular students, adaptive instructional practices, and school community attitudes toward diversity. Data were analyzed following Braun and Clarke's (2006) six-phase thematic analysis, with a two-layer deductive–inductive integration: data segments were coded against the 24 Index for Inclusion sub-indicators as a deductive framework, while segments not represented by this framework were open-coded inductively, generating three new emergent themes, including "lowered vocational expectations" and "infrastructural ableism," which formed the conceptual basis for the VATR dimension. All coding was documented in a theme matrix to maintain analytical transparency and auditability.

Trustworthiness was established through credibility (methodological triangulation and member checking), transferability (thick description), dependability (audit trail), and confirmability (reflexivity and data-grounded analysis) (Lincoln & Guba, 1985). Given the sensitivity of disability-related issues and the potential power differential between the research team (without disabilities) and participants with disabilities, a reflective journal was maintained throughout the study, and two participants with disabilities were involved in member checking to validate the interpretation of findings. This study received ethical approval from the Faculty of Psychology, Universitas Airlangga. Ethical procedures included confidentiality through the use of pseudonyms, voluntary participation with the right to withdraw at any time, and special considerations for students with special needs.

Results and Discussion

1) Inclusive Culture in Transition

An interview with a vendor in front of the school revealed that the surrounding community was unaware of the presence of students with special needs at the SMK:

"I don't know, Miss... I don't know." (*"Gak tau, Mbak... gak tau."*)

This limited external community awareness indicates that inclusion has not yet become a widespread culture (Booth & Ainscow, 2016), as a mature inclusive culture

indicator includes the involvement of the external community. This suggests that inclusive culture has not yet extended beyond the school's physical boundaries or become part of local community discourse. By contrast, awareness of inclusion has grown strongly within the school itself. The counselor regularly conducts anti-bullying education:

At the beginning of each semester and before lessons, I go into classrooms to provide education. ("Setiap awal semester dan sebelum pembelajaran, saya masuk ke kelas-kelas untuk memberikan edukasi.")

A regular student confirmed the positive impact:

"From the guidance counselor, we've come to understand our peers who are different better." ("Dari guru BK kami jadi lebih paham tentang teman-teman yang berbeda.")

This awareness has also extended to non-academic staff, with the security guard reporting having received briefings from the guidance counselor about students with special needs, making him more understanding and less startled by different behaviors. This reflects an understanding that inclusive culture involves the entire school community (Booth & Ainscow, 2016), not merely the academic sphere. Data analysis revealed that the SMK in Surabaya is in a transitional stage toward a mature inclusive culture. Of the 12 core Index for Inclusion indicators evaluated, the school achieved 5 indicators (41.67%), indicating partial progress with significant room for improvement.

Table 2. Achievement of Index for Inclusion Indicators

Dimension	Indicators Achieved	Indicators Not Achieved	Percentage
Creating Inclusive Cultures	2	2	50%
Producing Inclusive Policies	1	3	25%
Evolving Inclusive Practices	2	2	50%
TOTAL	5	7	41,67%

Evaluation based on the Index for Inclusion revealed variation in attainment across dimensions. Dimension A (Creating Inclusive Cultures) achieved 2 of 4 indicators through routine anti-bullying education, yet acceptance was uneven across classrooms and policies did not systematically involve parents. Dimension B (Producing Inclusive Policies) achieved only 1 of 4 indicators, with collaborative learning functioning reasonably well, but the curriculum had not been formally adapted and no documented differentiation strategy existed. Dimension C (Evolving Inclusive Practices) achieved 2 of 4 indicators, with increased staff awareness and routine evaluation, yet infrastructure remained inaccessible and human resources remained highly limited.

