

Adaptive Educational Social Work in Vocational Batik Learning for Students with Disabilities: A Qualitative Case Study

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Abstract

Background – Students with disabilities require accessible vocational learning that connects practical competence, cultural participation, and emerging independence. SLB Negeri Cilacap uses batik production as a school-based vocational context.

Research Urgency – Evidence remains limited on how culturally grounded vocational practice can be adapted through an educational social work support system within a special school.

Research Objectives – This study examined instructional adaptations, reported and observed learner development, and the relational and material conditions shaping Grade XI vocational batik learning.

Research Method – A single-case qualitative study involved 13 purposively selected participants: five educators and trainers, six students with hearing, communication, or intellectual disabilities, and two parents. Data came from interviews, direct observation, and program documents. The analysis organized evidence across participant groups and data sources, supported by triangulation and member checking.

Research Findings – Educators used visual demonstration, tangible tools, simple language, repetition, individual guidance, and process-focused reinforcement. Observations and participant accounts indicated developing knowledge, greater control during canting and coloring, and emerging patience, responsibility, cooperation, confidence, and initiative. Development remained uneven. Limited equipment, practice time, environmental comfort, fear, fatigue, and informal coordination constrained participation.

Research Conclusion – Adaptive instruction and relational support operated together, but the single-case design does not establish causal effectiveness, sustained competence, or transferability.

Research Novelty/Contribution – The study proposes a provisional framework linking needs assessment, adaptive planning, guided culturally grounded practice, psychosocial support, and iterative capability monitoring.

Keywords: adaptive vocational learning; educational social work; school-based vocational education; students with disabilities; vocational batik

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INTRODUCTION

Vocational education for students with disabilities must support functional competence, self-determination, social participation, and realistic pathways to further training or employment. Research on secondary transition identifies paid or authentic work experience, career and technical education, family involvement, interagency collaboration, self-determination, and social skills as predictors of post-school success (Mazzotti et al., 2021). Yet learners with disabilities still encounter fragmented transition services, limited workplace access, and uneven institutional support (Goodall et al., 2022; Levack & Fadyl, 2021; Moriña & Biagiotti, 2022; Schutz & Carter, 2022). School-based vocational learning is therefore a substantive inclusion issue, not an optional enrichment activity.

In Indonesia, training can support workforce inclusion when programs address accessibility, work-relevant competence, and individual support needs (Endawansa & Setyonaluri, 2025). Rehabilitation and transition studies similarly show that vocational outcomes depend on coordinated guidance, meaningful work exposure, and continuity between school, family, rehabilitation services, and employers (Donahue et al., 2024; Honeycutt et al., 2024; Park et al., 2024; Rios et al., 2023). Autonomy support also matters because motivation and wellbeing shape how young people with learning difficulties navigate school-to-work transitions (Dubois et al., 2023). These conditions require adaptations to communication, motor functioning, emotional readiness, and the learning environment.

Research in special and vocational education identifies soft skills, facilitator competence, authentic production tasks, and individualized assessment as central to work readiness (Aini et al., 2023; Annisi et al., 2023; Aprilia et al., 2025; Mohd Saad et al., 2024). Inclusive practice becomes concrete when teachers segment procedures, provide accessible representations, model performance, allow repeated guided practice, and assess functional progress rather than uniform speed or product standards. Evidence from technical and vocational settings confirms that inclusion depends on collaboration, differentiated support, and reflective adjustment of classroom practice (Assanbayev & Makoelle, 2024). Accessible media, appropriate tools, and sustained institutional support remain equally important (Chow et al., 2024; Dhouib et al., 2025; Karoso et al., 2026).

Batik offers a culturally grounded setting for adaptive vocational learning. Its production sequence—pattern design, wax application with a canting tool, dyeing, fixation, and wax removal—combines visual planning, fine-motor control, attention, persistence, safety awareness, and creative decision-making. Indonesian evidence shows that batik activities can be adapted for learners with disabilities and used to strengthen practical participation and cultural identification (Budiyo et al., 2023). Studies of arts education likewise emphasize individualized adaptations, assistive support, collaboration, and meaningful participation for learners with disabilities (Coleman & Smith, 2025; Mareza, 2025). Creative production environments can make learning visible, personally meaningful, and open to social recognition (Mei, 2023).

