Evaluation of multigrade teaching implementation at CLC SLDB Inandung TKB Punteh in Sabah, Malaysia

Nur Hariri*)[1], Iwan Suhardi[2], Syahrul[3]
[1]Universitas Negeri Makassar, Makassar, Indonesia; Nurhariri930@gmail.com
[2]Universitas Negeri Makassar, Makassar, Indonesia; Iwan.suhardi@unm.ac.id
[3]Universitas Negeri Makassar, Makassar, Indonesia; syahrul@unm.ac.id
*)Corresponding author: Nur Hariri; E-mail addresses: Nurhariri930@gmail.com

Abstract. This study aims to evaluate the implementation of multigrade teaching at CLC SLDB Inandung TKB Punteh in Sabah, Malaysia, by employing the CIPP evaluation model (Context, Input, Process, Product). A qualitative approach was employed. Participants were selected through purposive sampling, involving teachers, students, and local stakeholders directly engaged in multigrade instruction. Participants were selected through purposive sampling, involving teachers, students, and local stakeholders directly engaged in multigrade instruction. The findings indicate that, in the context component, multigrade teaching is a strategic response to the educational needs of children of Indonesian migrant workers living in remote plantation areas. In the input component, teacher qualifications vary, and learning facilities remain limited, although strong teacher commitment supports instructional continuity. The process component reveals adaptive classroom management through integrated thematic instruction, flexible grouping, and time management despite limited instructional media. The product component shows positive impacts on access to education, learning motivation, attendance, and student character development, although academic achievement, particularly in literacy, numeracy, and basic technology use, still requires improvement. Based on these findings, strengthening teacher capacity and improving learning facilities are recommended to enhance the sustainability and quality of multigrade instruction in community-based education settings.

Introduction

Ideally, education functions as a fundamental instrument for human development by fostering cognitive, affective, and social competencies that enable individuals to adapt and contribute meaningfully within a dynamic global context. Education is expected to promote social transformation, reduce inequality, and ensure equitable access for all individuals regardless of geographical location, socioeconomic background, or migration status (Hidayat & Hariyani, 2022; Mezzanotte, 2022). Inclusive educational provision is therefore a prerequisite for achieving social justice and sustainable development, particularly for marginalized and vulnerable populations.

Despite ongoing efforts to expand educational access for migrant workers' children, significant implementation gaps persist at the instructional level, particularly in community-based education settings operating under resource constraints. Field observations and previous reports indicate that many Community Learning Centers (CLCs) face persistent challenges, including limited numbers

of qualified teachers, inadequate learning facilities, high student-teacher ratios, and inconsistent instructional planning (UNICEF, 2021; Amnesty, 2020). These conditions often result in heavy teacher workloads, limited individual student support, and uneven learning outcomes, especially in literacy and numeracy.

To address these challenges, the Indonesian government established the Indonesian Luar Negeri (SILN) school in several urban areas of Malaysia. Nevertheless, limited institutional capacity has prevented SILN from accommodating all migrant children (Indonesia, 2022). As an alternative, Community Learning Centers (CLCs) have emerged as community-based educational initiatives supported by governments, NGOs, and social organizations. CLCs provide adaptive basic education while also supporting students' emotional well-being and social connectedness, with an emphasis on literacy development and psychosocial support (Paikah, 2022; Widana et al., 2021).

Previous research on Indonesian overseas education institutions highlights persistent administrative and instructional challenges that are highly relevant to education for migrant workers' children. Studies conducted at Sekolah Indonesia Kuala Lumpur (SIKL) reveal significant documentary and administrative barriers related to student registration and the renewal of legal documents, which directly affect students' continuity of learning. In addition, limitations in learning facilities and supporting instructional resources, such as traditional arts equipment, constrain the implementation of culturally responsive educational activities (Setyani et al., 2020). Although curriculum planning, student admission systems, extracurricular programs, school community relations, and financial management are generally well organized, Indonesian overseas schools continue to face critical challenges, including teacher shortages, limited participation in academic competitions, student visa problems, and suboptimal teacher deployment and certification (Matin et al., 2020). These conditions intensify instructional workloads and restrict learning opportunities, particularly in educational settings that rely on multigrade teaching due to limited human resources.

Beyond structural and instructional constraints, migrant education contexts also present significant sociocultural challenges. Research indicates that prolonged exposure to multicultural and foreign cultural environments may weaken students' national identity, particularly through language use and the adoption of daily habits and values from host countries (Pramesti et al., 2025). This condition underscores the dual responsibility of educational institutions serving migrant children: not only to ensure academic instruction but also to preserve cultural identity and social values. However, existing studies largely focus on formal overseas schools and have not sufficiently examined how these administrative, instructional, and sociocultural challenges manifest in Community Learning Centers that implement multigrade teaching under resource-limited conditions. This gap highlights the need for a comprehensive evaluative framework capable of addressing the multidimensional problems faced by migrant workers' children in community-based education settings.

CLC SLDB Inandung TKB Punteh in Sabah represents one such initiative serving the children of migrant plantation workers. Due to limited teachers and facilities, multigrade teaching, also referred to as Double Class Learning (DCL), is implemented as the primary instructional model. Multigrade teaching involves the simultaneous instruction of two or more grade levels within a single classroom, requiring teachers to manage diverse ages, abilities, and learning needs concurrently (Ahmad et al., 2024). Previous studies on multigrade teaching have primarily focused on pedagogical strategies, classroom management, teacher attitudes, and student academic outcomes in rural or remote formal school settings (Jannat et al., 2024; Yilmaz et al., 2024; Ignacio & Malonzo, 2025; Rediani, 2024). While these studies provide valuable insights into instructional challenges and teacher competencies, they tend to examine isolated components of multigrade instruction and rarely address its implementation within community-based education systems

serving migrant populations. In addition, existing research seldom employs a comprehensive evaluation framework that systematically integrates contextual conditions, resource inputs, instructional processes, and learning outcomes.