Table 3. Comparison of Special Education Teacher (GPK)-to-Student Ratio

Aspect	This School	Ideal Standard	Gap
Number of GPKs	1 person	–	–
Number of Students with Special Needs	12 students	–	–
GPK-to-Student Ratio	1:12	1:3 to 1:5	7–9 students per GPK
Frequency of Individual Support	1x/week per class	3–5x/week	Highly inadequate

Source: Research Data (2023); Standards from Boyle et al. (2013)

Findings indicate that inclusive culture at the SMK in Surabaya remains in a transitional stage, reflected in a 41.67% indicator attainment. This condition aligns with literature emphasizing that school culture transformation is a gradual process (Dyson et al., 2005; Slee, 2019b). This relatively low attainment percentage is consistent with findings in the Indonesian inclusive education context showing that transformation toward inclusive

culture requires more than mere good intention or regulatory compliance (Cabatay et al., 2024; Rini & Azizah, 2024). This confirms that the school remains in a transitional phase toward a mature, let alone transformative, inclusive culture. The highest attainment in the Creating Inclusive Cultures and Evolving Inclusive Practices dimensions (50%) indicates goodwill at the micro level (anti-bullying awareness, student empathy, GPK dedication), while failure in the Producing Inclusive Policies dimension (25%) reveals a systemic institutional bottleneck. This is not an isolated case: a scoping review by Cabatay et al. (2024) of 20 Indonesian studies identified a persistent gap between policy awareness and actual implementation, in which inclusion is more often understood as "administrative compliance" rather than a reconstruction of school identity (Rini & Azizah, 2024; Waitoller & Artiles, 2013).

2) Covert Selectivity: Evidence of Medical Paradigm Dominance

Classroom observations revealed teachers to be pedagogically well-prepared and group interaction to function effectively; however, several exclusionary patterns remained evident: students with special needs rarely asked questions when experiencing difficulty, social acceptance declined in cross-class/cross-major interactions, physical facilities remained inaccessible (no ramps, inaccessible toilets, inflexible practice rooms), and instructional strategies and assessment remained ad hoc without systematic modification for students with special needs.

This practice explicitly violates Article 24 of the CRPD (United Nations, 2006a) and Ministerial Regulation No. 48 of 2023, which mandates that all educational institutions provide reasonable accommodation for students with disabilities without restriction based on severity level. This pattern is well-documented in studies of inclusion implementation in Indonesia, which consistently find that "mild-moderate-severe" criteria are still informally used as a screening mechanism in various inclusive SMKs (Dwi Dzullia et al., 2025; Suharno et al., 2020), a manifestation of institutional ableism, exclusion reproduced through institutional procedures and norms rather than explicit discriminatory intent (Norwich & Webster, 2024; Vaahtera et al., 2025a). The consequences are significant: students with severe disabilities tend to be excluded from vocational pathways, contributing to the low labor participation rate of persons with disabilities in Indonesia as noted earlier (BPS, 2024; ILO, 2025), alongside systemic inefficiency, as the workforce potential of neurodiverse individuals, who empirically demonstrate strengths in specific domains, remains underutilized within the existing TVET system.

3) Policy-Practice Gap

An interview with the vice principal revealed the absence of an explicit vision-mission statement on inclusion in the school's official documents:

"There's no specific vision-mission for inclusion. But we're a public school, so we accept all students who meet the requirements, including children with special needs, as long as their disability isn't too severe." ("Tidak ada visi-misi khusus tentang inklusi. Tapi kami sekolah negeri, jadi kami menerima semua siswa sesuai persyaratan, termasuk anak berkebutuhan khusus selama disabilitasnya tidak terlalu berat.")

Admission practices reveal covert selectivity: students with higher support needs are frequently diverted. The vice principal affirmed:

"If the inclusion need isn't too severe, we accept them. But if it's too severe, we struggle because of facilities and the practical demands of SMK." ("Kalau inklusinya tidak terlalu parah, kita menerima. Tapi kalau yang terlalu berat, kami kesulitan karena fasilitas dan tuntutan praktik di SMK.")

