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Beyond Single Exposure: Recycled Input and Vocabulary Mastery in Young EFL Learners

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ABSTRACT

Vocabulary mastery constitutes a foundational pillar in English language learning for young learners at Islamic elementary schools (Madrasah Ibtidaiyah/MI). However, linear and non-repetitive vocabulary instruction frequently constrains learners from achieving adequate vocabulary mastery. This study investigates the effectiveness of the Recycled Input Technique (RIT) operationalized through four sequential stages exposure, retrieval, recycling, and consolidation on the vocabulary mastery of Grade IV students at MI DDI Ujung Lare Parepare. Employing a pre-experimental design with a one-group pretest–posttest model, this study selected 25 students with complete paired data from a total enrolment of 28 fourth-grade students through simple random sampling. The target vocabulary comprised 20 items from the Daily Activities unit of the My Next Words Grade 4 textbook. The assessment instrument consisted of a 20-item vocabulary test covering multiple-choice, word-matching, and sentence-completion tasks. Data were analyzed using descriptive statistics and a paired-samples t-test. The analysis revealed a mean score improvement from 73.80 in the pretest to 93.20 in the posttest, a gain of 19.40 points, with $t(24) = 7.41$, $p < .001$, and a large practical effect (Cohen's $d = 1.48$). The proportion of students achieving the 'Excellent' category rose from 8% to 80%, while the 'Poor' category was completely eliminated, decreasing from 20% to 0%. These findings substantiate that systematically designed recycled input significantly enhances vocabulary mastery in EFL contexts at the Islamic primary school level, with particularly pronounced gains observed among initially low-performing learners.

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1. Introduction

Vocabulary acquisition occupies a central position in second language development because it directly conditions learners' ability to comprehend and produce language across all four skills (Nation, 2022; Rashid et al., 2022; Schmitt & Schmitt, 2020; Yaumi et al., 2023). This truism acquires heightened urgency in the context of English as a Foreign Language (EFL) instruction at the primary school level in Indonesia, where learners encounter English almost exclusively within institutional boundaries and lack the naturalistic exposure available to learners in English-medium environments (Astutik & Munir, 2022; Rahman et al.,2019; Adinda et al., 2025). In this restricted input context, the quality and organization of classroom instruction become decisive factors in determining vocabulary growth (Webb et al., 2020; Suma et al., 2026; Weda et al., 2021).

At Madrasah Ibtidaiyah (MI) the Islamic elementary school English is taught as a compulsory subject from Grade IV onward. The pedagogical context for young learners aged 9–10 years requires careful consideration of developmental and motivational factors that differ markedly from those of older learners (Cameron, 2020; Pinter, 2021; Yaumi et al., 2024; Andini et al., 2026). Research in the Indonesian EFL setting has consistently demonstrated that vocabulary knowledge is a persistent challenge for MI students, whose exposure to English outside the classroom is minimal (Rahmat & Coxhead, 2021; Sukyadi & Mardiani, 2023; Zuhairi & Mistar, 2023). A recurring problem identified in MI classroom observation is the adoption of what may be termed a 'teach-and-move-on' approach: vocabulary items are introduced in a single lesson and seldom revisited in subsequent sessions. This practice is inconsistent with a substantial body of evidence in the vocabulary acquisition literature, which demonstrates that multiple, distributed encounters with a target word are necessary for its consolidation in long-term memory (Uchihara et al., 2019; Webb et al., 2020).

The concept of recycled input addresses this gap directly. In its pedagogical formulation, recycled input refers to the intentional re-presentation of previously introduced vocabulary through varied activities, modalities, and communicative contexts across multiple lessons (Hamdane & Hamdane, 2024). This strategy draws on the theoretical frameworks of spaced repetition (Serrano & Huang, 2021) and the spacing effect (Housen & Simoens, 2021), both of which predict superior retention when learning events are distributed over time rather than massed. The multimodal dimension of recycled input whereby vocabulary is recycled through listening, reading, speaking, and writing activities additionally aligns with evidence that mode of input influences the depth of form meaning connection established for new words (Uchihara et al., 2022a).