This study offers novelty by applying the CIPP evaluation model to examine multigrade teaching holistically within a Community Learning Center (CLC) serving children of migrant workers in Malaysia. Unlike previous research, this study simultaneously analyzes contextual constraints, institutional inputs, classroom implementation, and educational outcomes within a single evaluative framework. Furthermore, by focusing on a cross-border, community-based education setting characterized by legal, social, and geographical limitations, this research extends the existing literature and provides context-specific evidence to inform policy and practice for multigrade instruction in resource-limited environments.

Despite these challenges, multigrade teaching also offers pedagogical benefits, including promoting peer learning, learner autonomy, collaboration, and character development through cross-grade interactions (Saifuddin et al., 2024). Given the coexistence of constraints and potential advantages, a systematic evaluation is required to assess how multigrade teaching operates in resource-limited, community-based education settings. The CIPP evaluation model (Context, Input, Process, Product) provides a comprehensive framework for examining contextual relevance, resource availability, instructional implementation, and learning outcomes in an integrated manner (Kumar et al., 2023).

Based on the conditions described above, the central problem addressed in this study concerns the effectiveness of multigrade teaching implementation in addressing the educational needs of migrant workers' children at CLC SLDB Inandung TKB Punteh. This study is guided by the hypothesis that the effectiveness of multigrade teaching is strongly influenced by contextual conditions, resource inputs, and instructional processes. Accordingly, the objectives of this study are: (1) to examine the contextual factors shaping multigrade teaching implementation, (2) to analyze the adequacy of instructional inputs, including teacher competence and learning facilities, (3) to evaluate classroom processes in multigrade settings, and (4) to assess the educational outcomes produced through this instructional model using the CIPP evaluation framework.
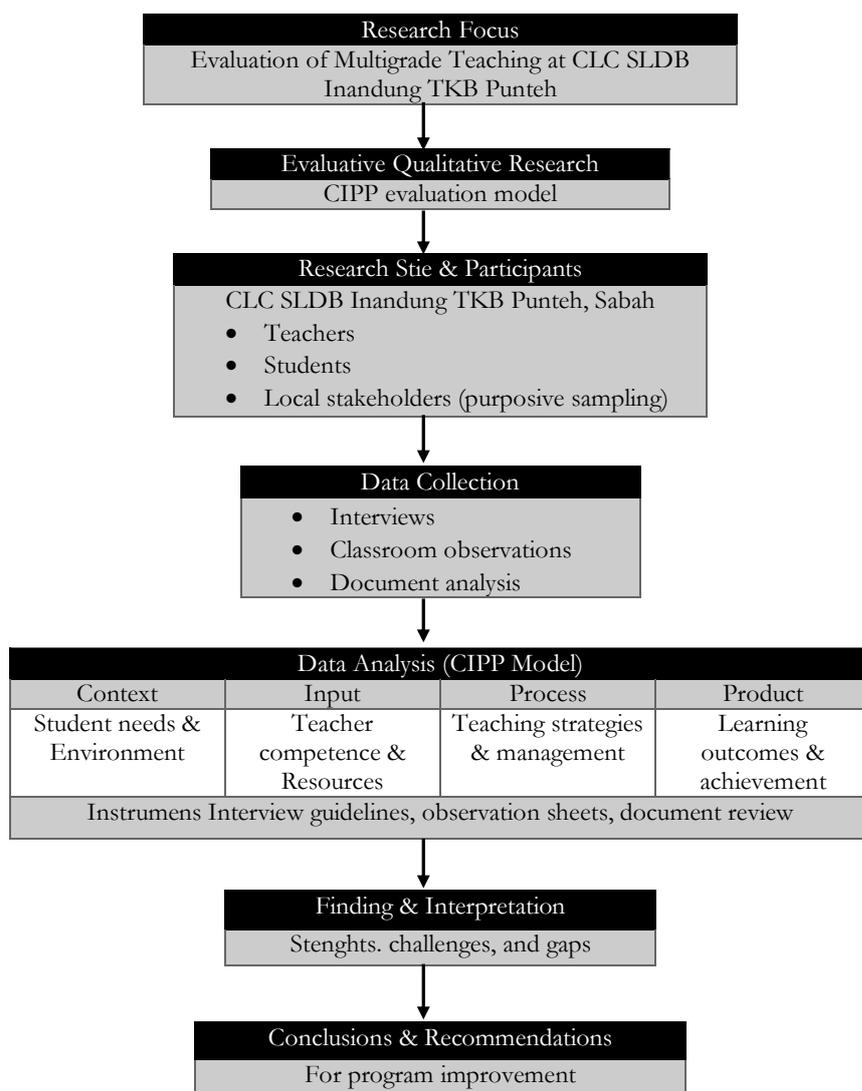
Method

Research Method and Design
This study employed a qualitative evaluative research approach using the CIPP model (Context, Input, Process, Product) as the primary analytical framework. The CIPP model was selected because it provides a comprehensive structure for examining the implementation of multigrade teaching by systematically assessing contextual needs, resource availability, instructional processes, and learning outcomes. Through this approach, the study identified critical factors influencing the effectiveness of multigrade instruction, including the learning environment, teaching strategies, and students' academic achievement. Accordingly, the CIPP evaluation model provides a strong foundation for formulating targeted, evidence-based recommendations for program improvement.

Research Procedure
The research procedure followed a systematic sequence of stages, as illustrated in Image 1. The stages included determining the research focus, designing the evaluative study using the CIPP framework, selecting participants, collecting data, analyzing the data according to the CIPP components, and formulating conclusions and recommendations.

