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EXPLORING MONTESSORI TEACHERS' DIFFERENTIATION PRACTICES TO ADDRESS STUDENT DIVERSITY

Karina Febriyanti
Universitas Islam Indonesia, 22322062@students.uii.ac.id, Indonesia
Willy Prasetya
Universitas Islam Indonesia, 173220502@uii.ac.id, Indonesia

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ABSTRACT

Montessori classrooms are widely recognized for supporting individualized learning; however, limited research has examined how these practices align with the framework of differentiated instruction (DI). This study addresses this gap by investigating the extent to which DI is evident in Montessori upper elementary English classrooms. A qualitative case study design was employed using semi-structured interviews with two Montessori English teacher working in mixed-age classrooms. Data was analyzed through thematic analysis using Tomlinson's differentiated instruction framework as an analytical lens. The findings indicate that differentiated instruction is strongly present in practice but emerges as an implicit and experience-based approach rather than a formally planned instructional strategy. Teachers reporting adjusting instructional delivery based on readiness, providing individualized scaffolding, implementing flexible grouping and peer tutoring, and using continuous informal assessment to guide pacing and mastery-based progression. However, evidence of product differentiation was limited, as students generally demonstrated learning through similar output formats. The study concludes that differentiation in Montessori classrooms is structurally embedded within Montessori pedagogy, particularly through mixed-age grouping, student autonomy, and observation-based teaching. These findings suggest that differentiated instruction can develop organically through pedagogical design, offering insights for educators seeking to support learner diversity without relying solely on formal DI frameworks.

Keywords: *Montessori education; differentiated instruction; learner diversity; mixed-age classroom; individualized learning*

Corresponding Author:
Karina Febrianti
Universitas Islam Indonesia
22322062@students.uii.ac.id
Indonesia

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INTRODUCTION

Contemporary classrooms are increasingly diverse, with students varying in readiness levels, learning styles, and abilities. Traditional one-size-fits-all teaching approaches inadequately address this heterogeneity, leaving both struggling and advanced learners underserved (Subban, 2006). This reality has prompted educators to seek more responsive pedagogical approaches that accommodate diverse learning needs within single classrooms. Differentiated Instruction (DI), which involves proactively modifying content (what students learn), process (how students learn), and product (how students demonstrate mastery) has emerged as a prominent response to classroom diversity. The theoretical foundations of differentiated instruction draw from Vygotsky's Zone of Proximal Development, which suggests that optimal learning occurs when instruction is appropriately challenging for each student's current level with appropriate support (Vygotsky, 1978), as well as Gardner's Multiple Intelligences Theory, which recognizes that students possess diverse strengths and preferred modes of learning (Gardner, 2011). The concept of differentiated instruction which seek to meet the various needs of students in the classroom, are supported by these theoretical viewpoints (Talain & Mercado, 2023).

Effective DI requires continuous assessment of three key learner characteristics identified by Tomlinson (2001): readiness (students' current proximity to learning goals and prior knowledge), interests (topics that evoke curiosity and passion), and learning profile (preferred modes of learning shaped by various factors). Differentiated classrooms are characterized by a cyclical relationship between continuous formative assessment and instructional response, where teachers use diagnostic and ongoing assessments to monitor progress and adjust teaching in real-time rather than relying solely on end-of-unit tests (Ardenlid et al., 2025a). Flexible grouping is another hallmark practice, allowing students to work in various configurations (whole class, small groups, pairs, or independently) depending on the specific task and their evolving needs, rather than remaining fixed ability groups (Tomlinson, 2001). In this model, the teacher's role shifts from delivering uniform instruction to all students to facilitating diverse learning pathways, functioning as an observer and guide who connects students to appropriate activities and provides targeted feedback (Tomlinson, 2001).