Educational social work adds a relational and systemic dimension. It locates the learner within a network of educators, trainers, parents, peers, school resources, social services, and community or industry partners. In this study, educational social work is operationalized through five connected functions: needs assessment, instructional and environmental adjustment, psychosocial support, family and service coordination, and monitoring of participation and capability development. Contemporary rehabilitation literature assigns social workers comparable roles in assessment, service access, environmental accommodation, advocacy, and interprofessional collaboration (Fadillah & Aini, 2023; Freymüller et al., 2024; Knoop et al., 2025; Sakroni, 2022). Recent transition research further positions school social workers as contributors to assessment, instruction, planning, partnerships, and program improvement for students with disabilities (Schutz et al., 2026).

The vocational batik program operates within a formal special school. The study therefore does not classify SLB Negeri Cilacap as a nonformal education provider. Its relevance to nonformal education lies in the program's flexible, practice-based, life-skill orientation and in the coordination of learning across school,

family, community, and potential workplace settings. This distinction is important because the institutional setting is formal, whereas several pedagogical and support processes cross formal, nonformal, and informal learning boundaries. Indonesian vocational-social rehabilitation studies similarly show that technical learning becomes more sustainable when social assistance and cross-setting support accompany training (Widiensyah et al., 2025; Widiyawati et al., 2021).

Studies in nonformal education reinforce the importance of program evaluation, facilitator competence, collaborative projects, and institutional partnerships. CIPP and CIPPO evaluations identify instructors, resources, implementation processes, and post-training outcomes as interdependent program components (Akhadi & Shofwan, 2024; Indartha et al., 2025). Partnership-based life-skills training links graduate competence to cooperation among training providers and external stakeholders (Suminar et al., 2024). Multimodal and team-based project designs show how visual, digital, and collaborative resources can support participation and creative performance (Darmawan et al., 2025; Ilyas et al., 2025; Sari et al., 2024). These studies, however, do not explain how culturally rooted vocational practice is adapted for heterogeneous disability profiles through an educational social work support system.

Bandura's social cognitive theory provides the principal interpretive lens. Observation and modeling explain how students encounter a new procedure; guided performance and feedback shape behavioral capability; repeated successful attempts create mastery experiences; and social encouragement can strengthen self-efficacy (Bandura, 2023). The study uses these constructs to examine how demonstrations, tangible media, graded assistance, reinforcement, and peer or family support shaped participation. Adaptive vocational learning is thus treated as a context-sensitive alignment of task demands, media, tools, assistance, pacing, and assessment with individual functioning.

This study examined how SLB Negeri Cilacap implemented vocational batik learning for Grade XI students with disabilities. It addressed three questions: (1) How did educators and trainers adapt knowledge and technical-skill instruction? (2) What patterns of attitude, behavior, and emerging independence did participants report or observe? and (3) What relational and material conditions supported or constrained implementation? The contribution is a provisional analytical framework that connects culturally grounded vocational practice with educational social work functions. It is not presented as a validated or transferable program model.

METHODS

Design and Setting

The study used a single bounded qualitative case study to examine vocational batik learning in its natural school setting (Sugiyono, 2025). Fieldwork took place at SLB Negeri Cilacap, Central Java, during April and May 2025. The source manuscript reports that the program had operated since 2010 and served Grade XI students through pattern design, canting, coloring, fixation, and wax removal. The design was appropriate because the analysis focused on how instructional and social supports interacted within one program rather than on estimating a population effect. SLB Negeri Cilacap is a formal special school; the study draws on nonformal vocational literature because the program uses flexible, practice-based life-skill learning that extends across school, family, and community contexts.

