

Investigating Differentiated Learning Practices and their Influence on Multiple Domains of Early Childhood Development

Annisah Nurul Dzulaekha¹, Mohamad Syahri², Mohammad Syaifuddin^{3*}
^{1,2,3} Universitas Muhammadiyah Malang, Malang, Indonesia

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ABSTRACT

Purpose : This study examines the systematic use of differentiated learning in early childhood classrooms at Hang Tuah Kindergarten, Tarakan, with a focus on its observed associations across six developmental domains moral-religious, physical-motor, cognitive, linguistic, socio-emotional, and artistic. It addresses the research gap in holistic analyses that move beyond single-domain evaluations. **Methods:** A qualitative methodology was used, incorporating classroom observations, semi-structured interviews with educators, and analysis of children's work artifacts. Data triangulation included instructional techniques, instructor perspectives, and developmental markers. Evidence was categorized into observed behaviors, instructor reflections, and documented outputs, with quality ratings assigned for systematic comparison. **Findings:** The study highlighted consistent differentiation in content, process, and product, with content adaptation deemed "adequate." Gains were observed in linguistic proficiency, collaboration, creativity, motor coordination, and cognitive sequencing. Teachers noted feasibility, alignment with readiness, and engagement from activity choice. Moderate progress was seen in moral-religious and socio-emotional domains, indicating a need for more focused scaffolding and long-term strategies. **Research Implications:** Findings indicate that differentiated learning significantly contributes to balanced child development, linking Tomlinson's differentiation framework to Vygotsky's sociocultural theory. The study suggests that differentiated strategies can enhance academic and social growth, prompting policymakers to consider institutional support for content adaptation. **Originality:** This research presents a qualitative account of differentiated learning across six developmental domains in Indonesian kindergartens, contributing a comprehensive framework that integrates teacher perceptions, classroom practices, and developmental artifacts, expanding upon previous studies that have predominantly focused on isolated domains.



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INTRODUCTION

Differentiated learning in early childhood education entails instructional strategies modifying content, processes and products to children's readiness, interests, and learning styles (Tomlinson, 2000). Although much more than a special need's menu, Universal Design for Learning/UDL is a pedagogical framework positioned towards addressing the inherent diversity of young learners by actively varying the learning environment in systematic ways (Connor & Wheat, 2023). It is grounded in constructivist and inclusive principles, positioning the child as an active agent in knowledge construction rather than a passive recipient. Through differentiation of content, teachers provide as many access points to the curriculum as possible while at the same time preserving academic rigor for children and ensuring that they are learning about information complexity that is appropriate for their cognitive readiness (Blaz, 2023). Process differentiation reinforces the "how" of learning by providing a variety of methods that children can use to process information, like employing play-based activities to help them glean insights based on their individual learning profiles (Hatmah & Nisa, 2025; Wardani & Darmawan, 2024). In addition, educators encourage children to show their mastery through different formats because one child may do so verbally while another is better able to convey understanding in an artistic activity or physical-motor task (Dewi et al., 2024).

Unlike traditional models, differentiation recognizes that developmental pathways in early childhood are not homogeneous, thus providing teachers with the framework for ensuring all children have equal opportunities to

flourish across cognitive, socio-emotional, linguistic, physical, moral and creative domains. Under this model, the teacher's position shifts dramatically from traditional lecturer standing at the front of a room to transmit knowledge to one where they facilitate learning through systematic planning and iterative evaluation designed to maintain instructional quality (Gayathri, 2024; Thù, 2025). That means teachers must continuously differentiate for content, processes and products based on every child's individual readiness, interests and learning styles. Differentiation is based on the idea that the traditional model of a classroom as one, undifferentiated entity does not hold up; instead, instruction must be fluid enough to accommodate the complex developmental trajectories which typify early years (Desinguraj and Ebenezer, 2021).

The conceptual framework of early years education is profoundly informed by constructivist theories of learning as well as inclusive educational principles, in which the child engages and becomes an active agent in their own knowledge construction (David, 2022). Differentiation prevents teaching from being one-size-fits-all, and ensures that it is not only delivered, but made accessible through relevance and meaning so that each teacher can support growth across the continuum of cognitive, socio-emotional, linguistic, physical, moral and creative spectrums.

