

Bridging teacher talk time and multiple intelligences for deep learning

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ABSTRACT

This study investigates the systemic tension between the dominance of teacher talk time (TTT) and the urgent need for deep learning strategies tailored to students' multiple intelligences (MI) within the context of teaching English to young learners (TEYL). Adopting a descriptive mixed-methods design with a concurrent triangulation strategy, this research was conducted across a representative developing region in Central Java, Indonesia, involving a stratified sample of 450 upper-primary students and 45 English teachers. Data were collected using the student learning profile inventory (SLPI), TTT observation trackers, and semi-structured interviews. The findings reveal a critical pedagogical dissonance: while 72% of students exhibit a clear dominance in bodily-kinesthetic and visual-spatial intelligences profiles that biologically necessitate active, multimodal engagement classroom interactions remain heavily monopolized by teachers, who occupy 75% of lesson duration with verbal instruction. This excessive TTT acts as a significant constraint to the implementation of differentiated instruction (DI), effectively trapping students in surface-level rote memorization and inhibiting the development of communicative competence. The study concludes that the successful implementation of student-centered curricula requires a fundamental deconstruction of the traditional "teacher-as-broadcaster" model. Reducing TTT is identified not merely as a classroom management technique, but as a prerequisite for creating the temporal and cognitive space necessary for MI-based differentiation and deep learning.

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1. INTRODUCTION

In the contemporary landscape of teaching English to young learners (TEYL), the pedagogical horizon has shifted fundamentally from surface-level memorization toward deep learning [1], [2]. This paradigm shift is a change in instructional technique and a fundamental re-evaluation of what constitutes learning in the 21st century. Deep learning in language education transcends the mere accumulation of lexical

items and grammatical rules; it emphasizes the learner's ability to construct meaning, think critically, and apply language in authentic, novel communicative contexts [3]. Unlike surface learning, which is characterized by the replication of content for standardized testing and often results in volatile, short-term retention, deep learning involves the critical analysis of new ideas and the integration of these ideas into existing cognitive structures [4]. For young learners, whose cognitive development is rapid and neuroplastically malleable, achieving deep learning is crucial to prevent the fossilization of passive learning habits. Without this depth, students may know the language rules (declarative knowledge) but fail to use them meaningfully in real-world interaction (procedural knowledge) [5].

However, the transition from theory to practice in English as a foreign language (EFL) contexts is fraught with systemic challenges. Recent empirical studies in Asian and Global South educational landscapes emphasize that while critical thinking and deep learning are significant predictors of future academic success [6], these dimensions are systematically neglected in traditional classrooms that prioritize rote memorization and standardized test preparation [7]. This pedagogical inertia creates a profound cognitive dissonance where the stated goals of the curriculum often ambitious, student-centered, and communicative clash with the rigid, teacher-dominated reality of daily classroom practice. Teachers often find themselves trapped between the progressive demands of modern curricula and the conservative realities of high stakes testing and large class sizes [8].

The primary obstruction to this student-centered paradigm is frequently a deeply rooted pedagogical habit: the dominance of teacher talk time (TTT) [9]. TTT refers to the proportion of lesson time devoted to teacher speech compared to student talk time (STT) [10]. While a certain degree of teacher input is necessary for scaffolding and instruction, particularly in the early stages of language acquisition, excessive TTT is inversely correlated with student engagement, autonomy, and language acquisition. In TEYL contexts, where young learners require active, multisensory involvement to process linguistic input [11], high TTT acts as a cognitive bottleneck. It reduces the learner to a passive recipient of information, denying them the agency required to experiment with language.

Ideally, in communicative classrooms, TTT should be minimized to 30-40% to maximize student practice and interaction. However, in many developing contexts, TTT routinely exceeds 70-80% [12]. This dominance serves not as a pedagogical tool for knowledge transmission, but rather as a mechanism for classroom management and social control in large, overcrowded classes. When teachers monopolize the discourse, they inadvertently stifle the negotiation of meaning that is essential for second language acquisition (SLA). From a cognitive load perspective, continuous teacher speech overwhelms the working memory of young learners, leading to cognitive fatigue and disengagement.

