



The Implementation of Diagnostic Assessment to Support Differentiated Instruction in English Learning at SMK N 1 Pringapus

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Article Info

Article History:
Accepted 30 August 2023
Approved 8 September 2023
Published 23 December 2023

Keywords:
Merdeka Curriculum,
Diagnostic assessment,
Implementation,
Differentiated
Instruction,

Abstract

The purpose of this study was to investigate the implementation diagnostic assessment to support differentiated instruction in English learning at SMK N 1 Pringapus. It involved the teacher and 34 students in the eleventh-grade majoring in automotive academic year 2023/2024, which employed a mixed-method research design. The qualitative data analysis from teacher' interview, classroom observation included documents such as test items from diagnostic assessments, students' outcomes, and lesson plans (modul ajar) revealed that the finding had explained how the teacher applied the sequences of the diagnostic assessment to assess students' readiness, interest and learning profile. Moreover, the teacher was able to utilize the results of diagnostic assessments to design differentiated instruction by carrying out the process of differentiating content, processes and products. On the other hand, the paired t-test revealed a significance difference in students' score before and after the implementation of differentiated instruction with topic explanation text. The average mean value of the pre-test was 63.79, and the post-test was 78.08. It led to the conclusion that the implementation of differentiated instruction in English class strengthen the student knowledge, understanding, and skill. This study was remarkable because it presented a novel perspective on how teacher implementing the diagnostic assessment and using the data to design and apply step by step differentiated instruction in English learning.

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p-ISSN 2087-0108

e-ISSN 2502-4566

INTRODUCTION

Merdeka Curriculum focuses on diverse learning with a selection of essential materials to support learning experiences. One of the interesting things about the discussion of the Merdeka curriculum is its characteristic flexibility. The teacher is given the freedom to carry out differentiated learning according to the ability or capacity of the students. General English learning at the primary and secondary education levels in the Merdeka curriculum addresses on strengthening the ability to use English across six language skills, namely listening, speaking, reading, viewing, writing, and presenting, integrated across various types of texts. In order to enhance the worthwhile of teaching English, the differentiated learning can be an alternative to the teacher. This method enables teachers to address the unique needs of each student in the classroom. Moreover, according to Tomlinson & Moon (2013) effective differentiation requires teachers to assess student status before a unit of study begins (pre-assessment).

Harmer (2007) defines diagnostic test as a test that can be used to expose learner difficulties, gaps in their knowledge and skill deficiencies during a course. Thus, when we know what the problems are, we can do something about them. It may occur at the beginning of a term or a unit of study, or whenever information about the prior learning of a student is useful. Diagnostic tests should elicit information on what students need to work on in the future as stated by Brown (2003). Further he stated that a diagnostic test will typically offer more detailed subcategorized information on the learner. Furthermore, Doubet & Hockett (2017) defines pre-or diagnostic assessment as the process of gathering evidence of students' readiness and interests prior to beginning a unit or series of related lessons and then using that evidence to plan instruction that will better meet learners' needs.

As defined by Morgan (2013) Differentiated instruction is a way of recognizing and teaching according to different student talents and learning styles. As cited by

Gheysens. Et al. (2020) Woolfolk (2010) describes differentiation as a varied set of education and teaching components that consider the specific characteristics of students. Tomlinson's Model (2014) for Differentiation of Instruction is comprised of practices and principles that, read together, provide a definition of differentiation:

When teachers differentiate, they make proactive adjustments to content, process, and product, according to patterns in student readiness, interest, or learning profile, using instructional strategies, informed by standards-aligned learning goals; pre- and formative assessment; and interest/preference surveys and inventories, implemented through varied instructional groupings, flexible classroom routines, and efficient management tools and techniques in the context of supportive, growth-oriented, community-cantered classrooms.

Some scholars have done research on diagnostic assessment and differentiated instruction. Rovikasari, et al., (2020) examined that due to a lack of understanding of student requirements, it can be challenging for English teachers to implement effective teaching-learning activities. In English class, it is essential to be aware of the students' assets and weaknesses. Lee (2015); Al Alami (2015); are in similar opinion about diagnostic assessment to understand the students' needs. They agreed that by using diagnostic assessment would help to know the students' strengths and weaknesses.

Barlian et al. (2023) stated that the implementation of differentiated learning in the independent curriculum in English subjects had been carried out well by paying attention to the four components namely content, process, product and learning environment. But those studies focused whether on diagnostic assessment or differentiated instruction only.