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│              Research Focus                   │
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│   Evaluation of Multigrade Teaching at CLC    │
│          SLDB Inandung TKB Punteh             │
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│       Evaluative Qualitative Research         │
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│            CIPP evaluation model              │
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│         Research Stie & Participants          │
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│    CLC SLDB Inandung TKB Punteh, Sabah        │
│      •  Teachers                              │
│      •  Students                              │
│      •  Local stakeholders (purposive sampling)│
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│              Data Collection                  │
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│      •  Interviews                            │
│      •  Classroom observations                │
│      •  Document analysis                     │
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│                  Data Analysis (CIPP Model)                     │
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│   Context    │    Input     │   Process    │     Product       │
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│ Student needs│   Teacher    │  Teaching    │    Learning       │
│      &       │ competence & │ strategies & │   outcomes &      │
│ Environment  │  Resources   │  management  │   achievement     │
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│ Instrumens Interview guidelines, observation sheets, document   │
│                          review                                 │
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│           Finding & Interpretation            │
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│        Stenghts. challenges, and gaps         │
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│        Conclusions & Recommendations          │
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│           For program improvement             │
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Image 1. Research Method Scheme Using the CIPP Evaluation Model

Research Site and Participants

The study was conducted at CLC SLDB Inandung TKB Punteh in Sabah, Malaysia, a Community Learning Center that implements multigrade teaching in a resource-limited educational setting. Participants consisted of teachers, students, and local stakeholders involved in the administration and delivery of instruction. These participants were selected for their direct engagement in multigrade teaching and institutional management at the CLC.

Data Collection Techniques and Research Instruments

Data were collected using three techniques: semi-structured interviews, classroom observations, and document analysis. Interviews were conducted using interview guidelines to explore participants' experiences and perceptions regarding multigrade teaching. Classroom observations were guided by structured observation sheets to examine instructional practices, classroom organization, and time management. Document analysis was conducted using document review checklists to examine lesson plans, student assessment records, and administrative reports. These techniques were used to obtain rich, comprehensive empirical data on the implementation of multigrade instruction and its contextual conditions.

Data Analysis Techniques

Data analysis was conducted descriptively through data reduction, organization, and interpretation based on the four components of the CIPP model. Context evaluation focused on student needs and environmental challenges. Input evaluation examined teacher competencies, available facilities, and instructional planning. Process evaluation analyzed the implementation of multigrade teaching, including pedagogical strategies, classroom organization, and time management. Product evaluation assessed student learning outcomes and the extent to which instructional objectives were achieved. The analysis was conducted systematically to ensure consistency, validity, and alignment between empirical findings and the evaluative framework.

Results and Discussion

Context of the Multigrade Teaching Program

The contextual analysis of the implementation of multigrade teaching at CLC SLDB Inandung TKB Punteh is shaped by its geographical, social, and demographic conditions, which collectively necessitate the adoption of alternative instructional models. The remote interior areas of Sabah, particularly those located within oil palm plantation regions, are characterized by geographical isolation and limited access to formal education services. These circumstances render the establishment of conventional single-grade primary schools impractical. Consequently, Community Learning Centers (CLCs) emerge as the most viable form of educational provision for the children of migrant plantation workers. Restricted transportation access and the long distances separating residential clusters directly influence the availability of teachers, classroom facilities, and instructional organization, requiring educational practices to be continuously adapted to local conditions and on-site realities (Zhang et al., 2024; Widana et al., 2023).

From a demographic perspective, students at CLC SLDB Inandung are predominantly children of Indonesian Migrant Workers who accompany their parents' employment mobility within plantation sectors. This mobility results in fluctuating student enrolment and irregular attendance patterns across academic periods. As a result, classrooms exhibit considerable variation in students' learning readiness, age levels, and educational backgrounds. Such conditions demand instructional systems that are flexible and able to accommodate ongoing changes without compromising learning continuity. In this context, multigrade teaching serves as an adaptive instructional strategy that helps schools manage inconsistent class structures and enrolment variability while maintaining access to basic education for migrant children.

Socioeconomic circumstances also significantly influence instructional implementation at CLC SLDB Inandung. Most parents work long hours on plantations, which limits their ability to provide consistent supervision and direct involvement in their children's learning activities. As a result, the school functions not only as an academic institution but also as a central environment for the formation of learning habits, discipline, and social character. This expanded educational role places additional demands on teachers, who must simultaneously address academic instruction and students' socio-emotional development. In a multigrade environment, these responsibilities become more complex, as teachers must manage diverse learning needs, varying levels of independence, and differing behavioral patterns within a single classroom.

From a policy perspective, the existence of Community Learning Centers (CLCs) reflects a cross-border initiative to fulfill the right to basic education for the children of migrant workers. CLCs are positioned as alternative educational units that provide primary-level instruction under conditions of limited resources and institutional support. This arrangement aligns with broader global commitments to inclusive education and the protection of educational rights for vulnerable and marginalized groups. However, structural constraints, particularly the limited availability of

teachers and inadequate learning facilities, make implementing single-grade classrooms impractical in many CLC settings. Under such circumstances, multigrade teaching emerges as the most realistic and functional instructional approach, enabling educational continuity while optimizing existing human and physical resources (Idel et al., 2024).

Institutionally, limited infrastructure directly shapes classroom organization. Restricted classroom space requires multiple grade levels to be taught simultaneously in a single room. To manage this, learning activities are organized into small groups based on students' ability levels. This arrangement requires teachers to apply flexible classroom management strategies that promote student autonomy, an approach consistent with contemporary multigrade learning principles (Miarso, 2018). Cultural factors also influence instructional dynamics. Students come from diverse ethnic and cultural backgrounds, and their daily language use does not always match the formal instructional language. Such linguistic diversity necessitates adjustments in communication to ensure that instructions are understood by all students. Language barriers in multicultural learning environments require teachers to serve as linguistic mediators before delivering academic content, which affects instructional pacing and time allocation (Mukhtar, 2018).