Differentiated Instruction (DI) has been widely recognized as a pedagogical approach to address learner diversity through intentional and systematic planning. Liang & Zou (2025) illustrate this in "Universal Access" classes, where teachers apply the Gradual Release of Responsibility framework and regroup students monthly by proficiency to ensure instruction aligns with learners' developmental levels. Similarly, a Hong Kong case study by W. Liang

et al (2025) highlights how teacher empowerment in DI was fostered through workshops, co-planning, and iterative lesson trials, enabling educators to move from passive reliance on external guidance to autonomous use of tiered worksheets, multi-sensory approaches, and formative assessment. Beyond individual cases, Ardenlid, Lundqvist, and Sund (2025b) conducted a scoping review of 22 studies, identifying recurring DI practices such as flexible grouping, adjusted pacing, and student choice. Their findings confirm that intentional DI strategies are widely recognized internationally, though rarely implemented comprehensively. This tension is echoed in private international school contexts, where DI has been shown to support inclusion but is often constrained by curriculum demands and teacher preparedness (Mclaughlin, 2025). Contrasting with these structured approaches, (Pozas et al., 2020) using nationally representative data from Germany, found that teachers in native language and mathematics classrooms only occasionally applied DI, with implementation varying across school tracks and influenced by teachers' constructivist beliefs. Such findings highlight the gap between theoretical frameworks and everyday classroom practice.

The Montessori approach, developed by Dr. Maria Montessori, is built on nature as the part of knowledge, autonomy in learning material-centered environments, and collaborative multi-age classrooms. Within this structure, teachers act as guides who observe and respond to students' developmental needs (as cited in ÖZEREM & KAVAZ, 2013). Research consistently shows positive outcomes of Montessori education, including improved academic achievement, engagement, and self-regulation compared to traditional settings (Randolph et al., 2023; Tiryaki et al., 2021; Kersna et al., 2025). Recent scholarships have begun to highlight how Montessori's multigrade classrooms and scaffolding practices naturally align with differentiated instruction principles, offering individualized support and peer-mediated learning opportunities (Sabli et al., 2025; Caballero et al., 2022). Despite the extensive literature on DI and Montessori education, limited research has examined how teachers' everyday practices in Montessori classrooms align with formal DI frameworks, particularly in English language teaching contexts. Existing studies have documented personalization strategies and observation-based decision-making but have rarely analysed these practices in relation to differentiated instruction dimensions such as differentiation of content, process, and product (Tomlinson, 2001). Moreover, little is known about how differentiation is enacted in upper elementary Montessori English classrooms that serve linguistically and academically diverse learners. Understanding differentiation in Montessori contexts therefore requires examining teachers' routine instructional strategies as they naturally occur in practice. This study addresses this gap by investigating the extent to which differentiated instruction principles are evident in the everyday classroom practices of Montessori English teachers.

METHOD

This study employed a qualitative descriptive design to explore the extent to which Differentiated Instruction (DI) is evident through teachers' everyday instructional practices in a Montessori upper elementary English classroom. A qualitative approach was chosen to capture teachers' perspectives and the nuanced ways they respond to learner diversity.

Data were collected through semi-structured interviews with two English teachers at Brainy Bunch International Islamic School (BBIS), Malaysia, a Montessori-based institution emphasizing child-centered learning and individualized pacing (Lillard et al., 2017). Participants were purposively selected based on their experience teaching English in Montessori upper elementary settings and their engagement with diverse learner needs. For confidentially, pseudonyms (Dela and Diana) are used when presenting their responses in the Findings section. Interview lasted 30-50 minutes and followed a protocol guided by Tomlinson (2001) Differentiated Instruction framework, with questions designed to systematically explore how teachers differentiated content, process, product in response to student readiness, interests, and learning profile. The protocol consisted of four key areas:

1. **Assessing and responding to learner diversity**, questions explored how teachers identify student readiness level, ongoing assessment practices, and follow-up strategies for students with specific learning needs.
2. **Differentiating content delivery**, questions examined how teachers adapt instructional content and explanations to accommodate students with varying abilities and learning profile (e.g., "How do you explain lessons so that students with different abilities can understand?").
3. **Differentiating learning process,** questions focused on instructional strategies including grouping practices, pacing adjustments, and scaffolding for diverse learners (e.g., "How do you organize students during the lesson? For students who learn faster, what do you provide?").
4. **Differentiating learning products,** questions explored how teachers vary tasks, assignment, and assessment criteria based on student differences (e.g., "When assigning tasks, do all students get the same assignment, or do you differentiate it?").