Study about diagnostic assessment and differentiated instruction has been carried out by Sujinah (2024) the data analysis suggested that a deep comprehension of students' initial abilities is crucial for customizing relevant teaching materials and strategies, which helps in establishing differentiated instructional

environments. By using diagnostic assessments, teachers can identify potential academic difficulties early on and take proactive steps to address them effectively. Junaidah (2023) had carried out research about how diagnostic assessment result to design differentiated instruction at vocational high school. He concluded that the diagnostic assessments are crucial when designing a differentiated learning model in vocational education. This process allows the teachers to grasp individual students' requirements, adjust learning approaches, assess student abilities, and track their development. By leveraging insights gained from diagnostic assessments, the teachers can tailor learning experiences that are both effective and pertinent to each student within the vocational education framework. The study's findings suggested that some teachers may not fully integrate diagnostic assessment results into differentiated learning plans, potentially hindering the alignment of instruction with student needs.

However, Junaidah's study (2023) focused solely on diagnostic assessment data derived from students' learning styles which was part of learning profiles. In addition, for the implementation of differentiated instruction, data relied on survey results distributed to teachers concerning their comprehension and utilization of diagnostic assessments.

Therefore, the previous study differed from the current one, which explored the implementation of diagnostic assessments on students' readiness, interests, and learning profiles. Furthermore, it investigated how this data supported differentiation in content, process, and product within English learning at SMK N 1 Pringapus. As well, whether there was a significance difference before and after implementing differentiation instruction.

METHOD

This study involved the English teacher and students. A mixed-method design was employed because both quantitative and qualitative data were analysed in this study. It specifically applied explanatory sequential

mixed-method. The role of the researcher in this study was an observer who analysed the result of diagnostic assessment and observed the implementation of differentiated instruction.

According to Creswell (2012), qualitative research is an approach to investigating and comprehending the significance that individuals or groups attach to a social human situation. In order to gain detailed information for qualitative, some instruments were English teachers' interview and observation sheets were used. The data were also included documents such as test items from diagnostic assessments, students' outcomes, and lesson plans (modul ajar).

The quantitative phase of this study, on the other hand, attempted to analyse an explanatory relationship between the implementation of diagnostic assessment and the differentiated instruction at SMK N 1 Pringapus. It was explored by conducting one group pre-test post-test design. Objective measurement was required to test whether diagnostic assessment support differentiated instruction using the scoring rubric for writing adapted from Brown (2003). It was in line with Creswell (2012) who states that quantitative research is guided by a positivist paradigm, which holds that the world is governed by laws or theories that must be tested and verified before they can be considered true knowledge.

As a result, the mix approach is a good design to use in this situation. According to Creswell (2012), the mix method is an excellent design for enhancing the strengths of both qualitative and quantitative data.

After completing the data analysis, the researcher validated the results through investigator triangulation. This involved consulting with an expert from a vocational high school specializing in English learning and assessment to ensure the accuracy and validity of the gathered data.

RESULTS AND DISCUSSIONS

This section discusses the study's findings and explanation. It is organized into four main

parts: the implementation of diagnostic assessment and the implementation of differentiated instruction.

The Implementation of Diagnostic Assessment

Three characteristics of students guide differentiation based on Tomlinson (2001) are readiness, interest, and learning profile. In addition, Tomlinson (2001) defines readiness as a student's proximity to the learning goals at a specific point in time. It is where the student is relative to where the learning goals say the student should be. Hockett (2018) added that a student's readiness can vary from lesson to lesson, skill to skill, and concept to concept. Readiness is also more consistent with research on the relationship between a person's beliefs about the nature of intelligence and his/her motivation to learn and persist in the face of challenge.

Tomlinson (2001) describes that interest refers to the passions, kinships, and affinities that can motivate a student to learn. In a differentiated classroom, leveraging students' interests is one secret to making learning both more cognitively and affectively engaging and more joyful. It was accordance with Hockett (2018) that teachers can design rich, authentic learning experiences and tasks that build on or connect to students' personal interests. Examples include video games, a fictional character or world, a collection of something, animals, sports, hobbies, music, etc.

Learning profile refers to ways in which we learn best as individuals as stated by Tomlinson (2001). As well, the goals of learning-profile differentiation are to help individual learners understand modes of learning that work best for them, and to offer those options so that each learner finds a good learning fit in the classroom.