Despite the theoretical robustness of these constructs, empirical studies specifically examining recycled input as a classroom-level technique for young EFL learners in Islamic elementary school contexts in Indonesia remain scarce. Existing Indonesian EFL studies have examined vocabulary learning through card-based games (Armelia, 2021; Tiara et al., 2024), domino vocabulary cards (Dwijayanti et al., 2025), songs (Kusuma & Rahayu, 2022; Zurriatun et al., 2024), word games (Maulana et al., 2020), multisensory methods (Adzillina & Hasanah, 2021), digital tools and mobile applications (Klimova & Polakova, 2022; Zou et al., 2022), structured verbal methods such as the verbal quiz (Aprialiana et al., 2025), and contextualized vocabulary instruction in primary settings (Susanto & Wijaya, 2024). However, these studies have not systematically operationalized the principle of repeated, structured input recycling across stages. This represents a clear gap in the applied linguistics literature relevant to Indonesian MI education.

The present study therefore seeks to address this gap by examining the following research question: Does the Recycled Input Technique significantly improve the vocabulary mastery of Grade IV students at MI DDI Ujung Lare Parepare? The novelty of this study lies in its systematic application of recycled input principles specifically spaced repetition and multimodal recycling to a specific MI classroom context, and in its use of a multi-component vocabulary test that assesses receptive recognition (multiple-choice), form–meaning matching, and productive completion simultaneously, thereby capturing a more nuanced picture of vocabulary mastery than studies relying on a single test format. In line with the quantitative design, two hypotheses are formulated: H_0 (null hypothesis): there is no significant improvement in students' vocabulary mastery after the implementation of the Recycled Input Technique; H_1 (alternative hypothesis): there is a significant improvement in students' vocabulary mastery after the implementation of the Recycled Input Technique.

1.1 Theoretical Framework

The present study is anchored in four complementary constructs from the cognitive psychology of learning and second language vocabulary acquisition, which together constitute its theoretical framework and motivate the design of the Recycled Input Technique (RIT). The first is the spacing effect and its pedagogical realization as spaced repetition (Housen & Simoens, 2021; Serrano & Huang, 2021), which holds that learning events distributed across time yield more durable retention than equivalent practice massed within a single session. The second is the retrieval practice, or testing, effect (Rassaei, 2022), whereby recalling a form meaning pair from memory strengthens the memory trace more effectively than repeated passive exposure. The third is dual coding theory (Fakhr et al., 2021), which predicts deeper initial encoding when a word's verbal form is paired with a visual referent. The fourth combines the multimodal input hypothesis with the levels-of-processing account of elaboration (Ramezanali et al., 2021; Uchihara et al., 2022a; Yanagisawa et al., 2020), holding that encountering a word across several modalities and at progressively deeper levels of cognitive engagement consolidates the form meaning connection and supports the transition from receptive recognition to productive use.

These constructs are not invoked in isolation; they are operationalized, in sequence, through the four stages of the RIT. Spaced repetition governs the distribution of the same target items across four separate meetings; dual coding shapes the Exposure stage, in which visual and verbal information are presented together; retrieval practice defines the Retrieval stage; and multimodal recycling together with elaborative processing structure the Recycling and Consolidation stages. The framework therefore yields three testable expectations that organize the interpretation of the findings: distributed, retrieval-based, multimodal recycling should (a) produce a statistically and practically significant gain in overall vocabulary mastery; (b) generate disproportionately large gains on productive measures, which demand the deepest processing; and (c) benefit initially low-performing learners most, because repeated spaced encounters supply the additional consolidation opportunities such learners require. The Discussion returns to each expectation in turn.

2. Methodology

2.1 Research Design

This study employed a pre-experimental design with a one-group pretest–posttest model (Aprialiana et al., 2025; Creswell & Creswell, 2022; Dwijayanti et al., 2025). This design is appropriate when the primary research goal is to document the trajectory of change following a targeted instructional intervention within a natural classroom setting, rather than to establish causal superiority over a control condition (Maulana et al., 2020). In this design, the same group of students serves as both the experimental unit and the reference point for measuring change: the pretest documents baseline vocabulary mastery, the treatment is implemented across four instructional meetings, and the posttest measures vocabulary mastery following the intervention.