The interview transcripts were analyzed using (Braun & Clarke, 2023) thematic analysis framework. After transcribing the data verbatim, the researcher engaged in repeated readings to gain familiarity and ensure consistency in coding. The analytic process followed the six stages of thematics analysis: familiarization, coding, theme development, review, definition, and reporting. Manual coding was employed to allow close

engagement with the data and improve accuracy. Themes were identified by examining the recurrence, relevance, and coherence of codes across the dataset. A thorough description of how codes were developed and themes were derived, allowing the methodology to be assessed and replicated by other researchers.

FINDINGS

The findings of this study address the research question: *To what extent is differentiated instruction evident in a Montessori classroom?* Drawing on interviews with two Montessori English teachers in upper elementary settings at BBIS, the analysis focuses on teacher's everyday instructional practices. Montessori classrooms are characterized by high student heterogeneity, encompassing diverse performance levels, academic readiness, and learning styles (Lillard & Else-Quest, 2006; Lillard et al., 2017). Within this context, classrooms brought together students across multiple grade levels in a single learning environment, functioning as inclusive settings in which students with identified special needs were present, and teachers described making instructional adjustments to meet their needs.

Although neither teacher explicitly planned instruction using differentiated instruction terminology or frameworks, the diverse nature of the classroom necessitated ongoing adjustments. Teachers described modifying how content was presented, how learning activities were organized, and how students demonstrated understanding in response to differences in readiness, pace, and individual needs. These practices emerged as natural responses to classroom diversity rather than deliberate applications of DI. This pattern suggests that differentiation may be implicitly embedded within Montessori pedagogy, where teachers continuously observe learners and adapt instruction in response to individual developmental needs. Rather than applying DI as a formal framework, teachers appeared to enact its principles intuitively through everyday classroom practice.

Using Tomlinson's (2001) framework as an analytical lens, the following themes capture patterns in teachers' instructional strategies:

Responsive Instructional Delivery to Address Learner Readiness

Both teachers emphasized adjusting instruction in real time to meet students' varying levels of readiness. They described modifying language, using multiple modalities, and tiering tasks according to ability.

- Modifying Language and Explanations
  Dela explicitly described how her communication style changes depending on the level she is addressing:

  > *"And how you talk to your students as well, I mean my students, how I talk to them is also depending on the words that I use. So, if they are in the level four, so you only get to use basic words, you don't get to use words that are hard for them to understand. But if you are teaching level six, then that can be a different set*

of words, like harder words or more complex."

This statement illustrates that instructional delivery is consciously adjusted to match students' developmental and linguistic readiness (Tomlinson, 2014). Rather than delivering uniform explanations to all learners, the teacher deliberately simplifies or extends language according to the grade level being taught. This reflects an ongoing process of informal differentiation in which the same lesson content is communicated differently to ensure accessibility for diverse learners (Tomlinson, 2001; Tomlinson, 2014)

- Using Multiple Instructional Modalities

  Diana described adapting methods for a student with ADHD:

  "Okay, so basically for Ali, I use various kinds of approaches, maybe it is visual, or auditory approaches. For visual ads, I usually use slides for him to, what we call, to engage with the topics that he learned that time."

  This highlights the use of varied instructional modalities to support different learning profiles (Hall, 2002). By combining visual and auditory supports, the teacher adapts her delivery to suit the learning profile of a specific student, adjusting instructional delivery through the provision of visual materials designed to help the student access and engage with the lesson content. This reflects a practical adaptation of process that enables learners to interact with content through multiple sensory channels, ensuring that instruction is responsive to diverse learning preferences and needs (Tomlinson, 2014)

- Tiering Task Complexity

  Beyond adjusting the way explanations were delivered, both teachers described routinely modifying the difficulty and expectations of learning tasks according to students' readiness level.

  Dela explained how writing tasks structures in tiers were deliberately corresponding to students' grade levels:

  "So even if, for example, when we do write, okay, so it depends on level. For example, level four, the sentence is a simple sentence. Level five, it can be complex. And then level six can be complex, compound sentence."

  This description illustrates a clear pattern of content and process adjustment based on readiness, where the same learning objective (writing) was pursued through progressively more demanding expectations. Such tiered task design ensured that students worked within an appropriate level of challenge rather than receiving uniform requirements.

  Dela further emphasized that advanced learners were expected to go beyond minimum requirements:

  "So, it has to be that kind of levelling. And when level six gives me like basic sentence, I will ask them to do more or rephrase it or revise it."