This study focused on how teacher 1 implemented diagnostic assessment that assessed students' readiness, interest and learning profile. Then, used the data result to differentiate instruction in English learning.

During the implentation of diagnostic assessment, the teacher did them based on procedures as written on pocket book of

diagnostic assessment issued by Pusat Assesmen dan Pembelajaran Kementrian Pendidikan Kebudayaan (2020), as follows;

A. Preparation

In this stage, the teacher made assessment plan, then did material identification, and the last step composed test items. She made questions checklist as guidance to apply the assessment. The questions checklist including;

1. Implementation plan

- For what grade students are this assessment made?
- What kind of diagnostic assessment will be prepared?
- What subject topics would be assessed in this assessment?
- When will these assessments be given to all students in class?
- How long will the students do the test?

2. Material identification

- What are the essential knowledges, understandings and skills of the topic?
- What kind of materials are students' need to understand in this topic?
- What is prerequisite should students have in order to succeed with the unit?
- What is the format of the assessment?

3. Compose items

- Readiness

This was a two-parts quiz contained 10 items. Part 1 is 8 items consisted of simple present tense (5 items), and passive voice (3 items). Meanwhile part 2 was short essay about how to explain something

- Interest and learning profile

It was YES and NO question or called I LIKE MORE. The teacher gave 9 statements and the the students had to response whether YES or No.

B. Implementation

The teacher conducted diagnostic assessment for students' readiness in explanation text for the eleventh-grade automotive one with 34 students joined the test. She designed a two parts quiz for the students based on the sub-topics. She prepared eight multiple choice items to measure students' understanding in simple present tense and passive voice. Then, she continued with part two for short essay, whereas the students had to explain something based on the question. The students did the quiz within 30 minutes.

Moreover, in order to pre-assess students' interest and learning profile, the teacher distributed three sheets for the students. They had to write down word YES for the sheet number one, then word NO for the second and let the third sheet remain blank. She prepared nine questions. For the first question, the students answered by writing their field of interest on the blank sheet. While for the second to the ninth, they had to raise YES sheet using right hand and NO with left hand. During the activities the teacher took a note about the result assisted by a student. The question items to examine students' interest focus on interest areas such as art, automotive, music and many more. Furthermore, the teacher paid more attention to group orientation and learning orientation for gauging. Those were related to Tomlinson (2001) suggestion.

C. Diagnosis and follow up Stage

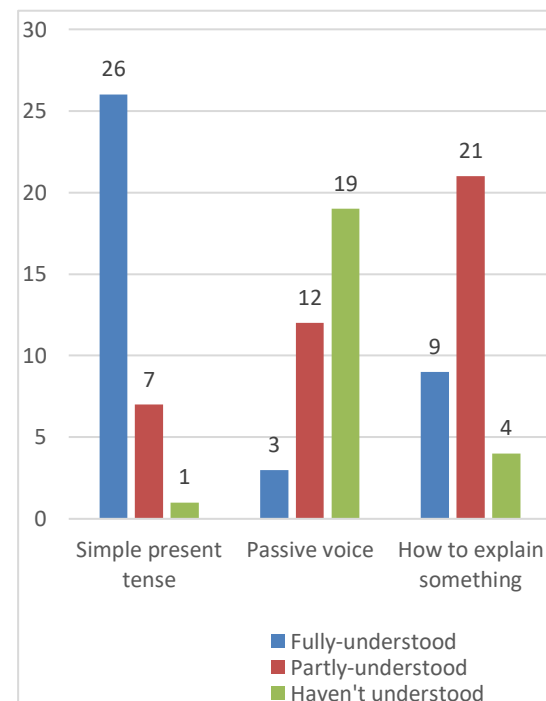
The process continued with the diagnosis and follow up stage. The following were the result of diagnostic assessment.

a. Students' readiness

The teacher proceeded the score by using assessment rubric. Then, the teacher concluded that as the topic explanation text began, the students fell into three categories for each sub-topic, namely students who were fully understood, partly understood, and have not understood. It was accordance with Tomlinson & Moon (2013) stated that as teachers see patterns in the pre-assessment data, they make the critical move from administration of a pre-assessment to using for instructional planning. Making sense of the data begins with a simple sorting exercise.

As illustrated on table 1, it shows that for sub-topic simple presents, almost all of the students were fully-understood about the material. Meanwhile for passive voice, more than half of students had not understood about it. The last sub-topic was how to explain something. The students who were partly understood on how to explain something were 21 students. Since its format was short essay, it means that majority of the students were able to meet the prerequisite of the topic which was capable to compose a sentence.