Numerous empirical studies indicate that differentiated instruction is beneficial. Simultaneously, according to Astuti & Afendi (2022), the should playing-based differentiated activities provide optimal developmental outcomes; also through the results of Kurniasih and Priyanti (2023) which indicate significant development in literacy skills. Nabila & Mushlih (2023) assert that systematic planning, implementation, and evaluation are crucial for maintaining quality. Juita et al., (2024) assert that the Independent Curriculum places children at the core of the learning process, with teachers acting as facilitators. Further international research corroborates the benefits of differentiation in content, process, and product, especially in enhancing socio-emotional development, autonomy, and self-esteem Ngaisah et al., (2023). These findings collectively illustrate that differentiation promotes engagement, problem-solving, collaboration, and active learning. But for this model to work, education needs to transcend outmoded lecture forms weve come to expect in the classroom by putting the child at the helm of her own learning with the educator acting more as an orchestrator than an instructor (Bednarkowa & Miłoń, 2018; Kusssmaul, 2020).

While the benefitsof differentiated instruction are well documented, both literature and practice still have huge gaps. Recent scholarship tends to be somewhat atomized, with the majority of empirical studies adopting a narrow lens of isolated developmental domains, literacy in isolation from socio-emotional growth and vice versa, while this ignores the child as an integrated human being (Fathima, 2024). This creates a void critical for comprehensive analyses, which consider how differentiation influences all six interdependent domains of early childhood development at once. Absent a more holistic framework, however, pedagogical interventions run the risk of being overly reductive and fail to consider how progress in one area (for example, linguistic skill) serves as an accelerator of growth in others (like socio-emotional communication or moral reasoning) (Aliahmadyenuri, 2025; Bisai & Singh, 2020).

This theoretical divide is exacerbated by a persistent disconnect between inclusive policy and classroom practice. A classroom observation at Hang Tuah Kindergarten in Tarakan shows that teachers still use a uniform, lecture-based method. However, this "one-size-fits-all" approach yields developmental disparities, whereby children can develop linguistic epistemic skills while lagging far behind the rest of the world in moral-religious values and socio-emotional maturity. Such discrepancies indicate that the existing instructional regime is failing in its imperative to meet the diverse needs of our student body and, worse still, its very establishment is holding children with markedly different learning profiles back.

The problem, therefore, is two-fold: a lack of empirical research that validates a holistic, six-domain approach, and a practical resistance to moving away from undifferentiated, teacher-centered instruction . Teachers say that it is very hard to use strategies that are specific to each student's needs. This is a common concern around the world that teaching that is not differentiated limits students' potential. Because of this, it is very important to look into how a comprehensive differentiated model can be used systematically in Indonesian kindergartens to make sure that all areas of early childhood development are balanced.

The imperative for a six-domain analysis arises from the fundamental tenet that early childhood development is an integrated and synergistic process. Previous research has frequently examined variables in isolation, such as literacy or social skills; however, this study contends that developmental domains do not operate independently; rather, advancement in one domain serves as a prerequisite or catalyst for progression in others. For instance, linguistic proficiency is the essential medium for socio-emotional communication, while the internalization of moral-religious values establishes the ethical foundation requisite for collaborative learning and prosocial behavior.

This research provides a comprehensive analysis of child development by examining differentiated learning across six domains: moral-religious, physical-motor, cognitive, linguistic, socio-emotional, and artistic. Without such a comprehensive framework, pedagogical interventions remain fragmented and risk overlooking the "hidden" developmental lags that occur when a teacher focuses too narrowly on academic or cognitive output. Therefore, a

holistic assessment is not merely a broader evaluation; it is a critical requirement for ensuring that inclusive education actually results in balanced, well-rounded growth for every child.

In order to fill the gaps cited above and examine the effect of a holistic differentiated approach, this study aims to answer the following research questions:

1. How is the systematic use of differentiated learning for five or six years old adapted both in content, process, product on early childhood class at Hang Tuah Kindergarten, Tarakan?
2. What is the differential learning impact across six developmental areas (moral-religious, physical-motor, cognitive, linguistic, socio-emotional and artistic)?
3. What are the contextual factors that enable or inhibit the successful implementation of differentiated learning in this context, including teacher capacity and institutional support?