To dismantle this monolithic instructional model, educators must turn to frameworks that acknowledge learner diversity. Gardner's theory of multiple intelligences (MI) challenges the traditional, monolithic intelligence quotient or IQ-centric view of intelligence, which has long dominated educational assessment. Gardner posits that intelligence is a pluralistic construct, comprising distinct modalities such as linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalist [13]. In the context of TEYL, MI theory provides a robust framework for understanding why traditional methods fail. Moreover, an argument stated that traditional EFL classrooms are heavily biased towards verbal-linguistic and logical-mathematical intelligences, thereby marginalizing students who possess dominant strengths in other areas, particularly bodily-kinesthetic and visual-spatial domains [14]. For these students, language acquisition is not purely a mental exercise but an embodied process that requires physical movement, spatial manipulation, and visual contextualization [15].

If MI theory provides the map of student diversity, differentiated instruction (DI) provides the vehicle to navigate it. DI defined as a proactive approach to teaching where educators modify content, process, and product in response to student readiness, interest, and learning profile [16], [17]. Unlike individualized instruction, which assumes a distinct plan for every student (an operationally challenging in large classes), DI focuses on responsive teaching through flexible grouping and tiered activities. Theoretically, the synergy of MI and DI represents the golden standard for inclusive education [18]. By aligning instructional methods with students' MI profiles, teachers can lower the affective filter and increase the comprehensibility of input, thereby fostering deep learning [19].

This tension is particularly poignant in Indonesia, which serves as a compelling case study for emerging economies currently undergoing massive educational transformation. Under the *Merdeka Belajar* (emancipated learning) policy, the national curriculum explicitly mandates a shift towards student-centered learning and requires teachers to perform diagnostic assessments [20]. Ideally, this policy provides the fertile ground for implementing DI based on MI. However, early evaluations suggest a significant gap between policy rhetoric and grassroots reality. While teachers are administratively required to design differentiated modules, many lack the pedagogical repertoire to manage diverse needs in real-time interaction [21]. Consequently, differentiation often remains a bureaucratic artifact found in lesson plans, while actual classroom interaction reverts to the safety of high-TTT lecturing [22].

This study empirically maps the pedagogical gap in Central Java, Indonesia—a microcosm of developing education systems facing urban-rural disparities and large class sizes. It aims to identify the dominant MI profiles of young EFL learners, quantify TTT ratios in upper-primary classrooms, and analyze the barriers hindering instructional alignment with student profiles. The study’s significance is threefold: it provides an empirical mapping of the MI-discourse mismatch in TEYL, redefines TTT as a quantifiable structural constraint on DI, and offers evidence-based implications for implementing student-centered curricula like *Merdeka Belajar*.

2. METHOD

This study employed a descriptive mixed-methods design utilizing a concurrent triangulation strategy [23]. This methodological choice was predicated on the need to capture both the breadth of the phenomenon (through quantitative surveys) [24] and the depth of the pedagogical dynamics (through qualitative observations and interviews). The rationale for mixing methods [25] lies in the complexity of classroom interaction; quantitative data alone could reveal that TTT is high, but not why it persists despite policy mandates to the contrary. The qualitative data complement quantitative findings to ensure a robust, “thick description” of pedagogical reality, overcoming the lack of generalizability inherent in purely qualitative work. This study was conducted in a representative region of Central Java, Indonesia, covering five strategic districts. By including both well-resourced semi-urban centers and resource-limited rural areas, the research reflects the broader reality of the Global South rather than elite urban contexts. A multi-stage random sampling technique ensured representativeness. However, because the study is limited to one region, findings should be interpreted contextually rather than generalized nationally. The complete multi-stage sampling strategy and participant distribution are elucidated in Table 1.