Table 1. the result of diagnostic assessment for students' readiness



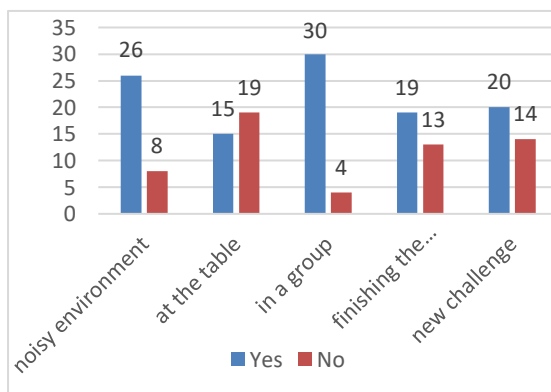
b. Students' interest

Table 2. The result of student's interest based on the areas

No	Interest area	Quantity	Percentage
1	Automotive	14	41.20 %
2	Sport	8	23.53%
3	Games	8	23.53%
4	Music	1	2.9%
5	Movie	1	2.9%
6	Book	1	2.9%
7	Science	1	2.9%

According to table 2, the data related to the result of students' interest area shows that most of students chose automotive. It was aligned with their major background at SMK N 1 Pringapus, namely automotive. The top 2 their favorite personal interest was sport which had sub-unit such as volley ball, football and pencak silat. Meanwhile, games got the same number as sport. Most students selected Free-fire as their favorite.

c. Students' learning profile

Table 3. the result of diagnostic assessment for students' learning profile

Tomlinson (2001) said that learning style refers to environmental or personal factors. Table 3 displays that majority of the students enjoyed learning when there was noise in the classroom. In addition, a lot of them functioned better when they moved around than sit still. Greater number of the students preferred work in a group to individual. More than half of them highly

motivated to complete the assignment and face new challenge. Moreover, the teacher had already had students' learning profile data related to learning style model, namely visual, auditory, and kinesthetic. It was taken in the beginning of academic year 2023/2024.

The next process was interpreting the data started with classifying and sorting task, organizing students' responses into distinct categories based on significant differences relevant to learning objectives.

In terms of the implementation of diagnostic assessment in learning, the finding had explained how the teacher applied the sequences of the diagnostic assessment to assess students' readiness, interest and learning profile. It is aligned to Tomlinson & Moon (2013) paradigm serves as the theoretical foundation for designing and implementing diagnostic or pre-assessment. It emphasizes the function of diagnostic assessment in determining the readiness, interest, and learning profile of students

The Implementation Of Differentiated Instruction

Pre- or diagnostic assessment results can reveal what all students have or have not yet learned or grasped, and point the teacher to which area of the pool is best for students to jump in as explained by Tomlinson & Moon (2013), which may be in the same place or in different places. In addition, Hockett (2018) said that the results of a pre-assessment can also give teachers a sense of what lessons in the unit might need to be differentiated for readiness, interest, or learning preference.

There were several strategies used by teachers in the differentiated learning model, including:

A. Differentiating Content

Content is the "input" of teaching and learning. It's what we teach or what we want students to learn as referred to Tomlinson (2001).

The teacher did differentiation of content, as follows;

a. Readiness

The teacher adjusted the material based on the students' level and need. For example, more than half of students had already understood about simple present tense, thus the teacher did not include and discuss about it specifically. On the other hand, she added passive voice as one of material to be taught to the students on the lesson plan since majority of the students did not master it well. Moreover, the teacher also varied the reading source level about explanation text which were used from simple to complex.

b. Interest

According to the diagnostic assessment for interest, the students were passionate on automotive, sport, and games. Therefore, the teacher prepared the learning materials for learning aligned with those interest areas.

c. Learning profile

The teacher provided learning sources as references related to the topic of explanation text either video or web sites as well. Thus, the student could choose them based on their preference.