2.2 Participants

The population of this study comprised 57 Grade IV students drawn from two parallel classes at MI DDI Ujung Lare Parepare, South Sulawesi, Indonesia. Using a simple random sampling technique, one class was selected as the research sample, ensuring that each class had an equal probability of selection. A total of 28 students were enrolled in the selected class during the intervention period; however, only 25 students had complete pretest and posttest data and were therefore included in the paired-samples statistical analysis. The three students with only posttest data joined the class after the pretest administration and were excluded from the inferential analysis to preserve methodological integrity. The final analytical sample consisted of 25 students aged 9–10 years. All students had been learning English for two academic years prior to the study and shared comparable sociolinguistic backgrounds, with Indonesian and the local regional language (Bugis) as their first languages and no significant exposure to English outside the school setting. Participation was voluntary, and informed consent was obtained from the students' parents or guardians in accordance with the institutional ethical guidelines. To protect student privacy, all participants are referred to by their initials throughout the analysis.

2.3 Instrumentation

Vocabulary mastery was assessed using a researcher-developed vocabulary test comprising 20 items distributed across three subtypes: (1) Multiple-Choice (MC): 10 items assessing receptive knowledge of word meaning; (2) Word Matching: 5 items requiring students to match a target word with its correct pictorial or written definition; and (3) Sentence Completion: 5 items requiring students to produce the correct target word in a contextual sentence. Each correct response was scored 1, yielding a raw score range of 0–20, which was then converted to a percentage using the formula: Score = (Total Correct ÷ 20) × 100. Achievement categories followed the institutional rubric: Excellent (86–100), Good (71–85), Fair (56–70), and Poor (≤55). The test was validated through expert review by two university lecturers specializing in EFL vocabulary assessment prior to administration, and supporting instruments included observation checklists, student worksheets, activity pictures, and lesson plans.

2.4 Treatment: The Recycled Input Technique

The Recycled Input Technique (RIT) intervention was implemented over four instructional meetings of approximately 60 minutes each. The target vocabulary consisted of 20 words drawn from the Daily Activities unit of the *My Next Words Grade 4* textbook (pp. 77–117), including items such as *wake up, get up, brush teeth, take a bath, have breakfast, go to school, do homework, have lunch, take a nap,* and *go to bed*, among others. These items were selected on the basis of their frequency and direct relevance to students' daily communicative needs. The RIT was implemented through four sequential stages following Fauzi et al. (2022):

Stage 1: Exposure (Meeting 1). Students were introduced to the 20 Daily Activities vocabulary items through activity pictures, look-and-say activities, and pronunciation drills. Visual stimuli connected each target word to its meaning, while repeated oral production drills established initial phonological form. This stage aligns with the dual coding principle that simultaneous visual and verbal encoding produces deeper initial representation (Fakhr et al., 2021; Uchihara et al., 2022a).

Stage 2: Retrieval (Meeting 2). Students were required to recall previously learned vocabulary through mini dialogues, flashcard drills, pair work, and speaking drills. These activities demanded active retrieval of word forms and meanings from memory process that strengthens retention beyond passive re-exposure (Rassaei, 2022). The spacing of this retrieval encounter, approximately two days after initial exposure, approximates the medium inter-repetition interval identified as optimal by Serrano and Huang (2021).

Stage 3: Recycling (Meeting 3). The same vocabulary items were reused across varied communicative contexts, including reading texts with contextual glossing, vocabulary games, and picture-description activities. Re-encountering familiar words in new and meaningful contexts deepens form–meaning connections and promotes elaborative processing (Yanagisawa et al., 2020; Ramezanali et al., 2021). The vocabulary games additionally introduced an element of gamified repetition that sustained learner engagement (Alamer, 2024).