Subject teachers consistently reported pedagogical unpreparedness and feeling "confused" about modifying instruction, having never received specialized training. One teacher admitted:

"I wasn't equipped with how to teach children with those particular strengths/needs."
(*"Saya tidak dibekali bagaimana harus mengajar anak-anak yang punya kelebihan-kelebihan itu."*)

This unpreparedness among productive teachers at the SMK in Surabaya, being "confused about what to do" and "unequipped", is not merely an individual complaint but a symptom of a self-efficacy crisis long documented globally (Avramidis & Norwich, 2002; Sharma & Sokal, 2016). A recent meta-analysis by Almeqdad et al. (2023) of 13 UDL studies confirms that the integrated application of the three UDL principles produces a significant effect size ($ES = 3.56$), affirming that evidence-based differentiation, rather than the mere physical presence of students with special needs, determines the effectiveness of inclusive instruction. In Southeast Asia, low vocational teacher self-efficacy within inclusive contexts is a structural challenge repeatedly documented (Forlin & Chambers, 2011; Kurniawati et al., 2012b; Sharma et al., 2024).

The Merdeka Curriculum, which promises flexibility, has in fact worsened this crisis. Without vocational-specific inclusive differentiation modules, teachers are trapped in a paradox between industry-based project demands and diverse student needs (Almeqdad et al., 2023; Fischer & Kilpatrick, 2023). As a result, inclusive practice has become "goodwill"-based improvisation, an approach proven unsustainable and likely to significantly increase teacher workload (Sharma et al., 2024).

Teachers with high self-efficacy consistently focus on student success and confidence, while those with low self-efficacy tend to focus on behavior management, despite both groups holding similar conceptual understandings of inclusive education (Avramidis & Norwich, 2002; Kurniawati et al., 2012b; Sharma & Sokal, 2016; Woodcock et al., 2022). These findings, consistent with national data showing that only 14.83% of educational institutions have a GPK (Kemendikbudristek, 2024), confirm that the teacher competency gap is not an individual technical issue but reflects systemic inadequacy in vocational teacher training curriculum design, which has yet to integrate inclusive pedagogical competence as a minimum standard (Pantić & Florian, 2015; Sharma & Sokal, 2016). Without integrating the V-UDL framework into vocational teacher education and in-service training programs, SMKs' capacity to achieve meaningful inclusion will remain constrained by this structural competency gap.

4) Resource and Infrastructure Constraints

Physical Accessibility Barriers

Observations revealed significant accessibility barriers: several workshops lacked ramps, restrooms were not wheelchair-accessible, no tactile paving was present, and practice rooms were not adaptable for users of mobility aids. The vice principal stated:

Accessibility is indeed far from ideal. Our building is old, and renovation requires substantial funding. We have submitted requests to the district office multiple times but have not received a response." (*"Aksesibilitas memang masih jauh dari ideal. Bangunan kami tua, renovasinya butuh dana besar. Sudah diajukan ke dinas berkali-kali tapi belum ada respons."*)

Such physical barriers contravene CRPD Article 9 (United Nations, 2006), which establishes accessibility as a fundamental prerequisite for equal participation.

Inadequate Human Resource Ratios

The GPK described the substantial workload of managing 12 students with special needs alone:

"I am on my own for 12 children with different needs... there is no way I can accompany them individually." ("Saya sendirian untuk 12 anak dengan kebutuhan berbeda-beda... tidak mungkin saya bisa dampingi satu per satu.")

This 1:12 ratio falls far short of the ideal standard of 1:3–5 (Boyle et al., 2013) and contravenes Kemendikbudristek (2024) guidelines, which identify adequate staffing as a fundamental element of an inclusive system.

The absence of workshop ramps, wheelchair-accessible restrooms, and resource-room facilities, together with the 1:12 GPK ratio, constitutes more than a mere "technical limitation"; it represents a direct violation of CRPD Article 9 (United Nations, 2006a) and Law No. 8 of 2016 on Persons with Disabilities. These findings point to a systemic gap in meeting accessibility standards. National data confirm that this condition is not anomalous: of 40,164 formal educational institutions with students with special needs as of December 2023, only 14.83% employed a special education teacher (Kemendikbudristek, 2021; Republika, 2024), a structural deficit contextualized by the persistently low labor force participation rate of persons with disabilities in Indonesia, at only 18.7% (BPS, 2024; ILO, 2025). This gap is not incidental but reflects systemic inadequacy in policy design that effectively excludes students with disabilities from vocational education (Norwich, 2023; Norwich & Webster, 2024).