Participants and Sampling

Purposive sampling identified 13 participants with direct experience of planning, delivering, joining, or supporting the program. They comprised five educators and vocational trainers, six Grade XI students described in the source manuscript as having hearing, communication, or intellectual disabilities, and two parents. Table 1 summarizes their roles. The small, identifiable setting requires cautious reporting of disability and demographic information to protect confidentiality.

Table 1. Participant Groups and Roles

Participant group	n	Role in the case
Educators and vocational trainers	5	Program coordination, curriculum, instruction, and practical mentoring
Grade XI students	6	Learners with hearing, communication, or intellectual disabilities who participated in batik activities
Parents	2	Home-based observations and family support for participation
Total	13	—

Data Collection

The researchers collected data through in-depth interviews, direct observation, and document review. Interviews addressed instructional strategies, perceived learner development, support systems, and implementation barriers. Observations followed batik activities and focused on demonstrations, tool use, learner participation, guidance, interaction, safety, and task completion. Documents included photographs, students' batik products, and school records related to the program. Interview and observation guides directed data collection while allowing follow-up questions about events observed in practice. Participant codes were used in reporting to reduce disclosure risk.

Data Analysis and Trustworthiness

The source manuscript reports an interactive process of data condensation, coding, display, comparison, and conclusion drawing. Initial categories covered knowledge, skills, attitudes, behavior, supporting factors, and inhibiting factors. The researchers compared evidence across educators, students, parents, observations, and documents and then organized related categories into within-case themes. The analysis distinguished direct participant accounts, observed events, and researcher interpretation. This approach follows current guidance that qualitative themes should remain traceable to the dataset and research question (Braun & Clarke, 2021).

Source and method triangulation compared accounts across participant groups and checked interview claims against observation and program documents. The source manuscript also reports member checking. However, it does not specify which participants reviewed which materials or whether their feedback changed the coding or themes.

Provisional Framework Construction

The four-stage framework was constructed by mapping the within-case themes to functions observed in the program process. Evidence on learner differences informed needs assessment; evidence on media, tools, pacing, and assistance informed adaptive planning; evidence on demonstration and repetition informed guided vocational practice; and reported or observed technical and social development informed capability monitoring. Relational and psychosocial support operated across the four functions. The framework is an analytical proposition from one case. It did not undergo expert validation, fidelity testing, or effectiveness evaluation.

RESULTS AND DISCUSSION

The within-case thematic synthesis identified four connected processes: adaptive access to knowledge, guided skill acquisition, attitude and behavioral development, and relational support. Material and psychosocial constraints affected every process. Table 2 summarizes the evidence before the themes are examined in detail.

Table 2. Thematic Summary of Program Implementation

Analytical theme	Observed implementation	Reported development	Constraint
Knowledge access	Simple language, visual demonstration, real tools, repetition	Recognition of tools and production stages	Uneven functional understanding; limited visual media
Technical skills	Modeling, individual guidance, repeated canting and coloring practice	Developing hand control, accuracy, and task confidence	Fear of hot wax, fatigue, limited tools and practice time
Attitudes and behavior	Process-focused praise, routines, exhibition of work, peer cooperation	Perseverance, pride, responsibility, initiative	Uneven emotional readiness and reinforcement
Support system	Teacher/trainer mentoring, parental reinforcement, peer assistance	Continuity of practice and stronger participation	Informal coordination; limited industry partnership

Adaptive Access to Batik Knowledge

The program introduced batik as a sequence of observable and repeatable actions. NS, the vice principal for curriculum, described the established sequence as “sketching, canting, coloring, and fixation” (NS, interview, April 17, 2025). HY reported that explanations began with short stories and visual aids before tools and materials were introduced gradually. HY combined sight, touch, demonstration, and guided practice because students lost attention when instruction relied on extended verbal explanation. HS, a vocational trainer, similarly described hands-on practice as more informative than theory for identifying students’ initial control of the canting tool, speed, and stroke quality.