Stage 4: Consolidation (Meeting 4). Students independently produced vocabulary through guided sentence writing, short oral presentations, and a final vocabulary review. This stage operationalized the progression from receptive recognition to productive use. Independent production tasks at this stage engaged the deepest level of elaborative processing, strengthening retrieval pathways in ways that recognition-based tasks alone cannot achieve (Webb et al., 2023). Supporting instruments including observation checklists, student worksheets, activity pictures, and lesson plans were used throughout all four meetings to ensure systematic implementation.

2.5. Data Collection and Analysis

Data was collected through the administration of the vocabulary test in two phases: the pretest was administered in the session immediately preceding Meeting 1, and the posttest was administered one week following Meeting 4. All tests were administered under standardized conditions by the class teacher. Data analysis employed two complementary procedures: (1) descriptive statistics, including the mean, standard deviation, median, minimum and maximum scores, and frequency distribution by achievement category, were used to characterize the pretest and posttest performance profiles; and (2) a paired-samples t-test was conducted on the 25 students with complete paired data to determine the statistical significance of the mean difference between pretest and posttest scores (Hamdane & Hamdane, 2024). Prior to the inferential analysis, the assumption of normality of difference scores was verified to justify the use of the parametric paired-samples t-test. The level of significance was set at $\alpha = .05$; improvement was considered statistically significant when the obtained p-value was less than .05 (Dwijayanti et al., 2025).

3. Results and Discussion

This section presents the results of the data analysis followed by a theoretically grounded discussion of those results. The analytical procedures specified in the methodology section that profile students' vocabulary performance and inferential statistics that test the statistical significance of the observed improvement are presented sequentially, after which the findings are interpreted in light of the broader vocabulary acquisition literature.

3.1. Descriptive Profile of Pretest and Posttest Performance

Twenty-five students completed both the pretest and posttest, each consisting of three sections: ten multiple-choice items (MC), five matching items, and five completion items, with a total possible score of 20 points (converted to a 100-point scale for interpretive purposes). Table 1 summarizes the descriptive statistics for both testing phases.

Table 1. Descriptive Statistics of Students' Vocabulary Scores (N = 25)

Statistic	Pretest	Posttest
Mean (raw score)	14.76	18.64
Mean (%)	73.80	93.20
Standard Deviation (%)	16.97	8.02
Minimum (%)	30	70
Maximum (%)	90	100
Median (%)	80.00	95.00

Source: Primary Data (2025).

As shown in Table 1, the mean score increased substantially from 73.80% (*SD* = 16.97) at the pretest to 93.20% (*SD* = 8.02) at the posttest, representing a mean gain of 19.40 percentage points. The median similarly shifted upward from 80.00% to 95.00%, indicating that the improvement reflected a broad upward movement across the cohort. Particularly noteworthy is the dramatic compression of the standard deviation from 16.97 at the pretest to 8.02 at the posttest, indicating that the intervention not only raised the group mean but also produced more uniform performance

across learners of varying initial ability levels. The minimum score rose from 30% to 70%, demonstrating that even the lowest-performing learners experienced substantial gains and that no student remained below the institutional passing threshold after the intervention.

3.2. Distribution of Achievement Categories

To provide a more nuanced picture of how the intervention affected learners across performance levels, students' scores were classified into four achievement categories. Table 2 displays the frequency distribution at both testing phases.

Table 2. Frequency Distribution of Students by Achievement Category

Category	Pretest (n)	Pretest (%)	Posttest (n)	Posttest (%)
Excellent (86–100)	2	8.0	20	80.0
Good (71–85)	15	60.0	4	16.0
Fair (56–70)	3	12.0	1	4.0
Poor (≤55)	5	20.0	0	0.0
Total	**25**	**100.0**	**25**	**100.0**

Source: Primary Data (2025).