B. Differentiating Process

According to Tomlinson (2001) Process means sensemaking or, just as it sounds, opportunity for learners to process the content or ideas and skills to which they have been introduced.

a. Readiness

The teacher tried hard to managed the classroom with mixed ability students. At the beginning of the lesson, the teacher and the students had a learning agreement/contract. This aimed to ensure they were involved in the learning process

in order to achieve learning goals. Likewise, the teacher applied project-based learning. Students were given a final project to write an explanation text at a level of difficulty that suits each student. Teachers provided different directions to students based on their knowledge and understanding level, and shared feedback that was appropriate to each student's development.

b. Interest

For activity choices, students were given options in the material they wish to learn. The teacher provided a variety of choices that enable learners with interests in automotive, sport, music, film and many more.

c. Learning profile

The teacher utilized different kind of medias and sources during the learning process. For instance, as introduction to the topic, the teacher played video about motor-bike industry and provided them with assignment sheet. It was to accomodate the students with visual and auditory learning style. Moreover, she also asked the students to have observation in the laboratory and workshop to fit the students' with kinesthetics learning style. Furthermore, the teacher had flexible grouping for class seating arrangement. At first, she taught for the whole classroom, then switched into large group with the mixed ability level, after that changed to smaller group for learning how to compose explanation text. Finally, the students had to work individually for final project.

C. Differentiating Products

Tomlinson (2001) interpreted that product assignments should help students individually or in groups, rethink, use, and extend what they have learned over a long period of time—a unit, a semester, or even a year. Products are important not only because they represent your students' extensive understandings and applications, but also because they are the element of curriculum students can most directly "own."

At the end of the lesson, the teacher conducted a summative assessment based on the student's final project. Students composed and presented the explanation texts.

General strategies for differentiating, as follows:

a. Readiness

The teacher explained about the project guidance in detail, such as what kind of product they could design, the length of text, time management and the text had to include photograph or diagram. She also shared the assessment rubric, in order to encourage the students to pursue the highest score. Furthermore, she provided example in various forms and levels. The teacher monitored the students' progress by having observation sheet and gave individually assistance helped by advanced students.

b. Interest

The students were free to choose the theme and model for the product according to their interest.

c. Learning profile

The students were allowed to determine media to present the explanation text such as power point, poster, or video.

Comparing Pretest and Posttest Data

Pretest and posttest were conducted to measure the achievement of EFL students. It was essential to measure the impact of the implementation of differentiated instruction in the classroom. The pretest was conducted before the implementation of differentiated instruction with topic explanation text, while the posttest was conducted after the students had learned the explanation text. Then, the results of the test were statistically compared using SPSS.

Table 4. Result of Normality Test of the First Rater on Narrative Essay

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PreTest	.202	34	.001	.922	34	.019
PostTest	.118	34	.200*	.931	34	.033

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 5. Result of Paired T-test of the First Rater on Narrative Essay

Paired T-test

		Mean	N	Std. Dev.	Std. Error Mean
Pair 1	PreTest	63.79	34	7.655	1.313
	PostTest	77.35	34	5.752	.986

The table 4 and 5 above presents the results of the normality test conducted on both pre-test and post-test data sets. It was an essential step in measuring the validity of the collected data. The normality test using Shapiro Wilk had sig values of 0.19 and 0.33 for the pre and post-test, which exceeded the conventional significance level of 0.05. It led to the conclusion that the pre and post-test data were normally distributed. This verification of normal distribution gave an essential prerequisite for the following procedure, which was a t-test.

The table above shows the result of paired sample statistics. Mean is the average value of each variable, N is the number of data of each variable, and the standard deviation is the statistical measure that quantifies the amount of variation. It showed that there were 34 data sets of pre-test and post-test. The mean of the pre-test was 63.79, and the post-test was 78.0769. Therefore, there was a significant difference in average between the pre-test and post-test.

To sum up, the findings showed that teacher is able to utilize the results of diagnostic assessments to design differentiated instruction by carrying out the process of differentiating content, processes and products. Furthermore, As stated by Tomlinson & Moon (2013) that pre or diagnostic assessment helps determine a student starting point with learning targets as well as prerequisite knowledge, understanding and skills that are essential to continued progress in a content sequence. The findings exposed how the teacher systematically carried out step by step diagnostic assessments to obtain initial data on students' readiness, interest and learning profile. Then, used the data to design and implement learning with content, process and product differentiation. Through the pre and post-test results, findings also showed that there is a significant difference in scores between before and after implementing learning differentiation. Those made the novelty of the current study.

CONCLUSION

This research focused on the implementation of diagnostic assessments in planning and implementing appropriate differentiated instruction in the classroom. The results of this research can provide valuable input for the development of more effective curriculum and teaching methods, as well as provide a better understanding of individual students' needs in terms of learning. In this way, efforts to improve students' learning abilities can be strengthened and have a positive impact on the development of their talents, interests and professionals in the future.

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