Here, differentiation occurred not only through initial task design but also through adaptive follow-up demands, where students capable of more sophisticated performance were encouraged to revise and extend their work. This practice reflects an implicit form of upward differentiation, ensuring that high-achieving students were continuously challenged.

Diana then explains the same thing when being asked how she is doing for fast learners that might finish the task early than the rest. She also providing enrichment opportunities:

> *"It's the best for fast learners, or we call them as advanced students here, okay, so basically, I will provide enrichment activities such as advanced vocabulary tasks or critical challenges because they are more advanced."*

Taken together, these findings show that teachers continuously adjust how instruction is delivered in response to differences in students' readiness and learning profiles. Instructional language, task complexity, and enrichment opportunities are modified to ensure that learners engage with the same learning goals at an appropriate level of challenge. Rather than providing uniform instruction, teachers adapt explanations, materials, and expectations in real time, demonstrating a classroom practice that is highly responsive to learner variability.

Importantly, levelling was also applied to support students with learning difficulties. Diana described how assignments were simplified for learners with specific needs:

> *"For that one, special needs/ slow learner students like dyslexia students, autism students, but autism with the major autism, the minor autism usually genius students, but autism with the major autism usually a bit slow learner, and also the ADHD, the one that very lack of focus, so basically these types of special needs students, we will prepare like another simple assignment, simple exercises for them to do."*

Scaffolding and Individualized Support

Teachers highlighted how they provide targeted support when students struggle. Unlike the proactive adjustments in Theme 1, this theme focuses on reactive strategies delivered through individualized interaction.

- Identifying Students who Need Support

  Dela explained that limited class time requires teachers to prioritize attention:

  > *"Because sometimes, the time that is given in the class also limited, of course the teacher moves around. It is not enough to check everyone. And then, of course, the teacher knows who needs more of that attention."*

  This shows that support is allocated based on ongoing observation

rather than uniformly across all learners.

- Providing Individualized Scaffolding
  Once struggling students are identified, both teachers described providing direct and individualized scaffolding to help them access the lesson content and complete learning tasks. This support takes multiple forms and is adjusted according to the specific difficulties students encounter.
  Diana explained her approach to supporting students who struggle:

  > *" Okay, for students that who struggle, or we called as behind students, we will offer additional scaffolding… for example, like we ask them to do simpler tasks… we also provide guided writing outlines… and also one-on-one support, which means we will focus on them one-to-one… We will ask them what's their problem in that topic… I also provide extra practice sessions… if the topic is too hard for them to complete it, so I'll try to manage it in a simpler way… reducing task complexity."*

  This account illustrates that scaffolding is implemented in multiple forms, including simplifying tasks, providing structured outlines, offering additional practice, and engaging in one-on-one interaction. These actions are not part of initial lesson planning but are enacted responsively when students demonstrate difficulty during or after instruction. The teacher's description of diagnosing problems through direct questioning ("We will ask them what's their problem in that topic") and adjusting complexity accordingly reflects an adaptive, need-driven approach to instruction. Unlike the tiered task design described in Theme 1, where complexity is predetermined by grade level, the scaffolding described here is situational and emerges in response to observed struggles with specific content or skills.

- Follow-Up Support
  In some cases, individualized support extends beyond immediate in-class assistance to include follow-up sessions designed to reinforce learning and address persistent difficulties. However, such extended support was described as occasional rather than systematic.
  Dela explained how additional practice sessions function as follow-up support:

  > *"And that is when you are call the students, you can do extra class just to do extra practice to reassess whether they have learned it or they still need more drills for it."*

  This statement suggests that follow-up support occasionally extends beyond regular class time in the form of additional practice sessions aimed at ensuring mastery. These sessions serve both an instructional and an assessment function, allowing teachers to determine whether students have grasped the material or require further reinforcement. However, such practices were described as infrequent and dependent

on immediate classroom needs rather than being part of structured, ongoing remediation programs. This reinforces the overall pattern of differentiation in this context as reactive and situational rather than systematically planned.