The category distribution reveals a substantial redistribution of learners toward higher achievement levels following the intervention. The Excellent category expanded markedly from 2 students (8.0%) at the pretest to 20 students (80.0%) at the posttest an increase of 72 percentage points. Conversely, the Good category contracted from 15 students (60.0%) to 4 students (16.0%), reflecting that the majority of previously 'Good' learners had moved upward into the 'Excellent' range. Most strikingly, the Poor category initially comprising 5 students (20.0%) at the pretest was completely eliminated at the posttest, indicating that the Recycled Input Technique was effective in raising the performance of all initially low-performing students above the institutional passing threshold. Only one student (4.0%) remained in the Fair category at the post-test.

3.3. Inferential Analysis: Paired-Samples t-Test

To determine whether the observed improvement was statistically significant, a paired-samples t-test was conducted comparing pretest and posttest scores. The results are summarized in Table 3.

Table 3. Paired-Samples t-Test Results

Pair	Mean Diff.	SD Diff.	95% CI	*t*	*df*	*p*
Posttest – Pretest	19.40	13.10	[13.99, 24.81]	7.41	24	< .001

Source: Primary Data (2025). Note: α = .05; H_o rejected (p < α).

The analysis revealed a statistically significant mean difference of 19.40 percentage points between the pretest and posttest scores, $t(24) = 7.41$, $p < .001$, with a 95% confidence interval ranging from 13.99 to 24.81. Because the obtained p-value is well below the predetermined significance threshold of α = .05, the null hypothesis stating that there is no significant difference between students' vocabulary performance before and after the RIT intervention is rejected. The accompanying effect size (Cohen's $d = 1.48$) indicates a large practical effect, suggesting that the improvement is both statistically reliable and substantively meaningful in pedagogical terms. According to Plonsky and Oswald's (2024) field-specific benchmarks for L2 research, effect sizes of $d \geq 1.00$ are considered large and reflect pedagogically consequential changes in learner outcomes.

3.4. Discussion

The findings are interpreted here against the three expectations derived from the study's theoretical framework, so that each empirical result is read through the construct that predicts it. The significant overall gain is interpreted through the spacing effect and retrieval practice; the disproportionately large productive-knowledge gain through the levels-of-processing and multimodal-input accounts; and the compression of variance, by which initially low-performing learners gained most, through the spacing-based prediction that distributed encounters preferentially benefit learners with weaker initial memory traces. The paragraphs that follow develop each of these theory–finding connections in turn.

The central finding of this study a statistically significant improvement in vocabulary mastery following the RIT intervention, with $t(24) = 7.41$, $p < .001$, and a mean gain of 19.40 points (26.3%) constitutes a practically and statistically meaningful outcome in the context of classroom-based vocabulary instruction at the MI level. This finding aligns with the conclusions of two large-scale meta-analyses: Uchihara et al. (2019) established a positive correlation between repetition frequency and vocabulary acquisition across a wide range of study designs, while Webb et al. (2020) demonstrated that intentional vocabulary learning activities produce larger and more reliable gains than incidental exposure alone. Cohen's *d* of 1.48 falls within the upper range of effect sizes typically reported in vocabulary acquisition meta-analyses (Plonsky & Oswald, 2024), confirming that the magnitude of improvement observed here is consistent with rather than anomalous to the broader empirical literature on deliberate vocabulary instruction.

The improvement in productive vocabulary knowledge documented here is particularly noteworthy because productive knowledge, the ability to use a word correctly in context is generally considered the most demanding and most slowly acquired dimension of lexical competence (Nation, 2022; Schmitt & Schmitt, 2020; Webb et al., 2023). The disaggregated subtest data show that the completion subtest produced the largest proportional improvement (mean rising from 2.72 to 4.24 out of 5, approximately 55.9%), markedly exceeding the proportional gains observed for multiple-choice (26.5%) and matching (8.0%) subtests. This pattern suggests that the multimodal recycling protocol successfully facilitated the progression from receptive to productive knowledge, a transition that is unlikely to occur through single-exposure instruction. The contextual glossing activities in Meeting 3 likely supported deeper meaning consolidation (Yanagisawa et al., 2020), while the productive completion tasks in Meeting 4 provided the retrieval practice necessary to consolidate productive access.

