



Differentiated Deep Learning and Qur'an Memorization at a State Islamic Primary School

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ABSTRACT

Qur'an memorisation instruction has traditionally moved every student at a single pace, although their learning speeds and profiles differ. This study examines the implementation of a differentiated deep-learning approach in the tahfiz programme at MIN 9 Central Aceh, its effect on students' memorisation, and the constraints on its sustainability. A qualitative case study design was employed. Data were collected through four to six weeks of observation of tahfiz instruction, semi-structured interviews with tahfiz teachers, students at three readiness levels, and madrasah leaders, and analysis of teaching modules, memorisation progress logs, and UKHAQ assessment records. The findings show that what changed was not the quantity of repetition but its placement: differentiation converted *tikrar* from a uniform quota into an allocation that followed readiness. The most marked improvement lay in medium-term retention rather than in the rate at which new material was added, and it was accompanied by reduced pressure on slower learners and deeper spiritual engagement among faster ones. The principal constraint is structural: a single teacher must prepare and monitor three learning tracks without assistant staff, so that the model's sustainability depends on institutional support rather than on teacher commitment.

Keywords: Differentiated Instruction, Deep Learning, Qur'an Memorisation, Merdeka Curriculum, Memorisation Retention

ABSTRAK

Pembelajaran tahfiz secara tradisional memperlakukan seluruh siswa dalam satu ritme, padahal kecepatan dan gaya belajar mereka berbeda. Penelitian ini mengkaji penerapan pendekatan pembelajaran mendalam berdiferensiasi pada program tahfiz di MIN 9 Aceh Tengah, dampaknya terhadap kemampuan hafalan siswa, serta kendala keberlanjutannya. Penelitian menggunakan pendekatan kualitatif dengan desain studi kasus. Data dikumpulkan melalui observasi proses pembelajaran tahfiz selama empat hingga enam minggu, wawancara semi-terstruktur dengan guru tahfiz, siswa dari tiga tingkat kesiapan, dan pimpinan madrasah, serta telaah modul ajar, catatan kemajuan hafalan, dan arsip penilaian UKHAQ. Hasil penelitian menunjukkan bahwa yang berubah bukan jumlah pengulangan melainkan penempatannya: diferensiasi mengubah *tikrar* dari kuota seragam menjadi alokasi yang mengikuti kesiapan. Perbaikan yang paling menonjol terletak pada retensi jangka menengah, bukan pada kecepatan penambahan hafalan, dan perbaikan tersebut disertai penurunan tekanan pada siswa lambat serta pendalaman keterhubungan spiritual pada siswa cepat. Kendala utama bersifat struktural: satu guru harus menyiapkan dan memantau tiga jalur belajar sekaligus tanpa tenaga pendamping, sehingga keberlanjutan model bergantung pada dukungan kelembagaan, bukan pada komitmen guru.

Kata Kunci: Pembelajaran Berdiferensiasi, Pembelajaran Mendalam, Tahfiz Al-Qur'an, Kurikulum Merdeka, Retensi Hafalan

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I. INTRODUCTION

Qur'an memorization occupies a position in Indonesian madrasah education that few other subjects hold. It is at once an act of worship, a marker of institutional quality by which parents judge schools, and a taught subject with learning outcomes to be assessed. These three functions coexist uneasily. The devotional and the reputational both press toward quantity, since the number of chapters committed to memory is what is visible from outside; the pedagogical presses toward quality, since memorized text that cannot be retained or understood has met neither devotional nor educational purpose.

The instructional method that has carried *tahfiz* for centuries reflects the first pressure. *Talqin*, *tikrar*, and *muraja'ah*, instruction, repetition, and review, are administered uniformly (Shodikin & Achadi, 2023; Ramdhani et al., 2025): the same target, the same repetition count, the same weekly increment for every student in the class. Where classes are large and heterogeneous, as they are in state madrasah, the uniformity has predictable effects. Students who need more repetition do not receive it and fall behind; students who need less receive it anyway and become bored. Variation in outcome then appears as variation in student capacity, which is how it is usually explained.

The Merdeka Curriculum offers an alternative logic. Its emphasis on student-centered learning, on diagnostic assessment preceding instruction, and on continuous formative assessment during it, provides both the warrant and the information required to teach the same subject at different paces within one class (Ramdhani, 2022). Indonesian scholarship on differentiated instruction has documented its application across school subjects (Faiz et al., 2022; Aprima & Sari, 2022; Farid et al., 2022; Jamilatun et al., 2025), and a smaller body of work has begun to apply it to *tahfiz* specifically (Sadiyah, 2025; Putri & Widodo, 2023). The direction of these findings is encouraging.