Table 1. Multi-stage sampling strategy and participant distribution

Sampling stage	Strategy/criteria	Sample size and composition
Stratification	The population was stratified by district to ensure comprehensive geographic coverage of the region.	5 strategic districts
Clustering	Schools were clustered based on accreditation status (A and B) to capture a representative range of school qualities.	10 selected schools
Quantitative selection	Random sampling was employed. The student sample was balanced for gender (48% male, 52% female) to control for gender-based differences in learning styles.	450 students (grades 4-6) 45 English teachers
Qualitative sub-sample	Purposive sampling was used to select participants representing both high and low experience levels for in-depth interviews and focus group discussions (FGD).	8 teachers (interviews) 24 students (FGD)

Four distinct instruments were developed and rigorously validated to ensure the robustness of the data collection process. First, the student learning profile inventory (SLPI), adapted from Corraya *et al.* [26], was utilized to map students’ MI profiles. Given the age of the respondents, items were simplified and accompanied by pictograms to reduce cognitive load and ensure comprehension; for instance, the bodily-kinesthetic item “I enjoy physical activities” was paired with an icon of a child playing sports. Reliability analysis demonstrated strong internal consistency, yielding Cronbach’s alpha coefficients of 0.82 for kinesthetic, 0.79 for visual, and 0.75 for linguistic domains. Second, the TTT tracker protocol, based on the Flanders interaction analysis categories (FIAC) [27], employed a time-interval sampling method [28]. Researchers recorded the dominant speaker (teacher, student, or silence) every 30 seconds over a 60-minute lesson period, allowing for a granular quantitative calculation of instructional dominance. This protocol achieved a high inter-rater dependability with a Cohen’s Kappa agreement score of 0.88. Third, the teacher readiness and perception survey (TRPS) assessed teachers’ beliefs about DI, their theoretical knowledge, and their self-perceived competence in implementing it using a 5-point Likert scale. Finally, a semi-structured interview guide was employed to explore the structural constraints of teaching, probing critical issues such as curriculum density, administrative workload, and classroom management challenges.

Data analysis followed a rigorous concurrent triangulation strategy [29] to integrate the findings, as visually summarized in Figure 1. The analysis proceeded in three synchronized phases. First, quantitative survey data were analyzed using SPSS 26.0 to generate descriptive statistics, including mean, frequency, and standard deviation. A critical component of this phase was the calculation of the TTT ratio using the formula: $(Total\ Minutes\ of\ Teacher\ Talk / Total\ Lesson\ Duration) \times 100\%$. A TTT exceeding 70% was categorized as high dominance in accordance with Nunan’s criteria [30]. Simultaneously, qualitative data from interviews and FGDs underwent thematic analysis following the six-phase framework by

Campbell *et al.* [31] such as familiarization, coding, generating themes, reviewing themes, defining themes, and reporting. Finally, during the interpretation phase, the quantitative results and qualitative findings were merged. This triangulation aimed to identify convergences and divergences, specifically to elucidate the structural barriers and the knowing-doing gap where teacher beliefs contradicted their classroom practices.

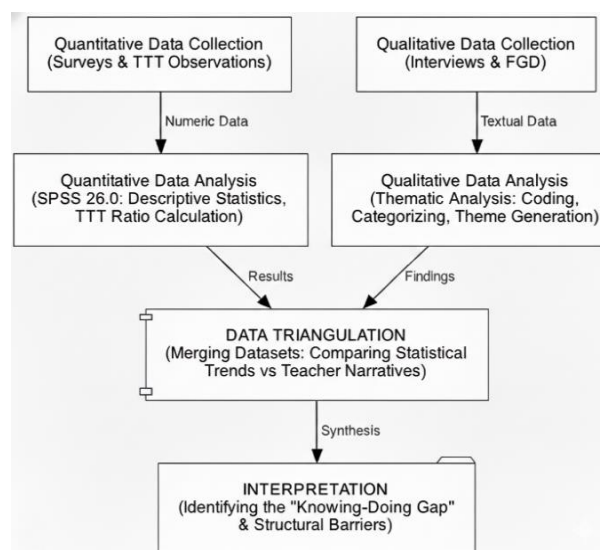


Figure 1. The concurrent triangulation data analysis framework

3. RESULTS AND DISCUSSION

3.1. Student cognitive profiles: the dominance of the non-verbal

The SLPI analysis reveals a significant “biological mismatch” between traditional EFL instruction and student cognitive profiles. While conventional schooling relies heavily on verbal-linguistic skills (the least prevalent at 4.0%), the student population is overwhelmingly dominated by bodily-kinesthetic (42.0%) and visual-spatial (30.0%) intelligences. Qualitative feedback from students confirms this gap, as many report feeling restless and unfocused during long lectures, expressing a clear preference for active, movement-based learning over passive listening. One student remarked “*Sometimes it is hard to stay focused when we just sit and listen for a long time. My legs want to move, and I feel sleepy. I like it better when the teacher asks us to play a game...*” This qualitative account underscores the biological mismatch occurring in the classroom.

