



Differentiated Worksheet, An Alternative Way to Increase Students' Learning Motivation

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Abstract

Learning motivation becomes one of the fundamental factors in determining students' academic achievement and engagement in classroom activities. The current study aims at investigating the impact of Differentiated Worksheet in increasing students' learning motivation through a mixed-method approach with a quasi-experimental design. The participants consisted of 66 eighth-grade students who were divided into an experimental class and a control class. The experimental class was given intervention using Differentiated Worksheet, while the control class received conventional instruction without differentiation. Quantitative data were collected through pre-tests and post-tests to measure students' academic performance, whereas qualitative data were obtained from classroom observations and short student interviews to explore changes in learning behavior and motivation. The quantitative findings revealed that students in the experimental class showed a significantly higher improvement in post-test scores compared to those in the control class, indicating a positive impact of Differentiated Worksheet on learning outcomes. Qualitative findings further supported these results, showing that students became more engaged, confident, and actively involved in classroom activities. Observations and interview data indicated that Differentiated Worksheet helped students feel more comfortable with learning tasks that matched their levels of ability, thereby increasing their motivation and participation. Thus, the integration of quantitative and qualitative data demonstrates that Differentiated Worksheet is an effective instructional strategy for enhancing students' learning motivation and supporting academic achievement of various type of students.

Keywords: *Learning Motivation; Differentiated Worksheet; Differentiated Instruction*

1. Introduction

Motivation is one of the fundamental elements in all learning process situation where it is significantly impacting students' academic achievement and engagement (Feng and Xiao, 2024). Motivation refers to a

psychological aspect, by which in learning circumstances can influence students' willingness to engage in every teaching and learning activity. Deci and Ryan (2013) with their theory of Self-Determination explain that motivation is driven by the fulfillment of three fundamental needs such as autonomy, competence, and relatedness. All of them are vital for fostering students' learning motivation that will be beneficial for their long-term academic engagement and success. Autonomy deals with the desire to make choices in learning, competence refers to the belief in one's ability to succeed, and relatedness relates to the sense of connection with others. When these needs are accomplished, the students are more likely to engage in the learning process, participate actively in class activities, and demonstrate a strong desire to learn.

Motivated students tend to engage more with classroom activities, take initiative in learning tasks, and show a greater willingness to interact with their peers and teachers (Cents-Boonstra et al, 2020). Motivated students not only reinforce their learning flow but also will take their position to demonstrate their understanding of the material (Quin, 2017). That is why simultaneously fostering students' learning motivation is essential to increase the students' academic performance and engagement.

A key challenge faced by educators in their attempt to increase the students' learning motivation is to find effective strategies, especially in diverse classrooms with varying levels of student abilities, backgrounds, and learning styles (El-Soussi, 2021). The teachers need to consider various variables such as learning objectives, students' interest, and students' habits for the purpose of deciding appropriate strategies to improve students' learning motivation (Redondo & Martin, 2015). Generally, in traditional instructional methods, the teaching and learning process are mostly held by giving the same treatment to all students (one size fits all), which have no significant impact to the development of students' learning motivation. Different from that, there is an approach named Differentiated Instruction (DI) that is used to address personal learning needs of every individual learner (Tomlinson, 2001). It provides teachers with various ways of learning activities that can handle their difficulties in the context of constructing students' learning motivation.

Naturally, DI is an approach designed to meet the diverse learning needs of students. The philosophy behind DI is that students learn at different paces, have different interests, and possess different levels of prior knowledge. To cater to this diversity, teachers modify the content, process, and product of learning to ensure that each student is appropriately challenged, supported, and learned the materials taught (Tomlinson, 2001). Additionally, by providing students with learning opportunities that align with their strengths and challenges, it is expected that the students can be actively involved during the learning process. As the result, the objectives of the teaching and learning process can be successfully achieved with no students left behind.