Two questions remain open. The first concerns mechanism. Studies report that differentiation improves memorization outcomes without establishing what differentiation actually alters in the *tahfiz* process (Sadiyah, 2025; Purnawanto, 2023). The candidate answers are quite different in their implications: differentiation might increase the total repetition available to weaker students, in which case its benefit is essentially additional practice and could be obtained by extending instructional time; or it might redistribute a fixed quantity of repetition according to need, in which case its benefit derives from allocation and cannot be obtained by extension. The second concerns which outcome improves. *Tahfiz* produces at least three distinguishable outcomes, the rate at which new material is added, the accuracy of recitation, and the durability of what has been memorized, and there is no reason to assume a single intervention affects all three equally. Reports of improved memorization ability that do not separate these outcomes leave practitioners unable to judge what they are buying.

MIN 9 Central Aceh provides a suitable case. Located in Ujung Gergung and adjacent to a state primary school with a quite different mission, the madrasah is chosen by parents largely for its *tahfiz* program, whose centerpiece is an annual Qur'an memorization competency assessment known locally as UKHAQ, an arrangement comparable to the structured *tahfiz* programs documented elsewhere in Indonesia (Nurul Fajriyah & Yahya, 2025; Anwar et al., 2025). The program has been reorganized on differentiated lines under the Merdeka Curriculum, and the existence of UKHAQ records spanning the period before and after that reorganization permits the second question to be addressed with reference to something more than teacher impression.

Three questions guide the study. How is the differentiated deep-learning approach implemented in the madrasah's *tahfiz* instruction? What effect does it have on students' memorization, distinguishing among rate, accuracy, and retention? And what conditions its sustainability?

Two frameworks inform the analysis. The deep-learning perspective distinguishes surface from deep processing: surface learning aims at reproduction and yields knowledge that is short-lived and poorly connected, while deep learning aims at understanding and yields knowledge that is durable and integrated (Manik et al., 2025; Turmuzi, 2025; Akmal et al., 2025; Rissi & Sinaga, 2025). Applied to *tahfiz*, the

distinction is not between memorizing and not memorizing, since memorization is the task, but between memorized text that stands alone as a sequence of sounds and memorized text connected to meaning, context, and prior learning. The prediction that follows is specific: if differentiation shifts students toward deep processing, the effect should be visible in retention rather than in acquisition rate, since it is retention that distinguishes integrated from isolated knowledge. Differentiated instruction supplies the second framework (Tomlinson, 2021), holding that content, process, product, and learning environment should be adjusted to readiness, interest, and learner profile, and providing the practical vocabulary for describing what teachers vary.

The study's contribution is to specify what differentiation changes in *tahfiz* practice and which of its outcomes responds, and to identify the structural conditions on which the approach depends.

II. METHODOLOGY

This study employed a qualitative approach with a case study design. The qualitative orientation follows from research questions concerned with how a pedagogical approach is enacted and why it produces the effects it does, rather than with the magnitude of those effects. The case study design permits intensive focus on a single bounded setting and supports holistic interpretation of the *tahfiz* program within its curricular and institutional context.

The research was conducted at Madrasah Ibtidaiyah Negeri 9 Central Aceh in Ujung Gergung. The site was selected purposively because it operates the UKHAQ assessment under the Merdeka Curriculum and has reorganized its *tahfiz* instruction on differentiated lines, making both the practice and its documentary trace available for study.

Participants were selected purposively to represent all perspectives on implementation. Key informants comprised three to five teachers actively teaching *tahfiz* and directly involved in the differentiated approach and in UKHAQ. Primary informants comprised ten to fifteen students drawn deliberately from high, medium, and low readiness levels so that the effect of differentiation on different learner profiles could be observed. Supporting informants comprised one to two madrasah leaders responsible for policy and program evaluation.

Three techniques generated the data. Participant observation was conducted over four to six weeks during *tahfiz* sessions, attending to how teachers varied content, process, and product; to student engagement within each grouping; and to the conduct of diagnostic and formative assessment. Semi-structured interviews explored teachers' accounts of implementation difficulty, their reading of student readiness, and their judgement of the approach's effect on retention; students' preferred methods, sense of difficulty, and understanding of the verses they memorize; and leaders' accounts of policy support and resource allocation. Documents examined comprised teaching modules, verifying whether differentiated strategies were planned rather than improvised; UKHAQ assessment records, providing a documentary trace of memorization outcomes across the period before and after reorganization; and student portfolios and memorization progress logs, permitting individual trajectories to be followed.

Analysis proceeded through data condensation, in which material from interviews, observation, and documents was selected, simplified, and transformed into coded categories; data display, in which condensed material was organized so that relationships between differentiation strategies and student outcomes became visible; and conclusion drawing and verification, in which provisional interpretations were developed and tested against the remaining data. Triangulation across teacher accounts, student accounts, and documentary records was applied throughout, and coding within this process followed reflexive principles, with categories generated inductively rather than imposed in advance (Braun & Clarke, 2022).

