

Analysis of Student Learning Readiness Based on Tomlinson's Learning Readiness Index in Differentiated Content Instruction for Sociology in Merdeka Curriculum to Achieve Sustainable Education Quality (SDGs)

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Abstract: Merdeka Curriculum provides educators with the flexibility to develop lessons tailored to the needs of students. The differentiated learning approach, which emphasizes the diverse needs of students in the learning process, allows each student to progress according to their individual needs. In the context of Merdeka Curriculum, the role of teachers is crucial in designing lessons that address the varying needs of students and ensure that the learning process aligns with student profiles. Currently, learning in schools often does not consider students' readiness for the learning process, which leads to the design of instructional materials that are not fully aligned with students' needs. Therefore, it is important to assess students' readiness for learning, so that teachers can more effectively design appropriate learning materials. At SMAN, there is a need for the development of differentiated content materials to accommodate students' learning needs. To understand students' needs, it is essential to assess the readiness of SMAN students in sociology learning to create content-differentiated materials. Thus, this study aims to analyze students' learning readiness using Tomlinson's Equalizer to assist teachers in designing differentiated content materials for sociology instruction. The research employed a descriptive quantitative methodology, beginning with the collection of preliminary data to identify the research problems, followed by the design of research instruments, which were validated for reliability and validity. Data was then collected through questionnaires, and the data was analyzed using descriptive quantitative techniques with percentages. The findings indicate that the use of the Equalizer in differentiated learning is still not optimal. One component, which involves understanding content from abstract to concrete, remains challenging due to limitations in the development of contextual content. Differentiated instruction is more effective when designed with a focus on teacher collaboration (learning community).

1 INTRODUCTION

One of the Sustainable Development Goals (SDGs) in the field of education is to improve the quality of education, or 'quality education.' Designing a curriculum to enhance its quality is a significant challenge in achieving high educational standards. A curriculum is a structured plan or framework for learning, developed to achieve the objectives of educational implementation (Ansyar, 2017), a plan for learning (Taba, 1962), and a design that provides a

set of learning opportunities for students to reach both general and specific goals (J. Galen, 1974). In early 2021, the initial implementation of the Merdeka Curriculum was introduced, and in the 2023/2024 academic year, the Merdeka Curriculum is still being offered as one of the options. It is projected to be established as the national curriculum in the 2024/2025 academic year. The Merdeka Curriculum aims to improve the quality of student learning by being flexible and adapting to the resources available in schools (Kemendikbudristek BSKAP, 2022).

According to Tomlinson, student differences affect the achievement levels set by the teacher, who provides instruction at the appropriate level for each student (Lawrence-Brown, 2004). Content instruction in sociology has become a research interest. Studies on students' readiness have attracted researchers' attention in the field of education. Dinar Westi's research on differentiated instruction as a solution to student diversity states that in differentiated learning, a teacher must be consistent and proactive in seeking ways to help students succeed in the learning process (Andini, 2016). Hung's study found that gender does not influence readiness in online learning, but higher-grade students (junior and senior) showed significantly greater readiness in independent learning (Hung et al., 2010). Similarly, Dwiyantri's research on online learning at junior high schools in Denpasar stated that students were generally ready to learn but needed some improvements. It was recommended that teachers motivate students to communicate more effectively (Dwiyantri et al., 2020). Research on learning readiness has also been conducted in higher education, such as Sari & Trisnawati's study, which concluded that learning readiness significantly affects students' motivation and interest in learning (Sari & Trisnawati, 2021). Differentiated instruction is a model used to design learning experiences that cater to students' individual needs. This type of instruction, often referred to as "differentiated instruction," was introduced by Tomlinson (Tomlinson, 2000). To achieve the goals of the Merdeka Curriculum, where students are expected to develop according to their interests and talents, analyzing students' needs, including their readiness for learning, is essential (Witasaari, 2021). Other frameworks like the "among system" (Noventari, 2020) and openness in learning (Istiq'faroh, 2020) also highlight the importance of preparing differentiated materials that respond to students' readiness. Santangelo and Tomlinson stated that teachers must proactively design learning experiences that respond to individual needs, thus maximizing the potential of all students (Santangelo & Tomlinson, 2012). Research on learning readiness and differentiated instruction has been widely conducted, but studies focusing on analyzing students' readiness in helping teachers design differentiated instructional materials are still limited. This gap is particularly important within the context of implementing the Merdeka Curriculum.