One of the key strategies used in DI is the application of differentiated worksheet. The worksheet is designed to meet various ability, learning preferences, and levels of students through the adjustment of the difficulty, format, or content of tasks. Differentiated worksheet can include different levels of tasks for the same topic, provide options for students to engage with the material in many ways like written tasks, visual aids, or group discussions, or allow students to choose assignments based on their interests. The goal is to make sure that all students are challenged appropriately without feeling overwhelmed or disengaged. Among the various methods used to implement differentiated instruction, differentiated worksheets can be a valuable tool for promoting students' motivation in the learning process.

The use of differentiated worksheet is allowing students to work at their own pace, providing tasks that are appropriately challenging, and helping students develop confidence in their abilities. All of them are critical factors in motivating them to participate actively in learning. In a study conducted by Subandiyah et al (2025) shows that students in differentiated classrooms performed higher levels of engagement and motivation than those in traditional classrooms. That is why, by promoting DI in classroom, especially

using differentiated worksheet, could possibly contribute to a greater sense of student ownership of learning, as students are provided tasks based on their level.

While the benefits of DI are well-documented, research specifically focused on the impact of differentiated worksheet on motivation remains limited. However, numerous studies provide supportive evidence where differentiation in various forms such as content, process, or product can give positive impact to students' learning. One of the examples can be seen in a study initiated by Zens (2021) where he pointed out positive effects of instructional materials, including worksheets, on students who have different level of knowledge. Furthermore, the study found that by providing tasks that meet with their readiness levels, the students are more motivated to engage in classroom activities.

The concept of the Zone of Proximal Development (ZPD), introduced by Vygotsky (1978), can be one of the useful frameworks to understand how differentiated worksheet can enhance students' learning motivation. Base on Vygotsky point of view, learners are most motivated when they are given tasks that are slightly beyond their current level of competence. Furthermore, he states that it can be achieved with the support of a teacher or peers. Differentiated worksheet provides an effective way of targeting this ZPD, as it is allowing teachers to design tasks that challenge students appropriately. When students work within their ZPD, they are more likely to experience a sense of accomplishment, leading to increased motivation.

While differentiated worksheet have the potential to enhance motivation, it also poses challenges for teachers. Creating differentiated materials requires time, effort, and expertise, as teachers must ensure that the tasks are appropriately designed to address the diverse needs of their students. However, the benefits of differentiated worksheet, particularly in terms of increased students' motivation, make it a worthwhile investment in the classroom. Through the adoption of this kind of strategies educators can create a more inclusive and supportive learning environment that meets the individual needs of all students.

In conclusion, the use of differentiated worksheet offers a promising strategy for increasing students' learning motivation in the classroom. Tailoring worksheets to students' readiness levels, learning preferences, and interests, teachers can create an environment that fosters greater engagement and intrinsic motivation. Given the importance of motivation in the learning process, differentiated worksheet represents an effective tool for enhancing academic success and promoting a positive learning experience for all students.

2. Methods

This present study was conducted under the umbrella of mixed-method approach with a quasi-experimental design to investigate the effectiveness of using differentiated worksheet in increasing students' learning motivation. The mixed-method approach was used to acquire comprehensive and unbiased data by integrating quantitative and qualitative perspectives. The quasi-experimental design involved 66 students grade 8 who are divided into two groups called an experimental class and a control class. The experimental class received instructional treatment through the use of differentiated worksheet, while the control class was taught without the use of differentiated worksheet. The students were grouping without individual randomization, that is why, it was categorized as quasi-experimental.

Data collection was conducted using both quantitative and qualitative methods. Quantitatively, data were obtained through pre-tests and post-tests administered to both the experimental and control classes. The pre-test was used to measure students' prior knowledge before the implementation of the treatment, while the post-test aimed to assess students' learning outcomes after the instructional intervention. The comparison between pre-test and post-test results from both groups was used to analyze the impact of the differentiated worksheets on students' academic achievement.

Qualitatively, data were gathered through classroom observations during the learning process and short-direct interviews with students. Classroom observations were conducted to analyze students' learning behaviors such as their engagement and participation during the whole process teaching and learning. At the same time, the interviews were intended to explore students' perceptions of the learning experience, particularly whether the use of differentiated worksheet increased their motivation to learn or not. In conclusion, the integration of quantitative and qualitative data was aimed to provide a more comprehensive understanding of the effectiveness of differentiated worksheet in improving students' learning motivation.