The arguments of "aging infrastructure" and "limited budget" are no longer tenable within the legally binding framework of progressive accessibility obligations (United Nations, 2006b, 2016; CRPD Committee, General Comment No. 4, 2016). Within this framework, such practices constitute not mere oversight but a form of institutionally legitimized institutional ableism (Felder, 2025b; Vaahtera et al., 2025b). This condition carries significant implications for students with severe physical disabilities, who are frequently redirected or withdraw altogether, a phenomenon termed "exclusion by design" (Slee, 2019b). At the vocational level, physical accessibility is an absolute prerequisite for fieldwork and industry internships; its absence effectively severs the transition pathway to employment for more than one billion persons with disabilities worldwide (WHO, 2022).

5) Social Dynamics and Peer Acceptance

In her interview, the GPK highlighted the strengths of several students with special needs under her care, beyond the two formal participants in this study: one student in the animation program was described as;

"Better at animation than regular students" ("Kemampuannya di animasi lebih bagus dibanding reguler")

Another maintained an active YouTube channel and demonstrated strong social skills; while in the Motorcycle Engineering and Business program, the GPK observed,

"They each have their own strengths... some light up the moment they enter the workshop, because that is where their passion lies." ("Mereka punya kelebihan tersendiri... ada yang kalau masuk bengkel matanya langsung berbinar-binar karena itu minatnya.")

This teacher narrative aligns with a strength-based approach (Cook, 2024a; Kapp, 2019; Rubie-Davies, 2010).

The GPK also described the social dynamics among students, noting that bullying occurred among both included and regular students alike, indicating that peer relations more

broadly require strengthening. However, students with special needs were observed to exhibit comparatively lower social resilience:

"Regular students tend to have stronger resilience. But when it comes to included students, it goes straight to physical confrontation." ("Kalau yang reguler daya resiliensinya lebih kuat. Tapi kalau yang inklusi, langsung dolen tangan.")

Vocational education operates within a structural paradox: it must guarantee industry-ready technical competencies (standardization) while simultaneously ensuring equal access for students with special needs (differentiation). Findings from this school indicate that productive-subject teachers face a dual burden, upholding the technical rigor of majors such as automotive engineering, animation, and motorcycle engineering, while lacking a pedagogical framework for modifying instruction without this being perceived as "lowering standards." This tension is not unique to this context: comparative cross-national research (Fischer & Kilpatrick, 2023) shows that the dual mandate of industry competency standardization and diverse-needs accommodation constitutes a structural challenge across the majority of TVET systems, while Compen et al. (2025) confirm that inclusive differentiation implemented without contextual pedagogical guidance consistently results in unsystematic practice.

Yet the perspectives of B and I, the two students with special needs who participated formally in this study, reveal a markedly different reality from the strength-based narrative offered by teaching staff. Student B described an ambivalent sense of belonging shaped by the absence of sensory accommodation:

"...the workshop practicum is really noisy, I cannot bear it. So the teacher just has me stay in the classroom, on my own. Lonely." ("...praktikum di workshop yang bising banget, saya tidak tahan. Jadi saya disuruh di kelas aja sama guru, sendiri. Sepi.")

Student I expressed comparable concern regarding future employment transition:

"...the teacher said that I probably will not be able to do the internship. That makes me sad." ("...guru bilang untuk prakerin saya mungkin tidak bisa. Saya sedih.")

This divergence between staff optimism and students' lived experience suggests that teachers' beliefs in the potential of students with special needs are not automatically translated into concrete accommodation, consistent with the concept of lowered expectations (Wehmeyer et al., 2017), which operates not through explicit rejection of potential but through accommodative decisions that systemically constrain students' opportunities to realize it.