Psychosocial aspects are also significant. Many students enter school without prior formal education, even though they are at an intermediate grade level. This mismatch between chronological age and academic ability reflects low initial learning readiness, a common condition among students in vulnerable or underserved educational contexts. This situation requires teachers to modify content, instructional methods, and pacing to ensure meaningful participation for all students (Rainio et al., 2024). Overall, the contextual conditions of multigrade teaching at CLC SLDB Inandung TKB Punteh illustrate an adaptive response to geographical constraints, socioeconomic challenges, demographic patterns, and policy frameworks concerning migrant children's education. Multigrade teaching is not merely a methodological alternative but a contextual necessity that sustains access to primary education within structurally limited environments. Understanding this context is essential to analyzing the relationship between inputs, instructional processes, and learning outcomes in multigrade settings (Saifuddin et al., 2024).

Based on the above contextual analysis, Table 1 presents a summary of the key contextual factors influencing the implementation of multigrade teaching at CLC SLDB Inandung TKB Punteh within the CIPP evaluation framework.

Table 1. Summary of DCL Evaluation

CIPP Component	Evaluation Aspect	Key Findings	Implications
Context	Geographical condition	Remote plantation area limits access to formal schools	DCL is necessary as an adaptive model
Input	Human resources	Limited number of teachers	Teachers are required to manage multiple grades
Process	Instructional strategy	Flexible grouping and peer learning	Need for teacher training
Product	Learning outcomes	Basic competencies achieved	The program needs sustainability support

The findings of this study are largely consistent with existing literature on multigrade teaching in resource-limited and marginalized educational contexts. Previous studies have emphasized that

multigrade instruction commonly emerges in geographically isolated areas with limited teacher availability and infrastructure (Zhang et al., 2024; Idel et al., 2024). The present findings support this theoretical perspective by demonstrating that multigrade teaching at CLC SLDB Inandung TKB Punteh functions as an adaptive response to structural constraints. However, this study extends the literature by showing that, within migrant education settings, multigrade teaching is further shaped by demographic instability, cross-border mobility, and sociocultural diversity, factors that are rarely examined in prior multigrade research.

At the input level, earlier research highlights teacher shortages, limited facilities, and administrative constraints as major barriers to effective multigrade instruction (Setyani et al., 2020; Matin et al., 2020). The results of this study align with these findings but also reveal that teacher adaptability and improvisational competence serve as critical compensatory mechanisms that sustain instructional continuity. Similarly, previous studies identify flexible grouping, peer tutoring, and differentiated instruction as effective multigrade strategies (Utami et al., 2023; Ignacio & Malonzo, 2025). The instructional processes observed in this study confirm these theoretical assumptions and illustrate how such strategies are implemented organically in community-based settings that lack formal multigrade training and standardized instructional support.

Regarding learning outcomes, the results are consistent with prior research indicating that multigrade instruction can support basic literacy, numeracy, and socio-emotional development, although learning trajectories often remain uneven in highly mobile and disadvantaged contexts (Naparan & Alinsug, 2021; Idel et al., 2024). These findings reinforce the theoretical understanding that multigrade teaching is effective in expanding educational access but cannot fully compensate for structural instability, delayed school entry, and limited home learning support. Thus, the present study supports and refines existing theories by situating multigrade teaching within a broader socio-structural framework specific to migrant community-based education.

Input of the Multigrade Teaching Program
The input component of the multigrade teaching program at CLC SLDB Inandung TKB Punteh encompasses human resources, infrastructure availability, curriculum feasibility, community support, and administrative capacity, all of which form the foundational conditions for delivering instruction across multiple grade levels simultaneously. These input elements directly influence the scope and quality of instructional activities implemented in the classroom. Field data indicate that existing inputs are limited, requiring teachers to employ creative and adaptive strategies to ensure instructional continuity and learning effectiveness. Constraints related to staffing, learning materials, and physical facilities necessitate flexible planning and prioritization of essential learning objectives. Under such conditions, teachers play a central role in maximizing available resources to sustain multigrade instruction despite structural limitations.

Teacher Readiness
Teachers serve as the central drivers of the multigrade teaching program. Data from the thesis indicate that one teacher manages three grade levels simultaneously in a single room. Instructional time is allocated according to students' varying levels of readiness. Based on interviews, teachers possess adequate academic competence, including knowledge of the curriculum, grouping strategies, instructional adaptation skills, and sensitivity to students' social conditions. Teachers perform multiple roles: educator, caregiver, informal counselor, administrator, instructional material developer, and classroom organizer (Arman et al., 2025).

Teacher statements from interviews indicate that instructional materials are developed independently, without structured technical guidance. Teachers design learning modules based on students' fundamental abilities rather than a linear curriculum sequence. As one teacher explained,

"Every morning I observe the children's abilities before preparing their tasks." This reflects strong improvisational capacity and reliance on practical experience and pedagogical intuition rather than formalized multigrade training.

Availability of Facilities and Infrastructure

CLC SLDB Inandung operates with minimal physical infrastructure. Classroom space is limited, furniture is basic, and learning materials are scarce. Observations documented in the thesis show that multiple grade levels occupy the same classroom, separated only by temporary partitions such as bookshelves or long tables. Instructional aids, alphabet posters, number cards, and other visual materials are produced by teachers through personal initiative rather than institutional supply. Teachers recycle cardboard to create letter cards and use a single whiteboard for joint instruction before splitting activities into small groups (Saifuddin et al., 2024). Literacy resources are extremely limited. The small collection of books forces students to share materials, hampering reading development. Teachers compensate by creating simple reading sheets from plain paper. The absence of technological devices necessitates direct demonstration, use of environmental objects, and repetitive practice (Novianti et al., 2022).

Curriculum and Learning Materials

The CLC follows Indonesia's basic education curriculum, though its implementation is substantially adapted. Formal curriculum sequencing is not feasible because many students lack foundational skills, even at higher grade levels. Teachers assess students' initial abilities to determine appropriate instructional starting points. Some upper-grade students still struggle with reading fluency and require instruction to begin with letter and syllable recognition. The wide range of academic readiness necessitates three parallel learning activities within one session (Karaçoban & Karakuş, 2022). Lesson plans (RPP) are simplified and function as general guides rather than detailed documents. Teachers adjust learning objectives daily based on students' conditions. While competency standards remain the reference, their application is adapted to current performance levels rather than chronological age.