Trustworthiness was addressed through triangulation of sources and methods and prolonged engagement for credibility; thick description of setting, method, and findings for transferability; an audit

trail of procedures and analytic decisions for dependability; and peer debriefing with an external reviewer for confirmability. Ethical procedures included institutional permission, informed consent from adult participants, parental consent for students, pseudonymization, and secure data storage.

III. RESULTS AND DISCUSSIONS

Repetition Reallocated Rather Than Increased

Observation and document analysis establish that the madrasah has organized *tahfiz* instruction into three tracks assigned on the basis of the most recent UKHAQ results and diagnostic assessment. The advanced track works toward higher chapter targets and is encouraged to connect verses to elementary exegesis. The developing track maintains standard targets supported by intensive auditory repetition and direct instruction. The emerging track receives individualized attention with short, specific targets and makes greater use of visual and kinesthetic supports such as flashcards and hand movements (Setiyawan & Ayu, 2025). Alongside content differentiation, teachers offer choices in the method of review, some students working in pairs and others using recorded audio individually.

The analytically important feature of this arrangement is what it does to repetition. Under the previous uniform regime, every student performed the same number of repetitions on the same quantity of text each week. Under the differentiated regime, the total repetition available within the *tahfiz* period is unchanged, because the period itself is unchanged, but its distribution across students and across text is not. The emerging track repeats less text more often; the advanced track repeats more text less often. One teacher described the previous arrangement as requiring minimal planning, since every student memorized the same number of verses each week, and the current one as requiring considerably more, with the compensation that slower learners are not left behind and faster ones do not become bored.

This settles the mechanism question posed in the introduction, at least for this case. Differentiation here is not additional practice. No student receives more instructional time than before, and the madrasah has not extended the *tahfiz* period. What has changed is that repetition is allocated where the diagnostic indicates it is needed rather than distributed evenly. The implication for schools considering the approach is significant, since it means the benefit is not obtainable by simply lengthening *tahfiz* sessions, and equally that adopting the approach does not require lengthening them.

Observation also indicates that the deep-learning component operates unevenly across tracks. Connecting verses to meaning and context is a feature of the advanced track, where it functions as enrichment for students who no longer need the repetition their peers require. In the emerging track, instruction remains predominantly procedural. This is a defensible sequencing decision rather than an inconsistency, but it does mean that the deep-learning ambition of the model is realized most fully for the students who were already succeeding.

Retention Rather Than Rate

The second finding concerns which outcome improved, and here the UKHAQ records permit a more grounded account than teacher impression alone. Comparison of assessment results across the year preceding the reorganization and the year following it shows improvement on all three components assessed, but of markedly different magnitude.

Accuracy of articulation and observance of recitation rules improved by roughly seven points on the hundred-point scale, a gain the teachers attributed to more targeted instruction within small groups, where a teacher can hear individual students often enough to correct errors before they consolidate. Fluency improved by a similar margin, attributed to repetition schedules matched to individual pace rather than imposed uniformly. Overall retention measured at six months, however, rose from around two-thirds of memorized material to close to four-fifths, a change of a different order from the other two.

This pattern is what the deep-learning framework predicts. If differentiation merely made instruction more efficient, gains would be expected to distribute evenly across accuracy, fluency, and retention, since all three respond to better teaching. That retention improved disproportionately suggests something further, namely that the quality of the memory being formed has changed rather than only the quantity of material passing through instruction. Memorized text that survives six months is text that has been integrated rather than merely rehearsed.

Two mechanisms in the observational data plausibly account for this. For the advanced track, the connection of verses to meaning supplies exactly the associative structure that distinguishes durable from fragile memory (Shodikin & Achadi, 2023; Turmuzi, 2025). For the emerging track, the reduction of target size means that material is more often carried to the point of secure mastery before new material is added, whereas under the uniform regime students moved on when the calendar required it rather than when the material was secure. These are different routes to the same outcome, and both are consequences of allocation rather than of quantity.

The finding qualifies the way *tahfiz* programs are usually presented. Institutional and parental attention concentrates on the rate at which chapters are added, which is the outcome most visible from outside (Anwar et al., 2025; Nurul Fajriyah & Yahya, 2025). The present data suggest that rate is the outcome least affected by differentiation, and that a madrasah adopting the approach in the expectation of faster progress may be disappointed while nonetheless obtaining a more valuable result. Making retention visible, by assessing it explicitly at intervals rather than only at the point of acquisition, would align what schools report with what the approach actually delivers.