METHOD

This is a descriptive study with qualitative type of research. Qualitative research is to identify how to implement differentiated learning in a natural environment without modifying variables. The characteristic of the research study is descriptive, which is because for what was in the field (a phenomenon that occurs in the field) (Mao & Huo, 2023) and how the subject uses a differentiated learning strategy to improve six aspects of early childhood development at Kindergarten Hang Tuah Tarakan. In this study, the author gathered data from participants on their conditions of subjects and objects of studies (Camaiero-Figuerola et al., 2023). The aim is to reach deeper understanding and holistic comprehension of the naturalistic phenomena under study, with no experimental or other manipulation. To gather qualitative data about the naturally occurring thoughts and activities of younger children, the researcher went to a real-world learning environment and observed (Mirhosseini, 2020).

The research subjects used in this study were purposively sampled that based on their direct involvement in implementing differentiated learning. Two teachers Classroom Teacher Class B (specific roles in implementing differentiated strategies) the method of the study. Research Subjects and Objects The subjects of this research are teachers at Class B and students aged five to six years in Hang Tuah Kindergarten, Tarakan. This study is centered on differentiated learning and its influence on six dimensions of early childhood development. One Principal School Leadership to provide institutional and supervisory views.

To guarantee validity and depth, data were collected from various primary and secondary sources employing a triangulation methodology. The primary instruments consisted of structured observation sheets for recording real-time teaching practices and semi-structured interview guides aimed at investigating emergent themes, including teacher perceptions and challenges. An example of an inquiry involved examining how teachers modify plans to accommodate diverse student needs. Secondary data were obtained through document analysis checklists, which involved reviewing institutional records such as lesson plans, student portfolios, and photographs of learning activities.

The research used the Miles and Huberman interactive framework, which has three repeating phases: data reduction, data presentation, and forming or validating conclusions. We sorted and analyzed raw data from observations, interviews, and documents into pre-set categories to identify the main themes. We confirmed the trustworthiness by cross-referencing data from three independent sources, which were teachers, the principal, and students, using structured analysis methods and regular validation. This careful process ensures that the results are based on real events and actual educational records.

The data gathering proceeded in a methodical sequence, commencing with classroom observations, succeeded by interviews and document analyses. During this approach, ethical standards were upheld by securing informed permission from all participants and safeguarding the anonymity of the people engaged. The study underscores methodological transparency to guarantee that all conclusions are grounded in empirical data while upholding accountability to the participants and the institution at Kindergarten Hang Tuah Tarakan.

RESULTS

Implementation of Differentiated Learning

Classroom observations at Hang Tuah Tarakan Kindergarten revealed consistent implementation of differentiated learning across content, process, and product. Teachers explained steps in child-friendly language, organized activities on time, and used varied media aligned with instructional materials. In terms of content differentiation, teachers have attempted to adapt the material to students' readiness levels, but this is still considered adequate. This indicates that content differentiation has not yet been fully optimized to accommodate children's varying abilities.

Classroom observation data showed that different learning activities created active learning which lasted throughout the academic session and led to students building positive relationships with their classmates. Students showed interest when they used multiple teaching materials to create words while they stayed focused on listening to stories. The children exhibited two types of behaviors which showed their mental processing and their emotional connection to their social interactions with other kids. The research results demonstrate how teachers can use

differentiated learning methods to develop educational spaces which allow students with different learning styles to study while they keep learning activities going.

Table 1. Implementation of Differentiated Learning

Description	Evidence Type	Quality
Enthusiasm in activities	Observation excerpt: “The children enthusiastically carried out the activity of composing words using the media of their choice.”	4
Focus during activities	Observation excerpt: “The children remained focused during the storytelling activity.”	3
Positive peer interaction	Observation excerpt: “Children cooperated in group art projects.”	3

Note. Quality ratings: 1 = Bad, 2 = Enough, 3 = Good, 4 = Very Good.

The research team discovered that group work activities required participants to display various collaborative skills. The students worked together to finish their joint art assignment by determining who would do what work while they treated each other with dignity. The social learning abilities which students developed through differentiated instruction included their abilities to work with others and show understanding and lend assistance to their classmates. The research findings show that differentiation serves as a teaching method which helps students finish their work while teachers create learning environments which support both academic and social development.

Teacher Perceptions

Interviews and teacher notes confirmed that children were generally able to follow instructions and consistently practiced moral-religious values. Teachers reported that “children repeat instructions, showing understanding,” and documented that *group prayer reinforced respect and empathy*. These perceptions suggest that differentiated learning was not only feasible but also aligned with cultural and ethical expectations in the classroom.