3. Results

At the end of all research process, it is found that the use of Differentiation Worksheet in the experimental class contributed positively to students' learning motivation. The conclusion is supported by quantitative data obtained from pre-test and post-test scores as well as qualitative data collected through classroom observations and short student interviews. The details can be seen from the following explanation:

Quantitative Findings

The result of quantitative data presents a significance difference in terms of learning outcomes between students in the experimental class and those in the control class. Students in the experimental class showed a substantial increase in their post-test scores after being taught using differentiated worksheets, whereas students in the control class demonstrated only a minimal improvement.

The comparison between both pre-test and post-test mean scores is illustrated in Table 1.

Table 1. Mean Pre-Test and Post-Test Scores of Experimental and Control Classes

Class	Pre-Test Mean	Post-Test Mean	Mean Score Gain
Experimental Class	78.06	92.68	14.62
Control Class	77.68	82.41	4.73

As evidenced by the data in the Table 1, Experimental and Control Class both started with generally similar pre-test scores. It indicates that the students almost had the same prior knowledge before the intervention using Differentiated Worksheet was implemented. Nevertheless, after the treatment was given, the experimental class experienced a significant increase in post-test scores, while the control class performed only a slight improvement. This difference suggests that the use of differentiated worksheets was effective in supporting students' academic achievement and performance.

In addition to that, the significance score gained by the experimental class after the intervention is given, illustrates that instructional materials designed to accommodate students' varying levels of readiness, learning pace, and abilities can help students in improving their understanding of the learning content. More importantly, the improvement in test scores also reflects an increasing of students' willingness to engage with learning tasks, which has direct correlation to learning motivation.

Classroom Observation Findings

It has been mentioned earlier that the observation process is conducted during teaching and process in both classes. The classroom observations produced comprehensive insights of how differentiated worksheets influenced students' learning motivation. Over the period of the implementation of differentiated worksheets, students in the experimental class performed higher levels of enthusiasm, attention, and active participation throughout the learning process.

The focus of observation was the behavioral change among students who were previously passive and had no willingness to participate in the learning process. Before the intervention, several students tended to remain silent, shout during lessons, or frequently walk around the classroom without engaging in learning activities. After the introduction of differentiated worksheets, these students constantly showed more positive learning behaviors. They began to focus on completing tasks, actively responded to the teacher's instructions, raised their hands to answer questions, and volunteered to come to the front of the class when challenged to solve tasks from the worksheets.

These changes indicate that Differentiated Worksheets helped reduce students' passiveness and unwillingness in the classroom. Moreover, it also implies that matching the tasks with students' levels of competence, they found the feeling of confident and an enjoyment in attempting to participate in the classroom activities. This kind of behavioral component improvement is an essential component of learning motivation, as students are more likely to engage in learning activities when they believe they are capable. In the same vein, the classroom atmosphere in the experimental class became more interactive and supportive. Students were observed discussing tasks with peers, asking questions, and showing curiosity toward the learning material. Such behaviors indicate that differentiated worksheets not only encouraged individual engagement but also fostered a more collaborative learning environment.

Findings from Student Interviews

In order to validate the previous findings from classroom observation, short interviews with students were conducted. As the result, students said that learning activities using Differentiated Worksheets made the lessons in one hand easier and the other hand still challenging. Students reported that the worksheets guided them step by step, allowing them to slowly build their understanding without feeling burdened with difficult task. They also mentioned that the tasks encouraged them to think deeper and challenged them to find answers independently or collaboratively. It is the indication of the increasing of intrinsic motivation which correlates to Vygotsky's Zone of Proximal Development (ZPD) theory. The theory emphasizes that learning is most effective when students are given tasks that are slightly above their current ability level but can be completed with appropriate support or scaffolding.