MF and LF described the use of images, short videos, real tools, simple language, and repetition. They adjusted the balance of these resources to students’ communication and cognitive profiles. This approach supported recognition of tools, materials, and production stages, but functional understanding remained uneven. Some students connected a tool with its purpose and production stage. Others recognized only its name or shape. These differences constitute a negative or qualifying pattern: access to a representation did not automatically produce independent understanding.

The finding supports evidence that inclusive learning requires accessible representations, collaborative adjustment, and sustained facilitator support rather than a single uniform medium (Assanbayev & Makoelle, 2024; Chow et al., 2024; Dhouib et al., 2025; Mohd Saad et al., 2024). It also extends multimodal learning research in nonformal education by showing that accessibility depends on matching representations to individual communication, attention, and cognitive needs (Darmawan et al., 2025; Sari et al., 2024).

Guided Acquisition of Technical Skills

Hands-on practice dominated skill instruction. Teachers demonstrated each stage, invited students to imitate the action, corrected hand position and movement, and repeated the cycle. MI confirmed that teachers explained procedures by demonstrating them directly. DS described the value of receiving correction while attempting the task rather than only watching. BN emphasized a recurring sequence of visualization, demonstration, guided performance, and repetition. These accounts show that individual assistance was especially important during canting and coloring.

Observations and participant accounts indicated different learning trajectories. Students initially encountered unstable wax flow, irregular lines, fear of hot wax, and fatigue. Some later showed steadier hand control and greater willingness to continue without immediate prompting, while others still required

intensive guidance. The evidence supports developing control during program participation; it does not establish a standardized gain because no baseline performance measure or common rubric was used.

The pattern is consistent with social cognitive learning: visible modeling, supported performance, feedback, and successful repetition can create mastery experiences (Bandura, 2023). It also corresponds with evidence that authentic vocational tasks should assess knowledge-in-action and account for learner readiness (Kablitiz et al., 2023; Villarroel et al., 2024). Studies of vocational skills for learners with disabilities similarly emphasize structured practice, person-centered support, and the joint assessment of hard and soft skills (Aini et al., 2023; Annisi et al., 2023; Budiyo et al., 2023; Mudde et al., 2025). The absence of a documented adaptive-performance rubric left judgments of progress dependent on individual educators.

Attitude, Behavior, and Emerging Independence

Batik production required students to tolerate a long process, care for tools, follow safety instructions, and complete interdependent stages. LF described reinforcing small improvements rather than judging only the final product. NH associated batik with pride in contributing to Indonesian cultural preservation, and participants reported that displaying completed work increased enthusiasm. HY observed a gradual shift among some students from giving up quickly toward retrying a task, caring for tools, and helping peers. LF recorded peer interaction, adherence to instructions, and attempts to work without prompting as behavioral indicators.

Emerging independence was visible but uneven. NS reported that some students became more willing to ask questions and take initiative. IA, who had joined batik training in 2024, practiced pattern drawing independently in the batik room during free time. Other students continued to require direct encouragement or assistance. The case therefore shows differentiated pathways toward independence, not a uniform end state.

These patterns should not be interpreted as standardized outcome gains. The study did not use a validated behavioral scale, a pre–post measure, or longitudinal follow-up. Even so, the findings align with research that places autonomy support, soft skills, self-confidence, and social participation alongside technical competence in disability-focused vocational education (Christianson-Barker et al., 2025; Dubois et al., 2023; Mudde et al., 2026; Schutz & Carter, 2022). They also complement research on inclusive arts participation and JoNE studies showing that visible products, collaboration, and recognition can support agency and responsibility (Coleman & Smith, 2025; Ilyas et al., 2025; Mareza, 2025; Suminar et al., 2024).

Relational Supports for Adaptive Learning

Teacher and trainer commitment formed the strongest reported support. NS characterized effective skills teachers as patient, creative, and responsive to learner characteristics. LF linked participation to consistent guidance and to tools and materials that matched students' abilities. HS emphasized the role of routine mentoring. MI and DS described cooperation among educators, trainers, and peers as making the activities more manageable. Parents extended encouragement and practice beyond the classroom.