Table 2. Teacher Perceptions of Differentiated Learning

Description	Evidence Type	Quality
Ability to follow instructions	Interview theme: “Children repeat instructions, showing understanding.”	4
Moral-religious values (praying before learning)	Teacher notes: “Group prayer reinforced respect and empathy.”	3
Ease of media preparation	Interview theme: “I use familiar objects, so preparation is not difficult.”	3
Alignment with children’s needs	Teacher reflection: “Objectives adjusted to readiness levels.”	3
Engagement and motivation	Interview theme: “Choice of activities increases pride and participation.”	4

Note. Quality ratings: 1 = Bad, 2 = Enough, 3 = Good, 4 = Very Good.

Data from interviews and teacher notes also indicated children were following directions teaching differentiated learning activities. Teachers wrote that the children frequently restated instructions out loud for affirmation. As one teacher stated, “*When I do short sentences and when I spend a lot of time modeling step by step, they not only do it but repeat my words to me.*” That indicator received a Very Good (4), indicating solid instructional clarity and useful scaffolding strategies.

Values comprised of a moral and religious dimension were prioritized by teachers as part of classroom practice. It was noted that group prayer prior to lessons helped cultivate an environment of respect and compassion among children. As one teacher says: “*The children tell each other to pray, which shows that they have absorbed the value.*” A rating of Good (3) in this area indicates ongoing values integration, yet demonstrates opportunity for growth.

Teachers reported on how they prepared the media growth, providing further details to indicate that differentiated instruction was indeed feasible. They regularly repurposed everyday objects to strengthen the learning content while keeping prep requirements low and relatability of activities high. One teacher commented, “*I take things that kids are already familiar with; like colored paper or simple toys. It makes learning more relatable.*” This indicator received a Good (3) value, making this type of differentiated approaches practical in limited-resource contexts.

Teachers talked about how important it is to make sure that goals match the developmental readiness of the kids. Some kids needed easier tasks, while others were ready for more difficult ones. One teacher said, “*Changing goals means no child gets disappointed.*” This is a Good (3) indicator and demonstrates that differentiation has a role in equitable participation.

Lastly, differentiated approaches were consistently associated with increased levels of engagement and motivation. An analysis of best practices revealed that teachers noticed students getting involved and demonstrating pride when they were given choices for activities. You can say, “*When you have a mind of your*

own where children can control what to work on from activity menus, they feel good about their work and want to be involved” one teacher said. Psychometric theme 1: adult outcomes Zone score = Very Good (4) This indicator was rated the highest among all indicators in this domain and reinforces the belief that parts of autonomy and choice can create intrinsic motivation for young children learning.

Inferred Developmental Impacts

Children’s developmental outcomes were inferred from both documented progress and artifacts of their work. Enthusiasm, ability to follow instructions, and cooperative peer interactions were consistently observed. Stronger developmental gains were noted in language, socio-emotional, and artistic domains. For example, *children’s drawings revealed growing complexity some used multiple colors and detailed shapes, while others expressed ideas through simpler forms, both showing progress at their own level.* Teachers’ notes also documented that children who initially hesitated to speak gradually began to share short sentences during group activities, suggesting gains in confidence and communication skills.

Table 3. Inferred Developmental Impacts of Differentiated Learning

Description	Evidence Type	Quality
Language skills	Children's speaking ability: "Children who were previously shy to speak have started to speak in short, simple sentences."	4
Socio-emotional skills	Teacher reflection: "Children showed improved empathy and self-control."	3
Artistic expression	Children’s work samples: "Drawings and crafts revealed growing creativity."	4
Physical-motor skills	Observation notes: "Gross and fine motor activities matched developmental levels."	4
Cognitive skills	Documented tasks: "Children sequenced numbers and recognized patterns."	4

Note. Quality ratings: 1 = Bad, 2 = Enough, 3 = Good, 4 = Very Good.

There was a significant increase in speaking skills, including among children who had consistently avoided talking. Results from the interview data suggested that shy children began responding in snippets and short sentences, and through more linguistically confident exchanges. This indicator was satisfactory (4), which reflects progress in oral language development. Results from teacher reflections indicated improvements in empathy and self-control, suggesting that differentiated learning contributed to socio-emotional development. Although these skills were consistently observed, a Good (3) rating suggests that more intensive practice may be warranted to achieve consistency across contexts.