Overall, the findings indicate that teachers provide targeted and individualized support when students encounter learning difficulties. Support is delivered through one-to-one interaction, task simplification, guided practice, and occasional follow up sessions beyond regular class time. These forms of scaffolding are enacted responsively based on ongoing classroom observation, allowing teachers to address emerging learning needs as they arise.

Flexible Learning Arrangements and Grouping

The third theme highlights how differentiation is embedded within the structural characteristics of the Montessori classroom itself. Upper elementary classes consist of students from three grade levels (levels 4-6) learning together, with each class including learners with diverse abilities and special educational needs. Unlike Themes 1 and 2, which focus on teacher-initiated adjustments, this theme demonstrates that differentiation is built into the system through mixed-age grouping, flexible learning arrangements, and student autonomy.

- Multi-grade Structure as a Mechanism for Differentiation

  Diana explained the composition of upper elementary classes:

  > *"Okay, so basically for your information in Upper Elementary, in one class we combine level four, five and six, which consists of year four, year five and year six students. Yes. Okay, so basically their topics will be different for each student, for each level. And then in each level, we can say that every classes required special needs students."*

  This demonstrates that differentiation is structurally embedded within the Montessori system. Because students from different grade levels learn together, instruction is inherently multi-level, creating built-in content differentiation without separates classes or pull-out programs.

- Flexible Grouping and Peer Tutoring

  Teachers employ mixed ability grouping to facilitate peer learning. Diana explained:

  > *"So that's what we call but I prefer mixed ability groups so that they can learn from each other. That's why sometimes I'm not separated them; I will mix them together so that the advanced students can teach the other students."*

  She further described peer tutoring roles:

  > *"and sometimes I will ask them to play peer tutoring roles, for example, they will teach their friends. We called us peer tutoring roles… they bring a leader for the table to their levels and teach the other students."*

  This practice functioning as a process-based strategy that benefits both the tutor and tutee. Differentiation in this case is achieved through role allocation and collaborative learning structures rather than through separate instructional materials.

- Student Autonomy in Working Arrangements
  Students are given autonomy in choosing how and with whom they work. Dela explained:

  > *"Okay, so we group them according to the level. But in that level, they have the freedom to work to whoever they want to work with. Because, of course, in Montessori, we still give them the freedom."*
  >
  > *"Sometimes they want to work with a friend, it's okay. If they want to work alone and do it alone… Some, they need someone to, you know, like to talk to and reassurance of if they're doing the right thing or not. So, we give them that freedom."*

  This flexible arrangement allows students to select working modes based on personal preferences and learning needs, shifting from teacher-controlled to student-regulated learning. Overall, the findings show that differentiation is embedded in the structural organization of the Montessori classroom. Mixed-age grouping, peer tutoring, and flexible working arrangements create learning conditions in which students can work at different levels, collaborate with peers, and regulate their own learning processes. These structural features allow diverse learners to participate in the classroom environment while working according to their individual readiness and preferences.

Assessment, Monitoring, and Instructional Adjustment

The fourth theme highlights how instructional decisions are primarily guided by continuous, informal assessment rather than formal testing. Both teachers emphasized that understanding students' needs, readiness, and progress depends on day-to-day observation, questioning, and monitoring of student performance. Unlike Theme 2, which focused on providing targeted support for struggling learners, this theme emphasized how ongoing assessment informs broader instructional decisions. Particularly pacing, content sequencing, and progression. Differentiation occurs through readiness-based adjustments to learning timelines and mastery-based advancement, reflecting a central principle of Montessori pedagogy in which assessment is embedded in everyday classroom interaction.

- Ongoing Informal Assessment to Monitor Readiness
  Both teachers described checking students' understanding as a routine and integral part of their daily teaching practice. Rather than relying on formal quizzes or standardized measures, they use questioning, discussion, and observation to confirm whether students have mastered previous content before moving forward.

  Dela explained this process through the Montessori "three-period lesson," particularly the final confirmation stage:

  > *"And lastly is the confirmation where you will see that the child is able to do the activity on his own without your help. In Montessori the success of a classroom lies when a teacher is no*

longer needed in the class."
She also described how readiness is checked before introducing new content:
"I ask questions when we go into the previous lesson… before I go to the next topic, I have to revise the previous topic by asking them questions."
Diana similarly emphasized informal pre-assessment:
"I usually begin with like quick discussion related to the topics during the day… I also use short pre-assessment or ask guiding questions to see what they already know."
"We go around and check one by one. We don't let them pass without checking their work."