The Universal Design for Learning (UDL) framework (CAST, 2018; Rao et al., 2014; Rao & Meo, 2016) offers a non-dichotomous solution: rather than lowering standards, it provides multiple means of representation, action and expression, and engagement. For vocational contexts grounded in hands-on practice and heavy equipment, UDL warrants extension into Vocational Universal Design for Learning (V-UDL), a concept beginning to be consolidated in recent TVET literature (Fischer & Kilpatrick, 2023). As a conceptual contribution of this study, V-UDL is defined as the systematic adaptation of UDL principles to vocational education settings, specifically integrating three elements: accessibility of workshop spaces and practice equipment, flexibility in competency-based technical assessment, and strength-based transition planning. This framework does not merely adapt UDL to the SMK context but functions as a conceptual reconciliation between the demands of industry competency standardization and the imperative of inclusive differentiation, two demands previously treated as a dichotomy.

Operationally, V-UDL comprises three principles: engagement, realized through leveraging student interest as a motivational anchor (Rao et al., 2014; Rao & Meo, 2016;

Carter et al., 2016); representation, realized through diverse modes of information delivery to accommodate varied sensory needs; and action/expression, realized through flexible performance-based assessment, such as practice portfolios or video documentation (Compen et al., 2025; Lynch et al., 2024).



Figure 1. Conceptual framework of Vocational Universal Design for Learning (V-UDL), connecting the three UDL pillars with the vocational education context

The V-UDL framework in this study was not simply adapted from the literature but was inductively constructed from empirical findings, specifically, the gap between teachers' perceptions of student potential and the exclusionary experiences reported by students themselves, the tension between industry standards and student needs, and the weak support available for employment transition. Its underlying premise is not that students with special needs have already excelled and merely require facilitation, but that their potential is genuine yet constrained by a system design that remains unaccommodating (Cook, 2024a; Kapp, 2019). Accordingly, integrating V-UDL into the Merdeka Curriculum and into vocational teacher education programs represents the policy direction most strongly indicated by this study's findings (Compen et al., 2025; Kemendikbudristek, 2024).

Conclusion

This study demonstrates that the implementation of inclusive education at a vocational high school (SMK) in Surabaya remains confronted with structural barriers, rather than merely technical-operational issues. The inclusive practices observed continue to be shaped by the construction of disability as an individual deficit, reflected in admission selectivity, limited accessibility, imbalanced resource support, and declining academic expectations, a pattern that can be understood as institutional ableism reproduced through institutional procedures and norms.

At the same time, the gap between teachers' strength-based perceptions and the exclusionary experiences reported by students with special needs themselves confirms that the vocational potential of these students is real, yet remains systemically unsupported. Based on this synthesis, this study proposes the development of a Vocational Universal Design for Learning (V-UDL) framework as a pedagogical approach integrating differentiation with vocational competency demands, along with strengthening the Vocational Accessibility &



Transition Readiness (VATR) dimension as a conceptual extension of inclusion evaluation in vocational education.

Practically, these findings affirm three concrete steps: strengthening the ratio and capacity of special education teachers (GPK), providing physical accessibility as a prerequisite for accreditation, and integrating a strength-based approach into major-placement policy, positioning V-UDL and VATR as references for policymakers and practitioners toward more substantive inclusion.

Recommendation

Based on these empirical findings, recommendations are directed at three key stakeholders. The Ministry of Primary and Secondary Education should establish a maximum GPK-to-student ratio of 1:3–5 as a binding accreditation requirement for inclusive SMKs, given that only 14.83% of educational institutions currently have a GPK, and should position physical accessibility standards (ramps, disability-friendly toilets, flexible practice rooms) as accreditation prerequisites, in line with CRPD Article 9 and Ministerial Regulation No. 48 of 2023.

School Principals should institutionally adopt a strength-based approach, making students' vocational interests and strengths, rather than disability severity, the basis for major placement, given that the gap between teacher perceptions and the experiences of students with special needs identified in this study reveals potential that remains systemically unsupported. Inclusion policy should also be explicitly articulated in the school's vision-mission statement and consistently communicated to the entire school community.

Vocational Teachers should integrate the V-UDL framework into daily instructional practice, through both pre-service and in-service training, to address the absence of a contextual pedagogical framework, particularly in adapting practical strategies, materials, and assessments so that they are no longer ad hoc.

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