According to Tomlinson, the goal of differentiating readiness is to ensure that all students are provided with appropriately challenging learning experiences based on their individual readiness needs

(Santangelo & Tomlinson, 2012). Providing differentiated instructional materials that align with students' needs can help create meaningful learning experiences. Tomlinson suggests that differentiated content is a form of scaffolding provided by teachers to develop students' abilities (Tomlinson & Mctighe, 2006). Reviewing students' readiness when designing differentiated content for sociology learning is an innovative approach in this research, which is critical in meeting the requirements of the Merdeka Curriculum and understanding students' learning readiness. The constructivist theory emphasizes the importance of social interaction in acquiring skills and knowledge. To understand material well, learners must engage with it actively. Teachers must create situations where learners actively interact with content through material manipulation and social interaction (Schunk, 2012). Vygotsky's theory states that students learn best within their Zone of Proximal Development (ZPD). If students cannot solve a problem on their own, teachers or peers provide assistance through scaffolding (Kozulin et al., 2003). According to constructivist theory, children construct their knowledge independently, and with the help of scaffolding from teachers, they can achieve their learning goals. By analyzing students' readiness, teachers can design instructional materials that meet the needs of their students. This study aims to analyze students' readiness levels in differentiated sociology learning. Moreover, this research is beneficial for sociology education, particularly in designing differentiated learning, such as differentiated teaching modules, learning materials, assessments, and the learning process. In the context of sociology learning, which requires contextual materials, it will be very useful to identify students' readiness so that contextual materials can be communicated using media that align with the students' level of readiness.

2 RESEARCH METHODS

This study uses a descriptive quantitative approach, which will describe students' learning readiness in sociology learning by designing differentiated content sociology lessons. According to Sugiyono (Sugiyono, 2013), descriptive research relates to questions about the existence of independent variables, either with just one variable or more (independent variables). This research is descriptive in nature, presenting the results of the analysis of students' learning readiness, which is supported by differentiated content learning. The data collection technique used in this study is a questionnaire, the

scores of which will be processed using descriptive quantitative analysis, in the form of percentages. Also, this study will be conducted at SMA Negeri 5 Padang, in sociology lessons for class X. The population in this study consists of five classes, and the sampling technique used is simple random sampling, where the sample is taken randomly based on the probability frequency of all population members (Yusuf, 2019). Sampling will be carried out using the Slovin formula as follows:

Description:

n = sample

N = population

e = margin of error due to sampling

inaccuracies

$$n = \frac{N}{1 + N(e)^2}$$

The data collection technique in this study utilizes a questionnaire. The questionnaire is designed based on the indicators of learning readiness. Interview and observation data are used as supplementary data to analyze the results of the questionnaire. The learning readiness questionnaire uses a scale of Always (S) with a score of 5, Often (SR) with a score of 4, Rarely (J) with a score of 3, Very Rarely (JS) with a score of 2, and Never (TP) with a score of 1 for positive statements. For negative statements, the scoring is reversed. The instrument used was tested for validity and reliability to ensure that it accurately measures the level of students' learning readiness.

The data analysis technique employed is descriptive quantitative analysis, with percentages used for presenting the results. The data analysis in this study uses descriptive percentage analysis, and the formula used is as follows (Sudjiono A, 2015):

$$P = \frac{F}{N} \times 100\%$$

Description:

P = Percentage to be calculated (Relative

Frequency)

F = Frequency

N = Number of Respondents

The indicators used to assess the achievement of student readiness in this study are based on the Indicator Norms, as outlined by Wijaya et al. (2022):

Table 1: Percentage Interval.