These practices demonstrate that assessment in this context is formative, continuous, and observation based. Instructional adjustments emerge from daily interactions rather than from structured testing cycles, reflecting a highly responsive approach to learner diversity.

- Individualized Pacing and Flexible Progression
A defining feature of both classrooms is allowance for students to progress at their own speed based on readiness rather than fixed timelines. Students who demonstrated mastery can advance immediately, while those who need more time receive it without penalty.
Dela explained how students move forward individually:

> *"if they finish everything, the activities that we have prepared for them, then they can actually proceed to the next topic. No, it should not be like you have to wait for the others to do."*

She described how students who miss content are accommodated:

> *"No, so like, for example, if there are students also who miss the school for one week and then they're already in the next topic. So that particular student will work on *the topic that she missed first and then move on to the next topic. So, it's like individually paced, meaning if you finish this topic, the first topic, you can move on to the next. You don't need to wait for the others."*

Pacing decisions are clearly readiness-driven rather than schedule-driven, naturally accommodating differences in ability and learning speed. Dela emphasized that understanding individual differences is essential:

> *"Because each child is unique. Each child has different learning styles, as I've mentioned. So, if you don't know how to assess that child, the child's learning style, then the child will be behind the target. So, our goal is for them to be on track or to be advanced."*

Importantly, advanced learners are not constrained by curriculum timelines:

" Some of our children, they are advanced. So, we need to say second quarter, they are already in the quarter three topic. And we don't stop them. And during quarter three, some of them, they are already finished quarter four topics. So how about that? You already finished the lesson. You don't stop. Give them more and more and more. Because we don't want to stop them from learning. What's the spark of interest is there? Don't stop."

This shows that progression is intentionally managed through personalized monitoring, enabling both remediation and acceleration based on individual readiness.

- Use of Individual Target Plans to Guide Instruction Mastery-Based Advancement Beyond Grade Boundaries
  Progression decisions in this Montessori context are fundamentally mastery-based rather than grade-based or age-based. Students advance when ready and may continue working on the same level if mastery has not been achieved.

  Diana explains how students with special needs can continue at the same level:

  "For the special needs student is level four, right, level four, but the topics in that quarter, in the whole year, they are not finished yet, that topics, so the best thing at brainy bunch is that students can continue the level four topics next year."

  "But in BB as we know, Montessori is according to the child's pace, right? If they're only complete within quarter two, they can continue the quarter three the next year."

  This reflects the Montessori philosophy that learning progression should follow the child's pace rather than institutional timetables. Major progression decisions also involve professional judgement and collaboration with parents. Diana described her experience with a dyslexic student who could not read at level three:

  "From my side, I will not recommend the students to continue to further upper elementary."

  "Very important to have a discussion with the homeroom teacher and parents."

  These accounts indicate that differentiation extends beyond daily lessons into broader educational decision-making. Student readiness rather than age or grade is positioned as the primary determinant of progression. The findings show that instructional decisions in these classrooms are strongly guided by continuous observation and ongoing monitoring student of progress. Teachers routinely adjust

pacing, sequencing, and learning pathways based on students' readiness and mastery. Progression is managed flexibly, allowing students to move forward, receive additional support, or continue working on the same level according to individual needs. These practices indicate that assessment plays a central role in shaping everyday instructional decisions in the classroom.

DISCUSSION

Montessori and Differentiated Instruction: Alignment as Emergent Practice

This study sets out to explore how Montessori teachers address student diversity through the lens of differentiated instruction (DI). Overall, the study suggests a strong alignment between Montessori pedagogy and the principles of differentiated instruction. However, this alignment appears to function as an emergent and experience-based practice rather than a formally planned application of DI frameworks. Although teachers did not explicitly use DI terminology, their everyday classroom practices reflected many of its core principles.

This pattern aligns with previous research suggesting that teachers often implement differentiation intuitively and pragmatically, without explicitly labeling their actions as DI (De Neve et al., 2015). Studies of classroom practice show that differentiation frequently develops through teachers' professional judgement and classroom experience rather than through systematic use of theoretical frameworks. In this study, teachers described adjusting explanations, pacing, grouping, and support in response to ongoing observation of learners' needs. These adaptations were presented as natural responses to classroom diversity rather than deliberate applications of a specific pedagogical model.