The evidence of growing creativity and imagination came from the children’s work samples, such as drawings and crafts. Artistic products showed originality and an increasing sophistication in expressing ideas. Differentiated activities support creative development, resulting in a rating of this dimension as Very Good (4). Observation records indicated that rich learning experiences were provided in both gross and fine-motor activities, matched to the developmental level. Children were able to complete a variety of coordination and dexterity tasks, confirming that differential approaches facilitated growth in physical skills. This indicator was rated Very Good (4).

Evidence of development was supported through documented tasks in which children effectively sequenced numbers and recognized patterns, demonstrating an expansion in cognitive processing and problem-solving. Findings that are rated Very Good (4) include knowledge and differentiation in instruction, which addresses this gap in foundational cognitive competencies.

DISCUSSION

Data indicate a separation of the pedagogical process from content mastery, a key factor in fostering a successful active learning environment through the implementation of differentiated instruction at Hang Tuah Tarakan Kindergarten. Differentiation is applied across the curriculum; however, content differentiation is currently "adequate", indicating that while how it is delivered may vary, the complexity of the material itself remains a work in progress. However, the approach resulted in significant statistical advances; for example, language transitioned from simple speech to complex sentence structure. Fine motor skills and confidence in art also grew alongside the increasing complexity of student projects.

These quantitative gains are access doors, and you can only enter them after long-term investment in gardening. Letting children choose what they do measurably increased intrinsic motivation and personal pride, teachers noted. This shift was not only an academic one: it changed the social fabric of the classroom. Group art projects gave way in terms of joint cooperation by moving students from working alone to problem-solving together. Teachers observed that this involvement led to greater internalization of instructions, with students repeating and adhering to complex directions.

But it has also exposed a lopsided landscape that needs further tuning. Language acquisition and student enrollment attained a "Very Good" rating, whereas grouping prayer and socio-emotional skills was rated as a

"Good". Such misalignment indicates that although the scaffolding of differentiation drives enhanced cognition and motor skills, for values integration and emotion regulation to occur in a truly embodied way, an element of subtlety is required; it cannot simply be boiled down to its activities by offering recipes for nutrition.

These findings align closely with the theoretical perspective of differentiation as articulated by Tomlinson, who argues that academic growth is maximized when instruction is carefully matched to a student's readiness, interest, and learning profile. One of the pieces of evidence for this at Hang Tuah Tarakan Kindergarten was the shift from a standardized expectation to flexible goal-setting. Educators dismantled barriers to entry for shy, hesitant, or less elaborate students by adjusting targets to avoid frustration and offering "choice boards" or differentiated activity pathways. This democratization of the classroom environment not only improved task completion, but created a sense of intrinsic motivation and ownership of the learning process to ensure that students were invited into participation rather than dragged in by some arbitrary obligation.

In addition, these types of developmental leaps are consistent with Vygotsky's sociocultural theory and the Zone of Proximal Development (ZPD). Teachers modelled effectively as 'more knowledgeable others', using scaffolding strategies such as coding instructions in child-friendly language using font/text size and colour, alongside subject specific modelling through a sequenced approach (Anisah, 2025; Muhammad et al., 2025). This support created a space for children to move from where they were at the time to what they could do, usually seen as one moving sentence style towards another more complex linguistic version. Classroom was a micro-community, whereby, classroom learning becomes social; group art projects and collective values-based practices convert individual hard work into collaborative mastery it confirmed the phenomena that cognition is never separate from context (Pereira, 2023).

All this ends up being an integrated lens through which we can view the findings from this study. When the overlap between Tomlinson and Vygotsky was most pronounced (e.g., language confidence, fine motor precision, and collaborative creativity), the benefits were lingering. On the other hand, the more obviously speculative advances mentioned in moral-religious dispositions indicate domains where scaffolding may be less conspicuous or even subject to teacher discretion. This points to a key understanding: differentiation works best at the level of visible skill-learning, while Socio-emotional and Spiritual Development as abstract domains need more intentional design for integrated development if students are going to have results that are "Very Good". It may enhance this into a thorough, intellectual discourse by analysing these topics categorised by observable consequences and interpretive obstacles. Below are three passages that enhance the analytical perspective.

The findings show a distinctive impact hierarchy, with much of the clearest changes attributed to observable developmental domains. The large mixed performance improvements in language confidence, socio-emotional collaboration, and artistic expression indicate the real-time scalability of strong differentiation practices for visible skills. For example, the transition from broken speech towards complex sentence structures is but a quantitative "linguistic footprint" of the Zone of Proximal Development in action. These zones thrived because they capitalized on the response loops of Tomlinson's framework activity choices and consequent goal adjustments created no degrees of separation between performance and reward, rendering direct benefits to the child or observer as quick notes taken in real time.