These relationships allowed vocational instruction to perform educational social work functions even though the source manuscript did not document a designated social worker within the program. Learner needs were connected with family support, school resources, emotional guidance, and peer assistance. TN's account that her child sometimes lacked confidence also shows that family involvement did not eliminate psychosocial barriers; it helped make those barriers visible to educators.

This relational pattern accords with social work and rehabilitation literature that frames vocational participation as an ecological and coordinated process rather than an individual skill deficit (Frey Müller et al., 2024; Knoop et al., 2025; Mo et al., 2025; Schutz et al., 2026). It also supports models that connect vocational learning with social assistance and cross-agency collaboration (Fadillah & Aini, 2023; Rios et al., 2023; Widiansyah et al., 2025; Widiyawati et al., 2021). Coordination in the present case remained informal.

The available records did not show a multidisciplinary support plan or a routine mechanism for involving local batik enterprises.

Material and Psychosocial Constraints

NS described equipment procurement as dependent on proposals, institutional approval, and coordination with relevant agencies. LF reported that shortages of tools and materials slowed practice, while fatigue, boredom, and an occasionally uncomfortable workspace reduced participation. Students also encountered unstable wax flow, difficulty maintaining hand position, and fear of hot wax. TN reported low confidence in some situations. These material, technical, and psychosocial constraints interacted rather than operating separately.

The source data also contain disconfirming evidence against a simple success narrative. Not every student demonstrated equal understanding, technical control, or independence. Some avoided difficult stages, compared unfinished work with peers, or required continuing prompts. Limited practice time and inconsistent access to suitable tools made it difficult to determine whether observed progress would persist.

These constraints show why adaptive instruction cannot depend on teacher goodwill alone. Inclusive vocational programs require accessible equipment, safe work design, flexible pacing, coordinated emotional support, and continuity across school and transition services. Similar research links transition and employment preparation to work experience, autonomy support, environmental accommodation, family engagement, and integrated services (Bérubé et al., 2025; Mazzotti et al., 2021; Trainor et al., 2023). Program evaluation should therefore examine resources and institutional partnerships alongside learner participation and capability development (Akhadi & Shofwan, 2024; Indarthy et al., 2025).

A Provisional Adaptive Educational Social Work Framework

The thematic integration produced four linked functions: needs assessment, adaptive planning, guided vocational practice, and capability monitoring. Educational social work support operates across them by connecting educators, trainers, families, peers, school resources, psychosocial guidance, and potential industry partners. Monitoring is iterative because evidence from practice should lead to changes in media, tools, pacing, assistance, safety arrangements, or expectations. Table 3 shows how the empirical themes informed the framework.

Table 3. Evidence-to-Framework Mapping

Empirical theme	Framework function	Evidence base	Adaptive purpose
Knowledge access	Needs assessment and adaptive planning	Educator accounts; observations of tool and stage recognition	Match communication, media, and task sequence to learner functioning
Technical skills	Guided vocational practice	Demonstration, correction, repeated canting and coloring practice	Adjust assistance, tools, pacing, feedback, and safety support
Attitude and behavior	Capability monitoring	Educator, student, and parent accounts of participation and initiative	Track technical, social, and emerging independent performance
Relational support and constraints	Cross-stage educational social work support	Family, peer, school-resource, and psychosocial evidence	Coordinate support and revise conditions that restrict participation

Figure 1 visualizes the provisional framework. The arrows represent an implementation sequence, not a tested causal pathway. Cross-cutting support may influence any stage, while monitoring can return the program to assessment or planning when learner needs or environmental conditions change.