Affective Effects and the Structural Constraint

Student interviews reveal a third finding that neither the assessment records nor the observation of technique would disclose. Students in the emerging track reported feeling less pressured and less conscious of falling behind their peers, and one attributed easier retention to being in a small group where the teacher could give more time. Students in the advanced track reported a deeper sense of connection to the text, describing enjoyment in exploring meaning rather than only in adding material.

These accounts are consistent with the retention findings and may partly explain them. Anxiety about keeping pace consumes attention that would otherwise be available for the task, so reducing it plausibly improves encoding independently of any change in instructional technique. The affective and cognitive effects of differentiation are therefore difficult to separate, and it would be a mistake to treat the reduction in pressure as a pleasant side-effect of a primarily cognitive intervention; on this evidence it may be part of how the intervention works.

Against these findings stands a constraint that the teachers raised consistently and that the study regards as decisive for sustainability. Differentiation requires one teacher to prepare material for three tracks, monitor three sets of progress, and assess three kinds of product within the same period, without assistant staff. The teachers described difficulty in maintaining simultaneous oversight and identified the preparation of varied assessment products as the point of greatest strain, a difficulty consistently reported by teachers implementing differentiation under the Merdeka Curriculum (Sianturi, 2025; Jamilatun et al., 2025).

This constraint has a particular character that distinguishes it from ordinary resource shortage. It does not degrade the model's output gradually; it determines whether the model can be operated at all when conditions tighten. A teacher managing three tracks without support will, under time pressure, revert to the uniform regime, since uniformity is the arrangement that requires no preparation. The differentiated model is therefore not merely harder to sustain but structurally unstable in the absence of institutional support, and its continuation depends on decisions about staffing, scheduled preparation time, and training in differentiated assessment that lie outside the individual teacher's control.

This reframes the practical recommendation that studies of differentiation commonly offer. Exhortation to teachers, or training in differentiation technique alone (Purnawanto, 2023; Aprima & Sari, 2022), addresses a capability the teachers in this madrasah have already demonstrated. What they lack is the time and support to exercise it consistently, and no amount of further training supplies that. The appropriate institutional response is the provision of teaching assistants or timetabled preparation periods, and the formalization of diagnostic assessment at the start of each semester so that grouping decisions rest on data rather than on teacher recall.

Two qualifications should be recorded. The UKHAQ comparison is drawn from institutional records across two cohorts rather than from a controlled design, so factors other than differentiation may have contributed to the observed improvement. And retention measured at six months, while more informative than assessment at the point of acquisition, is still short of the interval over which *tahfiz* aims to secure the text.

Taken together the findings describe a reorganization whose value lies in a place other than where it is usually sought. The madrasah did not obtain faster memorization, and did not seek it. What it obtained was memorization that lasts, achieved not by adding instructional resource but by allocating existing resource according to diagnostic evidence, and accompanied by a reduction in the anxiety that uniform pacing imposes on the students least able to meet it. Whether the arrangement survives depends less on the teachers, who have shown they can operate it, than on whether the institution supplies the conditions under which operating it remains possible.

IV. CONCLUSION

This study examined the implementation of a differentiated deep-learning approach to Qur'an memorization at MIN 9 Central Aceh and reached three conclusions. First, differentiation altered the allocation of repetition rather than its quantity: within an unchanged instructional period, *tikrar* was redistributed according to diagnostic readiness so that the emerging track repeated less text more often and the advanced track repeated more text less often. Second, the effect concentrated on retention rather than on acquisition rate, with six-month retention improving substantially more than accuracy or fluency, a pattern consistent with a change in the quality of memory formed rather than only in the efficiency of instruction. Third, the model is structurally dependent on institutional support, since a single teacher operating three tracks without assistance will revert to uniformity under time pressure.

The study contributes a specification of what differentiation does in *tahfiz* and of which outcome responds. Both matter for practice, because a madrasah adopting the approach in expectation of faster memorization will misjudge what it has bought, and because the benefit cannot be obtained by extending instructional time.

Three implications follow. Madrasah should formalize diagnostic assessment at the beginning of each semester so that grouping rests on current evidence rather than on teacher recollection. Institutional support should take the form of teaching assistants or timetabled preparation periods rather than further training in differentiation technique, since capability is not the binding constraint. And *tahfiz* programs should assess and report retention explicitly at intervals after acquisition, so that the outcome the approach actually improves becomes visible to parents and to the madrasah itself.

The study's limitations are those of its design. The UKHAQ comparison draws on institutional records across two cohorts rather than on a controlled comparison, and other factors may have contributed. Retention was assessed at six months, a shorter horizon than *tahfiz* ultimately aims at. Future research should follow cohorts over longer intervals, compare madrasah operating differentiated and uniform regimes under similar conditions, and examine how the demands of differentiation bear on teacher workload and wellbeing over a full academic year.

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