Parental and Community Support

Parental participation in the learning process is minimal due to the long working hours required in the plantation fields. Many parents also have limited literacy skills, which restricts their ability to assist children with homework or academic tasks at home. Nevertheless, parental support is reflected in efforts to ensure regular school attendance and compliance with basic school routines, indicating that limited involvement arises primarily from economic constraints rather than a lack of concern for children's education (Jannat et al., 2024). In addition to parental support, the plantation community provides periodic assistance, such as transportation services or maintenance materials for school facilities. However, this support is informal, situational, and not institutionally guaranteed, creating uncertainty about resource availability. Consequently, the sustainability of the multigrade teaching program is influenced by the irregular nature of community support, which poses ongoing challenges for long-term planning and program stability (Karaçoban & Karakuş, 2022).

Administrative Capacity and School Management

Administrative structures at the CLC are minimal. Teachers handle administrative duties, including attendance records, monthly reports, correspondence, data storage, and coordination with plantation management. Limited administrative capacity increases the teacher's workload. Financial management is simple because there are no structured funding allocations. Most operational needs depend on community contributions and informal support. Reports are compiled manually because limited internet access prevents using digital platforms. Documentation relies on handwritten records, making administrative processes time-consuming (Ahmad et al., 2024).

The input conditions identified in this study corroborate earlier findings that teacher shortages, limited infrastructure, and constrained administrative capacity remain central challenges in multigrade and migrant education settings (Matin et al., 2020; Setyani et al., 2020). Nevertheless, this study reveals that teacher adaptability and improvisational competence function as critical compensatory mechanisms that partially mitigate structural limitations. While previous research often emphasizes deficiencies in input components, the present findings underscore the pivotal role of teacher agency in sustaining instructional continuity under severe constraints. This insight contributes to the literature by highlighting that input adequacy in multigrade CLC contexts should not be assessed solely based on material availability, but also on teachers' adaptive capacity and contextual responsiveness

Process of the Multigrade Teaching Program

The implementation of multigrade teaching at CLC SLDB Inandung TKB Punteh unfolds within highly constrained on-site conditions that require continuous instructional adjustment. The teacher is responsible for managing the learning space, instructional time, classroom activities, and student dynamics without a fully established support system. As a result, the instructional process evolves through a combination of teacher improvisation, curriculum adaptation, flexible grouping, and cross-age social interaction. Teaching activities are organized to accommodate students with varying academic levels, learning speeds, and attendance patterns within a single classroom environment. Each phase of instruction progresses gradually yet nonlinearly, as daily classroom arrangements must respond to ongoing fluctuations in students' learning readiness and participation. These conditions demand high levels of pedagogical flexibility, situational decision-making, and classroom management skills, as teachers must continuously balance curriculum demands with the realities of limited time, resources, and learner diversity. Consequently, the instructional process in this multigrade setting reflects an adaptive practice shaped more by contextual responsiveness than by standardized instructional routines.

Grouping Patterns and Learning Flow

The teacher divides students into three ability-based groups. These groupings do not follow formal grade classifications but reflect actual learning readiness. The first group consists of students who are still unable to read, write, or perform basic numeracy. The second group includes students with emerging foundational skills. The third group comprises more independent learners who can complete tasks with minimal supervision. Group placement is determined through direct morning observation, based on students' responsiveness to initial instructions rather than their official grade level (Utami et al., 2023). Once the groups are formed, the teacher gives a brief whole-class instruction to set the direction of the learning session. The teacher then provides intensive support to the first group, while the second group works on short guided exercises and the third group completes independent worksheets. This system creates a cyclical instructional rhythm in which the teacher rotates between groups. Students who finish early transition to independent reading activities while waiting for further guidance (Arman et al., 2025).

Instructional Interaction

Teacher-student interaction is dominated by verbal communication due to limited learning media. Oral explanation becomes the primary instructional tool. The teacher employs clear intonation, structured repetition, and concrete examples to support understanding. Instructions are simplified to avoid misconceptions. Everyday objects, such as stones, leaves, and water bottles, are repurposed as spontaneous teaching aids, enabling students to connect abstract concepts with real-world experiences. The teacher builds emotional rapport through name-calling, gentle shoulder cues, smiles, and verbal praise. This approach establishes psychological safety for students, especially those who are new to formal schooling. The teacher monitors students' body language

to identify confusion or fatigue. When misunderstanding is detected, instruction is paused, and explanations are reformulated in simpler terms, reflecting high sensitivity to individual needs (Wirya et al., 2024).

Classroom Management and Discipline
Classroom management is executed within a limited physical space. Desks are arranged in small clusters to minimize distractions between groups. Items are stored in one shared container for easier distribution. Noise levels fluctuate due to simultaneous group activities, but the teacher maintains order through rhythmic clapping cues. Students understand these cues as signals to stop speaking. Discipline is fostered through daily routines. Students organize their learning materials before lessons begin and tidy the classroom afterward without repeated reminders. When inappropriate behavior occurs, such as excessive joking or disturbing other groups, the teacher intervenes calmly and avoids harsh confrontation. By lowering their body to eye level, the teacher delivers corrective feedback in a respectful and emotionally safe manner (Rosmaya et al., 2018).

Strategies for Responding to Diverse Needs
The wide range of student abilities requires differentiated instruction. The teacher prepares three levels of tasks within a single session: tracing letters and matching pictures for beginners, word-reading exercises for intermediate learners, and problem-solving or arithmetic activities for advanced learners. Each group progresses at a different pace, and the teacher monitors development through direct observation rather than formal testing. These observations inform the regrouping of students in subsequent sessions (Utami et al., 2023). Students' emotional and physical needs are also considered. Many arrive without adequate breakfast, affecting concentration. To address this, the teacher incorporates short breaks and simple physical activities such as rhythmic clapping to re-energize the class. Students are granted limited flexibility in movement to prevent fatigue and frustration (Novianti et al., 2022).