In Figure 2, the distribution provides strong empirical evidence that the current lecture-based paradigm is biologically incompatible with 72% of the student population (kinesthetic and visual). The dominance of kinesthetic and visual profiles aligns with the characteristics of Gen Alpha, a cohort raised in a hyper-visual, interactive digital environment. This generation prefers interactive and engaging learning methods, such as gamification and game-based learning, which cater to their kinesthetic and visual learning styles [32], [33]. From the perspective of embodied cognition, these students cannot effectively process language as abstract symbols detached from physical reality; they need to physically experience the language through movement and visualization.

When a kinesthetic learner is forced to sit still for 45 minutes of listening (high TTT), their cognitive resources are diverted. Instead of processing the language input, their brain is preoccupied with inhibiting the urge to move [34]. This inhibition consumes executive function resources, leading to cognitive fatigue and disengagement. Consequently, what teachers perceive as laziness or disruption is often a biological mismatch between the instructional mode and the learner’s neural processing needs [35]. This leads to the phenomenon of surface learning: the student mimics the teacher or memorizes answers to avoid punishment but fails to internalize the linguistic structures or develop genuine communicative competence.

Furthermore, the data on student preferences underscores a desire for agency. As visualized in Figure 3, students rated need for product choice ($M=3.82$) and orientation to meaning ($M=3.75$) significantly higher than engagement with rote learning ($M=1.90$). This stark contrast validates the hypothesis that young learners in developing contexts are seeking autonomy and relevance just as much as their counterparts in developed nations. They are cognitively ready for deep learning tasks—projects, role-plays, creations [36], [37]—but are constrained by an instructional environment that underestimates their capacity for self-directed activity.