The compression of variance from pretest ($SD = 16.97$) to posttest ($SD = 8.02$) constitutes a particularly important and theoretically interpretable feature of the present findings. This substantial reduction in score dispersion indicates that the Recycled Input Technique was disproportionately beneficial for initially low-performing learners. Inspection of individual gain scores confirms this pattern: the five students with the largest gains (MF: +55 points, MIA: +45, NR: +40, DA: +30, AFR: +30) all began the study in the Poor or Fair categories, with pretest scores ranging from 30% to 70%. By the end of the intervention, all five had advanced into the Good or Excellent categories. This finding contributes to ongoing debate in vocabulary instruction research about whether evidence-based techniques disproportionately benefit high-performing learners (Matthew effect) or, alternatively, equalize outcomes by raising the floor of low performers. The present data support the latter interpretation, consistent with the theoretical prediction that spaced and multimodal recycling provides the multiple encounters necessary for less-confident learners to consolidate form–meaning connections (Schmitt & Schmitt, 2020; Uchihara et al., 2022a).

While these findings are encouraging, methodological transparency requires explicit engagement with several characteristics of the design that condition the interpretation of the observed effect. First, a partial ceiling effect is evident in the posttest data: 9 of the 25 students (36.0%) reached the maximum score of 100%, and 17 students (68.0%) scored 95% or above. This pattern suggests that the 20-item instrument may have been insufficiently sensitive to differentiate among high-performing learners after the intervention, and that the true upper limit of vocabulary mastery achievable through RIT cannot be precisely determined from these data. Future studies should incorporate a larger item pool and additional distractor items to mitigate this constraint. Second, the use of identical pretest and posttest items, while standard in pre-experimental classroom research, introduces a potential test-retest familiarity effect that cannot be disentangled from genuine learning gains; this is a well-known threat to internal validity in one-group pretest–posttest designs (Creswell & Creswell, 2022). Third, three additional students who joined the class during the intervention period were excluded from the paired-samples analysis to preserve methodological integrity, though their posttest scores (ranging from 70% to 85%) are consistent with the broader pattern of improvement observed in the analyzed sample. These considerations do not negate the substantive improvement observed but situate it within a more measured interpretive frame: the finding is best understood as evidence that the RIT produced consistent, classroom-relevant gains, while precise estimation of its causal magnitude awaits replication under more rigorous experimental conditions.

Although no student remained in the 'Poor' category at the posttest, individual-level analysis reveals that not all students showed equally large gains. The four students with the smallest gain scores (AAI, MKR, AK, with +5 to +10 point gains) shared a common profile: each had already scored at or above 80% on the pretest, leaving relatively little room for measurable improvement within the test's effective ceiling. These cases reflect a methodological ceiling rather than a pedagogical limitation of the technique. By contrast, the modest gain observed for one student (NR: +40 points, from 30% to 70%) is theoretically interpretable as evidence that even substantial intervention effects may be insufficient to overcome severe baseline vocabulary deficits within a four-meeting timeframe. The persistence of this learner in the Fair category at

the posttest, while still representing a 40-point absolute gain, indicates that students with very limited baseline vocabulary may require extended exposure or additional individualized scaffolding to reach the Good or Excellent performance band. These differentiated profiles underscore the importance of disaggregating vocabulary test results by initial proficiency level in instructional decision-making, rather than relying exclusively on aggregate scores, and align with Webb et al.'s (2023) emphasis on the multi-dimensional nature of vocabulary knowledge.

The findings of this study also have implications beyond the MI classroom. The recycled input framework operationalized here, spaced distribution, multimodal recycling, and progressively demanding tasks represents a pedagogically flexible approach that can be adapted to diverse vocabulary learning contexts. In Indonesia specifically, where vocabulary coverage in English textbooks has been shown to be insufficient for incidental acquisition (Rahmat & Coxhead, 2021), deliberate recycling strategies represent a pragmatic response to the structural constraints of the EFL curriculum. The present study contributes empirical evidence in support of their adoption at the primary school level, complementing existing evidence for their effectiveness at secondary and tertiary levels (Aprialiana et al., 2025; Syahrianita & Kalsum, 2025).