Senior Students as Peer Tutors
Higher-achieving students naturally assume peer-tutoring roles. The teacher strategically leverages this to reduce instructional load. Senior students assist beginners by reading instructions aloud or demonstrating the steps of the task. This peer-support model enhances advanced learners' confidence while helping beginners grasp concepts more effectively. Cross-age tutoring fosters cooperation, leadership, and interdependence, which are hallmarks of successful multigrade environments (Idel et al., 2024).

Documentation and Everyday Evaluation
Assessment is conducted informally and continuously. The teacher maintains a small notebook documenting each student's progress in reading, writing, and numeracy. These notes guide lesson planning for the following day. Due to limited time, evaluations are not always written; instead, the teacher relies on performance-based observations, responsiveness to instructions, task completion speed, and persistence. This approach yields an authentic portrait of students' developmental trajectories within the multigrade setting (Ignacio & Malonzo, 2025).

These process-level findings align with studies emphasizing flexible grouping, peer tutoring, and differentiated instruction as effective strategies in multigrade classrooms (Utami et al., 2023; Ignacio & Malonzo, 2025). However, the novelty of this study lies in illustrating how these strategies are implemented organically within a community-based learning center that lacks formal multigrade training, standardized assessment tools, and technological support. The instructional process observed at CLC SLDB Inandung is driven largely by experiential judgment rather than institutional guidelines, revealing a form of grassroots pedagogical adaptation that has received limited attention in previous multigrade research.

Product of the Multigrade Teaching Program

The product component reflects a range of educational outcomes, including academic gains, behavioral improvements, social development, learning readiness, and increased consistency in student attendance. These outcomes arise from learning processes conducted under conditions of limited facilities, wide variations in student ability levels, and unstable class composition due to the high mobility of plantation worker families. While many students demonstrate progress in basic literacy, numeracy, and classroom discipline, learning achievements remain uneven, particularly among students who enter school with minimal prior educational experience. Social interaction skills and cooperative behaviors develop through group-based activities and peer learning, contributing positively to the classroom environment. However, the persistence of structural constraints underscores the need for targeted interventions to support newly enrolled learners, maintain continuity in learning outcomes, and enhance the overall effectiveness of multigrade instruction in resource-limited educational settings.

Foundational Academic Achievement

Observations reveal notable improvement in early literacy. Students who initially could not recognize letters gradually develop the ability to decode simple syllables. Students with emerging literacy skills progress to reading short sentences independently. These advancements are evident in daily worksheets, which show increased accuracy in letter recognition and reading fluency. Students who struggled significantly at the beginning become more prepared to join small-group reading activities. In numeracy, students demonstrate understanding of basic number concepts, including writing numbers, sequencing small integers, and performing simple addition. Some can solve basic word problems. Error rates decrease over time, indicating reinforcement from repetitive practice. After six weeks of consistent routines, students display increased concentration and persistence during math exercises (Arman et al., 2025).

Academic performance among upper-level students remains uneven. Some achieve grade-appropriate outcomes, while others perform at early-grade levels. This disparity is a structural characteristic of multigrade instruction in CLC contexts and reflects inconsistent learning histories. Teacher notes indicate that progress is nonlinear; some students improve rapidly, while others require longer periods of reinforcement (Rosmaya et al., 2018).

Changes in Learning Behavior

Students' learning behavior improves substantially. Learners who frequently roam the classroom begin to remain seated for longer periods. Those who habitually switch groups learn to recognize and stay within their designated work areas. Increased focus is evident during reading and coloring tasks. Students increasingly follow instructions without resistance (Naparan & Alinsug, 2021). Turn-taking behavior also shows progress. During writing sessions, students queue patiently for teacher feedback, indicating improved procedural understanding. The development of orderly routines supports smoother learning flow despite shared classroom space (Utami et al., 2023).

Social Development and Character Formation

Social interactions show strong positive growth. Students consistently help each other with reading and writing tasks. Peer tutoring occurs naturally, and cross-age interactions remain cooperative and conflict-free. Older students provide guidance to newcomers, helping them adjust more smoothly to school routines. Discipline develops through daily habits: arriving early, placing bags in the same location, organizing notebooks, and maintaining personal belongings. Responsibility is demonstrated through cleaning duties, with students independently sweeping and wiping desks. Students begin reminding peers to keep the classroom clean, demonstrating emerging environmental awareness (Ashfaq et al., 2018; Purnadewi & Widana, 2023).

Attendance and Engagement

Attendance records indicate increased stability within the first two months of program implementation, suggesting a gradual adjustment process among students. As learners develop emotional comfort and a sense of belonging within the school environment, attendance becomes more regular and predictable. Improved attendance is closely associated with better academic performance, as consistent participation allows students to follow learning sequences more effectively and engage more deeply with instructional activities. Classroom engagement has also improved, as reflected in students' willingness to raise their hands during discussions, ask questions, and participate actively in learning tasks despite initial hesitation. These behavioral changes indicate growing confidence, intrinsic motivation, and a more positive attitude toward learning. Such developments suggest that the multigrade learning environment not only supports academic progress but also fosters emotional security and active participation, which are essential foundations for sustained learning engagement (Naparan & Alinsug, 2021).

Output Challenges

Despite positive outcomes, several challenges persist. Some students still lack age-appropriate literacy skills. Frequent family relocation leads to learning regression. New arrivals require extended adaptation periods. Changes in class composition disrupt instructional continuity, a characteristic inherent in mobile migrant communities. Learning independence remains uneven. Beginning learners require sustained one-on-one support. Students with minimal home support show slower progress. Wide ability gaps lead to uneven learning outcomes, reflecting the structural realities of multigrade classrooms in CLC settings (Idel et al., 2024).