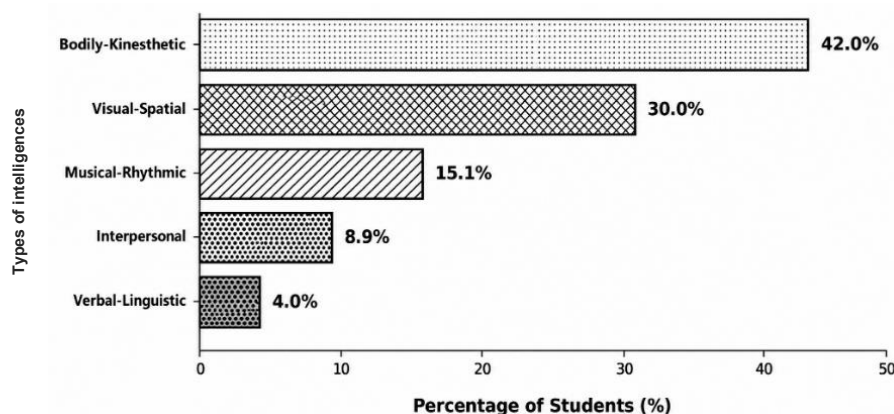


Figure 2. Dominant MI profiles

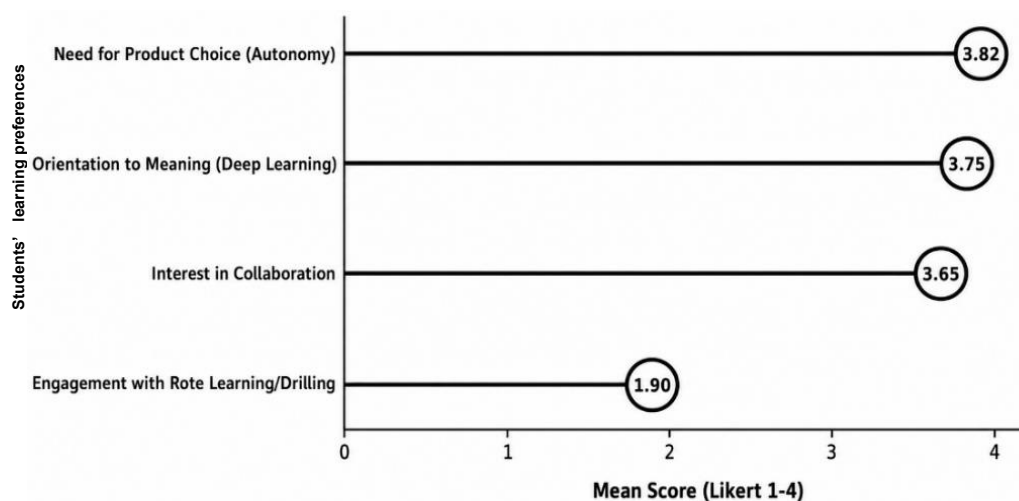


Figure 3. Student preferences: deep learning vs rote learning

3.2. Quantifying the pedagogical blockade: the TTT ratio

If the student profile suggests a need for active engagement, the classroom observation data reveals an opposed reality. Figure 4 shows that the TTT tracker protocol uncovered a classroom environment overwhelmingly dominated by the teacher's voice. The average TTT was 75% of the total lesson duration, while STT accounted for only 15%, with the remaining 10% characterized by silence or administrative confusion.

To put this into perspective, in a standard 60-minute lesson, teachers spoke for 45 minutes, leaving only 9 minutes for the entire class of 30-40 students to speak. Statistically, this results in an average of less than 20 seconds of speaking time per student per lesson. This finding is critical because it quantifies the structural imitation for communicative language practice in communicative language teaching. It is structurally impossible for students to develop fluency when their practice time is negligible. This TTT ratio acts as a significant constraint to deep learning. Deep learning requires temporal space—time to think, formulate hypotheses, test language, make errors, receive feedback, and try again [38]. High TTT obliterates this space. By occupying 75% of the acoustic channel, the teacher enforces a monologic culture where knowledge is transmitted unidirectionally rather than co-constructed. The 75% TTT ratio is further elucidated by teacher interviews, which reveal that lecturing serves as a survival mechanism. As one participant noted: *"To be honest, if I stop talking or giving direct instructions, the class tends to become uncontrollable... I feel safer because I can suppress the noise and student chaos."* Consequently, high TTT is often a defensive tool for classroom management in large-scale Indonesian contexts. In such an environment, DI becomes an operationally challenging [39]. DI relies on students working autonomously or in small groups (high STT) while the teacher circulates to facilitate [40]. In a high TTT class, all students are locked into the same pace—the teacher's pace. The fast learners become bored waiting for the teacher's explanation to end, while

the slow learners are left behind. The rigidity of the lecture format precludes the flexibility required for differentiation.

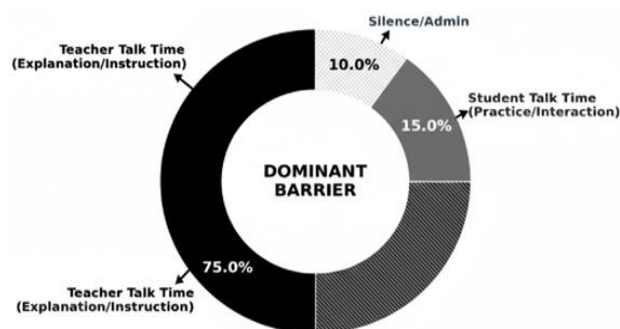


Figure 4. The instructional ratio

3.3. The knowing-doing gap: structural determinism in teacher practice

The survey results, as shown in Figure 5, highlighted a profound discrepancy between theory and practice, often referred to as the knowing-doing gap. While teacher knowledge ($M=4.20$) and belief ($M=4.45$) regarding DI were high, actual implementation was low ($M=2.30$). This -2.30-point gap indicates that the barrier is not conceptual; teachers are not ignorant of modern pedagogical theories. They know what they should do, but they feel they cannot do it.