Importantly, the findings suggest that this "implicit differentiation" may be closely connected to the structural and philosophical foundations of Montessori education. Montessori classrooms are intentionally designed to support individualized learning through mixed-age grouping, flexible pacing, autonomy, and observation-based teaching. Prior Montessori research has highlighted how these features naturally promote personalized learning and self-directed progress (Lillard, 2017). The present findings extend this literature by showing how these structural characteristics also function as mechanisms that enable differentiation in practice.

Taken together, the findings suggest that differentiated instruction in Montessori classrooms may operate as an emergent alignment rather than a direct implementation. Montessori pedagogy provides the conditions in which differentiation becomes a routine aspect of everyday teaching, even when teachers do not explicitly frame their practices using DI terminology.

A Pattern of Differentiation: Strong Process, Moderate Content, Limited Product

Across all themes, differentiation occurred most strongly at the level of process, moderately at the level of content, and minimally at the level of product. Process differentiation was evident in teachers' continuous adjustments to instructional delivery, scaffolding, grouping, and pacing. These practices enabled students to access learning in ways responsive tp readiness, learning profiles, and individual needs. Content differentiation appeared through tiered task complexity, simplified materials, and enrichment activities for advanced learners.

However, evidence of product differentiation was limited. Students generally completed similar type of tasks and demonstrated learning through comparable output formats. This finding can be understood in light of previous research indicating that teachers often experience difficulties implementing DI comprehensively. Studies by Reis and Renzulli (2018) and Porta (2025) highlight persistent challenges in planning, managing, and sustaining differentiation in classroom practice. Within this context, it is common for differentiation to be enacted more strongly through pacing, support, and instructional processes than through alternative assessment products. In the Montessori context, individualized pacing and ongoing formative assessment may further reduce the perceived need for varied assessment product, as differentiation occurs primarily through time, support, and task complexity rather than alternative outputs as emphasized in Tomlinson's (2001) framework.

Implications

These findings highlight that differentiated instruction can be deeply embedded within Montessori classroom structures and routines. At the same time, the limited evidence of product differentiation suggests a potential area for further development. Expanding opportunities for varied demonstrations of learning may strengthen alignment with comprehensive DI frameworks. Given the small sample and single-school context, future research should explore differentiation across a broader range of Montessori setting to better understand how DI practice evolve in different contexts.

CONCLUSION

This study examined the extent to which differentiated instruction in Montessori upper elementary English classroom using Tomlinson's framework as an analytical lens. The findings show that differentiation is strongly present in practice; however, it operates primarily as an implicit and experience-based approach rather than a formally planned application of differentiated instruction frameworks. Evidence from teacher interviews

demonstrates that differentiation occurs across multiple dimensions of classroom practice. Teachers proactively adjust instruction for different readiness levels, provide individualized scaffolding for struggling learners, utilize flexible grouping and mixed-age classroom structures, and continuously monitor student progress through informal assessment and individualized pacing. These practices collectively reflect key principles of differentiated instruction, particularly in terms of process and content differentiation.

However, the study also reveals that differentiation is not implemented in a fully comprehensive manner. Evidence of product differentiation remains limited, as students generally demonstrate learning through similar output formats. This suggests that differentiation in the studied Montessori classrooms occurs primarily through adjustments to instructional processes, learning pace, and support rather than through varied assessment products. The findings indicate that differentiation in Montessori classrooms is best understood as an emergent practice embedded within the structural and philosophical foundations of Montessori education. Mixed-age classrooms, student autonomy, flexible pacing, and observation-based teaching naturally create conditions that support personalized learning. As a result, teachers appear to enact the principles of differentiated instruction intuitively through everyday practice rather than through explicit theoretical planning.

Overall, this study contributes to the understanding of the relationship between Montessori pedagogy and differentiated instruction by demonstrating that differentiation can be deeply embedded in classroom practice even when it is not explicitly framed as a formal instructional approach. The findings highlight the importance of recognizing implicit differentiation as a meaningful form of responsive teaching in diverse and inclusive learning environments.

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