From the perspective of applied linguistics, this study affirms the relevance of the spacing effect (Housen & Simoens, 2021; Serrano & Huang, 2021) and the multimodal input hypothesis (Ramezanali et al., 2021; Uchihara et al., 2022a) for young EFL learners in non-Western educational contexts. The findings extend the evidence base for these constructs largely developed in laboratory or Western classroom settings into the specific ecological conditions of the Indonesian Madrasah Ibtidaiyah. They further offer a replicable classroom-level model of the explicit, structured vocabulary teaching that Zuhairi and Mistar (2023) argue is particularly important for Indonesian EFL learners. For students who do not respond adequately to whole-class recycling instruction, technology-enhanced supplements such as digital flashcards with built-in spaced repetition algorithms (Klimova & Polakova, 2022; Santoso & Dewi, 2025), self-paced e-modules (Syahrianita & Kalsum, 2025), and mobile-assisted vocabulary platforms (Zulfa et al., 2025; Zou et al., 2022) offer theoretically well-grounded and practically accessible avenues for individual scaffolding.

4. Conclusion

This study examined the effectiveness of the Recycled Input Technique on the vocabulary mastery of Grade IV students at MI DDI Ujung Lare Parepare. The results provide clear evidence that the technique produced a meaningful improvement in vocabulary mastery: the group's mean score rose from 73.80 to 93.20 a 26.3% gain and the proportion of students achieving the 'Excellent' category increased from 8% to 80% following four instructional meetings. Most notably, the Poor category was entirely eliminated, indicating that all initially low-performing learners advanced above the institutional passing threshold. The paired-samples t-test confirmed that this improvement was statistically significant, $t(24) = 7.41$, $p < .001$, with a large practical effect (Cohen's $d = 1.48$). These findings affirm the theoretical prediction that systematic, spaced, and multimodal recycling of vocabulary input accelerates lexical consolidation, including at the productive knowledge level, and that the technique disproportionately benefits initially low-performing learners.

Several pedagogical implications follow from these findings. First, English teachers at Madrasah Ibtidaiyah should be encouraged to move beyond single-exposure vocabulary instruction and to build systematic recycling cycles into their lesson planning, distributing each set of target vocabulary across at least three to four meetings that combine exposure, retrieval, recycling, and consolidation. Second, vocabulary tests at the MI level should be designed to assess both receptive and productive knowledge simultaneously, as the present study demonstrates that single-format tests may underestimate or overestimate the full profile of vocabulary development. Third, given the disproportionate benefit observed for initially low-performing learners, the Recycled Input Technique merits consideration as a particularly suitable intervention for inclusive classrooms in which students arrive with heterogeneous vocabulary baselines. For students who continue to show limited responsiveness to classroom-based recycling, supplementary resources including digital applications with spaced-repetition algorithms, self-paced e-modules, and mobile-assisted vocabulary platforms merit consideration as complementary tools that support individual learning trajectories.

This study acknowledges several limitations that future research should address. The pre-experimental single-group design and the use of identical pretest and posttest items mean that the observed effect, while substantial, cannot be fully isolated from test-retest familiarity and ceiling-related measurement constraints; future studies should employ parallel-form

tests, expanded item pools, and quasi-experimental designs with matched comparison groups to estimate the causal contribution of the technique more precisely. The four-meeting treatment duration, though sufficient to produce observable change, represents a minimal implementation of recycled input principles; longitudinal studies examining whether vocabulary gains are maintained over intervals of months or semesters would be particularly valuable. Furthermore, qualitative investigation of students' perceptions of recycled input activities and of the specific features they find engaging or challenging would contribute to a more complete understanding of how this technique can be optimally implemented in the MI classroom. In sum, the systematic recycling of vocabulary input rather than its mere repetition appears to offer a pedagogically robust path forward for vocabulary instruction in under-resourced EFL classrooms across Indonesia and beyond.

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