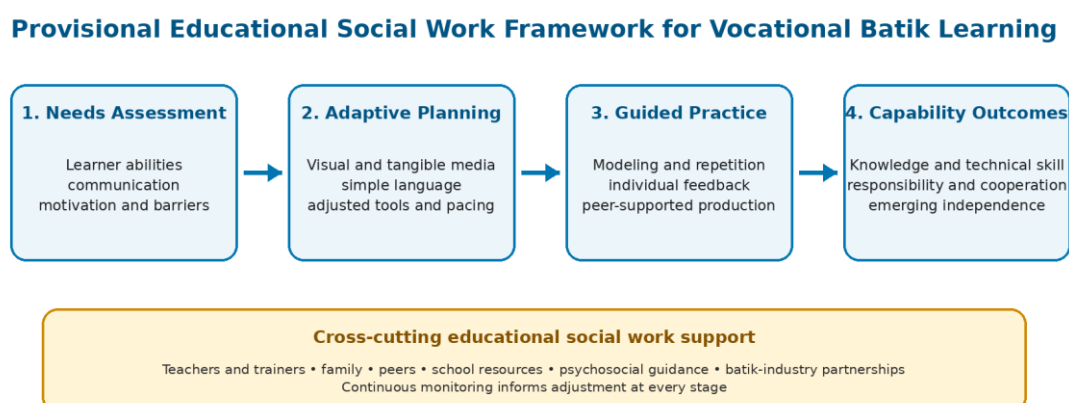


Figure 1. Provisional Educational Social Work Framework for Vocational Batik Learning

The framework differs from a fixed lesson sequence because adaptation begins with learner functioning and continues throughout practice. It also avoids treating independence as unsupported individual performance. In this case, emerging independence was associated with graduated assistance, accessible tools, repeated participation, and opportunities to make decisions. This interpretation is consistent with ecological transition research and person-centered vocational support (Christianson-Barker et al., 2025; Mo et al., 2025; Mudde et al., 2025; Wijga et al., 2025). Further validation is required before the framework can guide implementation beyond this case.

Implications for Inclusive and Cross-Setting Vocational Education

The case has three practical implications. First, programs should convert production procedures into accessible visual and tangible sequences and prepare graded levels of assistance. Second, assessment should document technical execution, safety, communication, perseverance, cooperation, and decision-making with an adaptive rubric. Third, schools should formalize coordination with families, social workers, community learning providers, and local enterprises so that practice, emotional support, and transition opportunities do not remain isolated. These priorities align with partnership-based competence development and systematic program evaluation in nonformal vocational education (Akhadi & Shofwan, 2024; Indartha et al., 2025; Suminar et al., 2024). They also correspond with evidence that collaboration, participation, feedback, autonomy support, and supportive conditions shape vocational learning and transition (Dubois et al., 2023; Rios et al., 2023; Smet et al., 2022; Schutz et al., 2026; Wijga et al., 2025).

Study Limitations

The study examined one school and a small purposive group, so the findings describe a bounded case. The source manuscript did not provide complete participant characteristics, interview duration, observation frequency, a coding matrix, or verified ethics and consent documentation. It contained only one verbatim quotation and did not fully document communication support for participating students. The study also lacked standardized performance measures, longitudinal follow-up, employer evidence, and comparison with another vocational program. Claims therefore concern reported and observed patterns during implementation, not causal effectiveness, sustained competence, or employment outcomes. Future research should validate the framework across disability profiles, vocational sectors, and schools; use transparent adaptive-performance rubrics; and follow learners into internships or employment (Bal et al., 2023; Bérubé et al., 2025; Mazzotti et al., 2021; Mudde et al., 2025).

CONCLUSION

At SLB Negeri Cilacap, vocational batik learning became adaptive when educators combined visual demonstration, tangible tools, simple language, repetition, individual feedback, and process-focused reinforcement. Observations and participant accounts indicated developing knowledge, technical control, patience, responsibility, cooperation, confidence, and initiative. These patterns varied across students. Educator commitment, family involvement, and peer interaction supported participation, while equipment shortages, limited time, environmental discomfort, fear, fatigue, and informal coordination restricted it. The study contributes a provisional four-function framework: assess learner needs, plan adaptations, conduct guided culturally grounded practice, and monitor technical and social capabilities. Educational social work support connects these functions across school, family, peer, service, and potential workplace settings. The framework requires verified ethics documentation, stronger data traceability, adaptive assessment, multi-site validation, and employment-related follow-up before broader adoption.

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