The uneven academic outcomes observed in this study are consistent with prior research indicating that multigrade instruction in highly mobile and disadvantaged contexts often produces non-linear learning trajectories (Naparan & Alinsug, 2021; Idel et al., 2024). While improvements in basic literacy, numeracy, and socio-emotional development are evident, the persistence of learning gaps highlights the structural limitations inherent in multigrade CLC settings. These findings suggest that multigrade teaching alone cannot fully compensate for attendance instability, limited home learning support, and delayed school entry. Therefore, learning outcomes should be interpreted within the broader structural and socioeconomic constraints faced by migrant families.

The findings of this study provide important theoretical and practical implications for the field of multigrade and migrant education. Theoretically, this research extends existing multigrade teaching literature by situating multigrade instruction within a community-based, cross-border migrant education context, where instructional practices are shaped not only by geographical isolation but also by demographic instability, learner mobility, and sociocultural diversity. Unlike prior studies that predominantly examine multigrade teaching in formal rural schools, this study demonstrates that teacher agency, improvisational pedagogy, and contextual responsiveness are central explanatory constructs for sustaining learning processes under severe structural constraints. Practically, the findings highlight the need for targeted multigrade teacher training, particularly in differentiated instruction, flexible classroom management, and low-resource pedagogical strategies. The study also underscores the importance of institutional and policy support to strengthen Community Learning Centers as alternative education providers for migrant children. These insights offer practical guidance for educators, policymakers, and development stakeholders seeking to design sustainable instructional models for marginalized and highly mobile learner populations.

Research Limitations

This study has several limitations. First, the research was conducted in a single Community Learning Center, which limits the generalizability of the findings to other migrant education contexts. Second, the qualitative approach prioritizes depth of understanding but does not provide standardized quantitative measures of academic achievement. Third, frequent student mobility constrained longitudinal tracking of individual learning progress. Future research is encouraged to adopt mixed-method designs, comparative studies across multiple CLCs, and longer observation periods to capture learning trajectories more comprehensively.

Based on the research findings, several recommendations can be proposed. Strengthening teacher capacity through targeted multigrade training programs is essential, particularly in differentiated instruction, classroom management, and low-resource teaching strategies. Improved provision of basic learning materials and literacy resources is also critical to support academic development. At the policy level, stronger institutional support and coordination between governments, plantation management, and educational stakeholders are needed to ensure program sustainability. For future research, studies should compare multigrade practices across migrant education settings and examine the long-term impact of multigrade instruction on students' academic and social trajectories.

Conclusion

The evaluation of the learning quality improvement program at Community Learning Centers (CLCs) in Sabah, using the CIPP model, indicates that multigrade teaching is a contextual and functional response to the educational needs of Indonesian migrant children in plantation areas. The program demonstrates strong relevance in expanding access to basic education amid geographical isolation, limited facilities, and diverse student backgrounds, supported by high levels of teacher commitment and adaptive instructional practices. Despite constraints related to infrastructure, funding, and teacher qualifications, the instructional process can function effectively through flexible class organization and continuous adjustment to students' learning readiness. The program contributes positively to students' learning motivation, attendance, basic literacy and numeracy development, as well as social and independent learning skills, although outcomes remain uneven for newly enrolled learners. To enhance program sustainability and learning quality, further support is needed in teacher capacity development, provision of learning resources, and policy reinforcement to strengthen the effectiveness of multigrade instruction in resource-limited community-based education settings.

Bibliography

Ahmad, P. N., Liu, Y., Ullah, I., & Shabaz, M. (2024). Enhancing coherence and diversity in multi-class slogan generation systems. *ACM DL*, *23*(8), 1–24. https://doi.org/10.1145/3637551

Amnesty, I. (2020). *Trapped in the palm oil fields: Exploitation of migrant workers in Malaysia*. Amnesty International.

Arman, Haling, A., & Arnidah. (2025). Evaluation of the multigrade learning program (PKR) at a Community Learning Center (CLC). *Pendas : Jurnal Ilmiah Pendidikan Dasar*, *10*(1), 66–77. https://doi.org/10.23969/jp.v10i01.23040

Ashfaq, M. S., Yousuf, M. I., & Dahar, A. (2018). Effects of multi-grade teaching and learning at primary level schools. *International Journal of Advanced Research*, *6*(6), 357–371. https://doi.org/10.21474/IJAR01/7220

Hidayat, M. N., & Hariyani, N. (2022). Realizing equitable education: A case study of Community Learning Centers (CLC) on the Indonesia–Malaysia border. *Global Focus*, *2*(2), 138–148. https://doi.org/10.21776/ub.jgf.2022.002.02.4

Idel, M., Rustan, E., & Hisbullah. (2024). Implementation of the multigrade learning model (PKR) as a strategy to address teacher shortages at SDN 068 Manganan, Rongkong District. *Jurnal Abdi Moestopo*, *1*(2), 13–22.

Ignacio, A. G., & Malonzo, E. M. (2025). Attitudes toward multigrade classrooms and classroom management strategies as determinants of teacher competencies in public schools. *European Journal of Education Studies, 12*(5), 66–82. https://doi.org/10.46827/ejes.v12i5.5915

Jannat, F., Gholami, S., Lim, J. I., Leng, T., Alam, M. N., & Tabkhi, H. (2024). Multi-oct-selfnet: Integrating self-supervised learning with multi-source data fusion for enhanced multi-Class retinal disease classification. *ACM DL*, *9*, 1–25. https://doi.org/10.48550/arXiv.2409.11375

Karaçoban, F., & Karakuş, M. (2022). Evaluation of the curriculum of the teaching in the multigrade classrooms course : Participatory evaluation approach. *Pegem Journal of Education and Instruction*, *12*(1), 84–99. https://doi.org/10.47750/pegegog.12.01.09

Kumar, M. P., Kumar, P. R., Rao, M. V. G., Ravuri, V., & Rao, P. N. (2023). Performance evaluation of multi-class classification based detection of covid-19 using machine learning algorithms. *Journal of Harbin Engineering University*, *44*(11), 844–854.