In the current study, Differentiated Worksheets had its role as an instructional scaffolding which used to support the variation of students' level of competence. The worksheets were provided with various levels of difficulty and structured guidance. As the result, students were able to engage in meaningful learning activities that challenged their thinking while still being achievable. The balance between challenge and support becomes the key factor in sustaining students' motivation and engagement. The students then find themselves satisfy when they get involve in teaching and learning process. It is in line with Chang & Chang (2012) who found out that the students will feel motivated when they experience learning satisfaction. Thus, it is going to be a positive aspect which is expected to help teachers in the teaching and learning process.

Comparison with the Control Class

To get more comprehensive data result, it is also important to elaborate the data from the perspective of control class. As shown in the Table 1, students in the control class have no significant improvement in either learning outcomes or learning motivation. There is only minimum improvement performed in post-test scores. It suggests that traditional instruction without Differentiated Worksheets was less effective in facilitating students' diverse learning needs. The result aligns with Tas & Minaz (2024) who observed that promoting different intervention to different types of students contributes to the increasing of students' learning motivation and involvement in classroom activities.

The same thing is also found during the classroom observations in the control class. It reveals limited students' participation and attention. Only a small number of students actively engaged in answering questions or completing tasks, while others appeared disengaged and has no willingness to participate. Some students were observed remaining silent throughout the lesson, and several expressed confusions when asked about the topic discussed. In addition to that, students explained the reasons why they performed such behaviors is because they found the material difficult to understand and felt less motivated to participate in classroom activities. This lack of engagement is the result of the absence of Instructional Differentiation using Differentiation Worksheet, which resulted in learning tasks that did not accommodate students' varying levels of readiness and ability. This also can be an alert for the teacher when students are feeling unmotivated, their academic achievement and performance would be hard to increase. Daniel et al (2024) argue that when students experience low motivation during the learning process, they will not develop their personal and academic qualities like interest, confidence, and cooperation. As the result, the classroom management will be hardly managed by the teachers.

Discussion of Findings

The preceding data that is elaborated above shows that the integration of quantitative and qualitative findings provides strong evidence that differentiated worksheets have a significant impact in enhancing students' learning motivation, which in turn lead to academic achievement. As it can be observed from the improvement in post-test scores, there are positive changes in learning behavior and students' perceptions. They show higher levels of enthusiasm, attention, and active participation during the teaching and learning process. It becomes valid evidence that the implementation of Differentiated Instruction through Differentiated Worksheet creates a more accessible and motivating learning environment for all types of students. Furthermore, Differentiated Worksheets appears to support key components of learning motivation, such as students' sense of competence, willingness to collaborate, autonomy, and engagement. The students become actively participate in every classroom activity as they feel confident to solve tasks or activities that are provided by the teacher. As the result, when learning tasks are aligned with students' abilities and learning needs, learners are more likely to feel comfortable in the classroom, willing to participate, and motivated to contribute in learning activities. Base on that, the findings of this study indicate that the use of Differentiated Worksheet can be an effective instructional strategy for improving students' learning motivation. In addition, the use of Differentiated Worksheet helps the teacher to put more their attention to individual differences and provision. Thus, it creates meaningful learning experiences that encourage students to actively engage in the learning process.

Conclusion

The study shows a significant impact of the use of Differentiated Worksheet to students' learning motivation. The data from quantitative analysis using pre and post-test in experimental class indicates a comprehensive improvement of students' academic performance. In contrast, students in control class who were not gotten the intervention of the application of Differentiated Worksheet, performed statistically insignificant enhancement of their post-test. In this context, the implementation of Differentiated Worksheet comes to be an influential factor in increasing students' learning motivation from the perspective of academic achievement. Besides that, the postulate is also supported by the descriptive analysis from qualitative data that was conducted through observation and short interviews with students. The findings from observation reveal that the students showed willingness to participate in all classroom activities, actively collaborate with their classmates, and eager to engage when the teacher asked them to do so. Through the interviews process, the students confirm that they feel more comfortable and confident when they see the tasks that were provided differently in The Differentiated Worksheet. They insist that the tasks were appropriate with their level of knowledge. Thus, they see the use of Differentiated Worksheet as an alternative way to support their learning performance and motivation.

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