The conditional improvements in moral-religious dispositions and cognitive readiness, on the other hand, are still much more hypothetical. Whereas an art project or the utterance of a sentence counts as "hard" evidence, we usually infer our internals (even if we cannot identify abstract cognitive readiness in either humans or AI). This aversion to measurability is likely what caused the ratings in these domains to skew towards "Good" (not "Very Good"). As a result, these dispositions are determined via assessments that rely on the teacher's reading between the lines of nuanced behavior (e.g., giving a nod to invited prayer). This implies that, although differentiation is an extremely potent means of skill acquisition, it may call for specifically tailored and long-term assessment instruments to obtain the subtle development of a child's interior value system.

Third, there are multiple institutional and methodological constraints to making definitive conclusions. Content differentiation at Hang Tuah Tarakan Kindergarten is rated "adequate" because the process of teaching was more flexible, while the substance (content) of the curriculum was not yet entirely idealized for readiness level differences. Also, the focus on teacher perception adds a level of subjectivity; teachers may simply use engagement and "busyness" as indicators for learning. For example, in order to be rated "Very Good" overall, the school would probably need to address this inconsistency, as it likely predicts a pattern of high scores in language gains against more nebulous and plateaued socio-emotional and moral integration.

CONCLUSION

Findings from classroom observations, teacher perceptions, and student work samples at Hang Tuah Kindergarten, Tarakan indicated that differentiated learning was well implemented across content, process, and product. It seemed to create excitement, focus, and peer collaboration, while teachers reported that children followed instructions, engaged with materials they knew, and were motivated by options. Inferred developmental outcomes varied in strength across domains—complex versus collaborative language, socio-emotional collaboration, artistic creativity, motor coordination, and cognitive sequencing.

Differentiated learning in this context seemed pedagogically appealing and responsive to observable skills such as language, motor development, and artistic expression. However, various socio-emotional growth and value integration domains were rated as more restful, indicating that these domains may benefit from more intentional design and longer practice.

Caution is warranted in interpreting these findings. Content differentiation was rated only “adequate,” suggesting mixed readiness across levels. Subjectivity was introduced through teacher perceptions, where engagement and compliance served as proxies for learning. Further, the developmental impacts in broad domains such as moral-religious values were inferred rather than directly measured. Thus, conclusions can only be made with a low degree of confidence. Collectively, the research found that differentiated learning strategies created active and inclusive learning contexts and seemed to assist development both academically and socially. Although these results are promising, they cannot be generalized to all developmental domains. They would benefit from greater content differentiation and a more robust evaluation of socio-emotional and values-based growth.

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AUTHOR CONTRIBUTION STATEMENT

AN was responsible for conceptualizing the study, designing the research framework, and drafting the initial manuscript. MSR contributed to literature review, and the arrangement of research materials. MSY assisted in data analysis, interpretation of findings, and refinement of the manuscript. All authors reviewed and approved the final version of the article, ensuring accuracy and coherence in the presentation of the research.

AI DISCLOSURE STATEMENT

The author used Microsoft Copilot and Quillbot during the preparation of this work for paraphrasing sentences, structuring the overall flow of the discussion, and supporting the drafting of the article. After using this tools, the author independently conducted thorough reviews, made necessary revisions, and refined the manuscript to ensure accuracy, clarity, and readiness for publication.

Annisah Nurul Dzulaekha

Universitas Muhammadiyah Malang,

Jl. Raya Tlogomas No.246, Tegalondo, Kec. Lowokwaru, Kota Malang, Jawa Timur 65144, Indonesia

Email: nisa.nurul5520@gmail.com

Mohamad Syahri

Universitas Muhammadiyah Malang,

Jl. Raya Tlogomas No.246, Tegalondo, Kec. Lowokwaru, Kota Malang, Jawa Timur 65144, Indonesia

Email: syahri@umm.ac.id

*Mohammad Syaifuddin (Corresponding Author)

Universitas Muhammadiyah Malang,

Jl. Raya Tlogomas No.246, Tegalondo, Kec. Lowokwaru, Kota Malang, Jawa Timur 65144, Indonesia

Email: syaifuddin@umm.ac.id