Matin, Sugiarto, Pujiastuti, L. (2020). Indonesian school management overseas (Case study in indonesia kuala lumpur school). *International Journal for Education and Vocational Studies, 2*(8), 679-684.

Mezzanotte, C. (2022). The social and economic rationale of inclusive education: An overview of outcomes in education for diverse groups of students. *OECD Education Working Papers*, *1*(263). https://doi.org/10.1787/bff7a85d-en

Miarso, Y. (2018). *Multigrade learning: Educational paradigms in the technological era*. Deepublish.

Ministry of Education Culture Research and Technology Indonesia (2022). *CLC data reporting through Dapodik. Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia.*

Ministry of Foreign Affairs of the Republic of Indonesia. (2022). Data on Indonesian citizens residing in Malaysia. Ministry of Foreign Affairs of the Republic of Indonesia.

Mukhtar. (2018). *Multigrade learning: Evaluation of school-based learning*. Pustaka Pendidikan.

Naparan, G. B., & Alinsug, V. G. (2021). Social sciences & humanities open classroom strategies of multigrade teachers. *Social Sciences & Humanities Open*, *3*(100109), 1–6. https://doi.org/10.1016/j.ssaho.2021.100109

Novianti, V., Dafik, Suryawati, D., & Supranoto. (2022). The implementation of multigrade policy in probolinggo regency: Challenges and program sustainability vita. *Journal of Humanities and Social Sciences Studies*, *4*(4), 160–172. https://doi.org/10.32996/jhsss.2022.4.4.20

Paikah, N. (2022). *Issues in fulfilling children's right to education in labor contexts*. Pustaka Ilmu.

Pramesti, A., Irawan, D., Sadeli, E. H., Susanti, R. P., Wirya, D. Y. (2025). The impact of a multicultural environment on the national identitiy among students at the indonesian school of kuala lumpur. *International Journal of Multicultur and Multireligious Understanding, 12*(10), 403-410.

Purnadewi, G. A. A., & Widana, I. W. (2023). Improving students' science numeration capability through the implementation of the PBL model based on local wisdom. *Indonesian Journal of Educational Development (IJED), 4*(3), 307-317. https://doi.org/10.59672/ijed.v4i3.3252

Rainio, O., Teuho, J., & Klen, R. (2024). Evaluation metrics and statistical tests for machine learning. *Scientific Reports*, *24*(1), 1–14. https://doi.org/10.1038/s41598-024-56706-x

Rediani, N. (2024). The impact of project-based learning on students' scientific literacy and autonomy. *Indonesian Journal of Educational Development (IJED)*, *5*(1), 79-90. https://doi.org/10.59672/ijed.v5i1.3747

Rosmaya, A., Via, F., Garini, A., & Ruqoyyah, S. (2018). Application of demonstration methods to improve student learning outcomes in science learning energy sources material. *Creative of Learning Students Elementary Education*, *1*(5), 306–314.

Saifuddin, T., Huzaifa, A., & Ishrat, S. (2024). Implementing multigrade and team teaching

approaches to enhance holistic development for slow learners in inclusive classroom settings. *International Journal of Innovation in Teaching and Learning*, *10*(2), 58–76. https://doi.org/10.35993/ijitl.v10i2.3446

Setyani, Zuliyana, F., Rofitasari, Amelia, N., Ahsani, E. L. F. (2020). Analysis of the education system in Indonesian Schools Kuala Lumpur (SIKL): Teacher's perspective. *Jurnal Ilmiah Pendidikan Guru Sekolah Dasar, 14*(1), 70-79.

UNICEF. (2021). *Education for migrant children in Malaysia: Barriers and solutions*. UNICEF.

Utami, R. D., Prayitno, H. J., Pristi, E. D., Lestari, R. Y. A., Dwi, H., Tristiana, V., Yoviyanti, R., Afif, K., & Shohenuddin. (2023). Empowering teachers and facilitators in multigrade learning at malaysian learning centers through the pancasila student profile approach. *Buletin KKN Pendidikan*, *5*(1), 96–106. https://doi.org/10.23917/bkkndik.v5i1.22889

Widana, I. W., Sopandi, A. T., Suwardika, I. G. (2021). Development of an authentic assessment model in mathematics learning: A science, technology, engineering, and mathematics (STEM) approach. *Indonesian Research Journal in Education, 5*(1), 192-209. https://doi.org/10.22437/irje.v5i1.12992

Widana, I. W., Sumandya, I. W., Citrawan, I. W. (2023). The special education teachers' ability to develop an integrated learning evaluation of Pancasila student profiles based on local wisdom for special needs students in Indonesia. *Kasetsart Journal of Social Sciences, 44*(2), 527–536. https://doi.org/10.34044/j.kjss.2023.44.2.23

Wirya, D. Y., Purwoko, B., Mariana, N., Khamidi, A., Nursalim, M., Widiyanah, I., & Amalia, K. (2024). POAC-based management in multigrade learning at Sanggar Bimbingan, Malaysia. *Journal of Education Research*, *5*(4), 6227–6233. https://doi.org/10.37985/jer.v5i4.1975

Yilmaz, S., Kesgİn, E., & Caniberk, Ş. (2024). Evaluation of primary reading teaching in multigrade classes according to teachers ' views. *International Journal of Scholars in Education*, *4*(1), 1–13. https://doi.org/10.48550/arXiv.2404.10760

Zhang, J., Wang, C., Li, X., & Tian, G. (2024). Learning feature inversion for multi-class anomaly detection under general-purpose COCO-AD benchmark. *UEADER*, *4*(1), 1–23. https://doi.org/10.48550/arXiv.2404.10760