The qualitative data, analyzed through the lens of structural functionalism, reveals that teachers are constrained by a rigid system. The three primary barriers emerged: i) curriculum density forces teachers to prioritize syllabus coverage over depth; ii) large class sizes make lecturing a necessary tool for social control to prevent chaos; and iii) a strong assessment washback effect compels teachers to “teach to the test” focusing on rote memory. Collectively, these factors trap educators in a “broadcast” model, making student-centered differentiation difficult to implement. There is no incentive to reduce TTT or foster communicative competence if the high-stakes assessment does not measure it [41]. Consequently, the assessment system effectively punishes teachers who innovate by diverting time away from test preparation. Furthermore, the transition to DI faces cultural and psychological barriers. In the Indonesian context, the traditional teacher-as-broadcaster model is deeply rooted. Teachers expressed that the immense preparation required for DI, combined with high curriculum density, poses a significant risk of occupational burnout. Without systemic support, the psychological toll of these demands often forces teachers to revert to the safety of teacher-centered lectures.

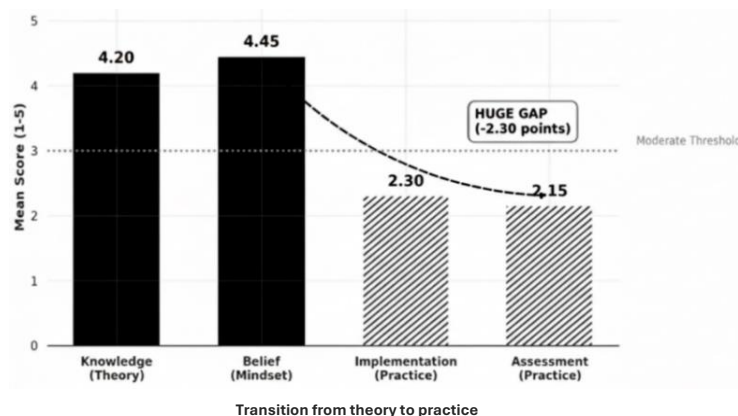


Figure 5. The implementation gap

3.4. The psychological toll: anxiety and silence

High TTT also extracts a significant psychological cost on the learners. The classroom observation noted a high level of learner passivity and reticence. In the interviews, students expressed anxiety about

speaking because they rarely had the chance to practice in a low-stakes environment. High TTT elevates the affective filter described by Krashen. When the teacher is the sole valid speaker and authority, any student contribution becomes a performance judged by the expert. This increases performance anxiety, especially for young learners. Conversely, low TTT environments, where students talk to peers (e.g., think-pair-share), lower this anxiety and promote the willingness to communicate (WTC). The lack of peer-to-peer interaction in high TTT classrooms deprives students of the social scaffolding necessary to build confidence [42].

4. CONCLUSION

This study concludes that the limitations in achieving deep learning in the representative Indonesian EFL context is not a failure of student potential but a failure of pedagogical delivery. The students possess a rich diversity of kinesthetic and visual intelligences that are systematically suppressed by a rigid, high-TTT instructional model. The findings confirm that the primary barrier to implementing DI is not a lack of teacher knowledge teachers are theoretically well-versed in MI but rather a pedagogical habit of over-instruction driven by structural constraints. The knowing-doing gap reveals that while the spirit of the *Merdeka Belajar* curriculum is understood, the ecosystem (class size, curriculum load, and assessment culture) prevents its enactment. Reducing TTT is identified not as a trivial stylistic preference, but as the fundamental prerequisite for equity and deep learning. Without reducing TTT, DI remains an operationally challenging. Future research should focus on longitudinal studies to observe the long-term impact of TTT reduction interventions on student proficiency. For policymakers, the message is clear that curriculum reform must be accompanied by structural support. Reducing curriculum density and aligning assessment with communicative goals are essential steps to create the temporal space necessary for deep, differentiated learning. Only by deconstructing the teacher-as-broadcaster model can we unlock the diverse potential of young learners in the Global South.

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AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

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Margana	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
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C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

INFORMED CONSENT

Informed consent was obtained from all subjects (teachers and students) involved in this study.

ETHICAL APPROVAL

The research related to human use has been complied with all the relevant national regulations and has been approved by the institutional review board of Universitas Negeri Yogyakarta.

DATA AVAILABILITY

The data availability statement is a valuable link between a paper's results and the supporting evidence. The data that support the findings of this study are available on request from the corresponding author, [PM], due to privacy/ethical restrictions regarding the young learners involved.

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