No	Percentage Interval (%)	Categories
1	89 -100	Excellent
2	75 - 88	Good
3	61 – 74	Satisfactory
4	47- 60	Poor
5	≤ 45	Very Poor

(Source: Rohani, 2004)

In testing the instrument in this research, validity and reliability tests were conducted on the instrument used to measure students' readiness to learn according to Tomlinson. Instrument validity was assessed by two validators who filled out the validity questionnaire. This validity questionnaire aims to obtain data on the level of validity or feasibility of the learning readiness questionnaire instrument based on Tomlinson's index.

3 RESULT AND DISCUSSION

The analysis of student learning readiness in sociology instruction in this study can be observed through the index proposed by Tomlinson. The findings indicate that the implementation of the Merdeka curriculum, with its differentiated learning approach, requires diagnostic assessment to determine students' initial interests and abilities. When teachers design lessons or tiered tasks to address students' varying levels of readiness, they strive to match the task difficulty with students' readiness levels.

Student learning readiness, commonly referred to as readiness, can be assessed using The Equalizer (Tomlinson, C.A., & Allan, 2000). Through The Equalizer, Carol Ann Tomlinson provides a clear view of students' learning readiness, ranging from slow to fast. This shows that each student has a different way of thinking. Some students respond quickly to learning, while others are slower in their cognitive processing. Teachers should understand this, as each individual is born with unique traits.



Figure 1: The Equalizer for Measuring Student Learning Readiness (Tomlinson, C.A., & Allan, 2000).

Table 2: Analysis Data on Students' Learning Readiness in Sociology Subjects.

Analysis of Student Readiness in Sociology Learning (Tomlinson Index)			
Basic	37%	Transformative	63%
Concrete	50%	Abstract	45%
Simple	57%	Complex	43%
Structured	56%	Open (Open-Ended)	44%
Dependent	68%	Independent	32%
Slow	74%	Fast	26%

Source: Primarily Data.

Differentiated instruction is an approach that offers a variety of learning resources so that students can demonstrate what they have chosen. Before facilitating differentiated instruction, teachers must conduct a readiness analysis, one of which can be done using Tomlinson's learning readiness measurement table, as shown in Figure 1.

3.1 Students Readiness

Emphasis on assessing students' readiness is a crucial step in supporting the implementation of differentiated learning. Assessment in learning serves to provide factual information about the progress or learning outcomes of students. The types of assessment used include formative and summative assessments. Formative assessment is conducted at the beginning of the learning process to determine students' initial abilities so that teachers can carry out instruction according to students' needs. Summative assessment is used to determine the achievement of learning objectives. Both types of assessment help teachers determine students' readiness to learn. The learning process at SMAN 5 Padang in Sociology has implemented the Merdeka Curriculum with the application of differentiated content instruction. The differentiated learning process consists of four key aspects under the control of the teacher, namely content, process, product, and the learning environment or classroom climate. In implementing

differentiation, teachers need to consider the readiness of students to learn, specifically their level of knowledge and skills in achieving learning objectives. This includes understanding the prior knowledge and skills that students already possess regarding the material to be taught. Teachers should reflect on what their students need to succeed in their learning. Student readiness must be closely aligned with the teacher's mindset, recognizing that each student has the potential to grow, both physically, mentally, and intellectually.

The results of this study were obtained by distributing questionnaires to 11th-grade students in the Sociology subject, with the level of student learning readiness assessed based on Tomlinson's The Equalizer index, as shown in Table 2.

The research findings illustrate that students' readiness to learn the subject matter and how they adapt to changes vary. Of the students, 63% show transformative readiness, while 37% are still at a basic level. This data indicates that students' ability to adapt to the advancement of technology and the changing times is at a moderate level. Students are relatively able to adapt well to the differentiated learning approach. In the 4.0 era, students are increasingly capable of adapting to technological advancements (Sultonah et al., 2021).

In content-differentiated learning, readiness analysis is conducted first, with 63% of students needing transformative content to understand

sociology, such as video materials about social groups. Meanwhile, 37% of students, who still require more basic support, are provided with learning materials such as worksheets and other teaching resources.

According to Tomlinson's Equalizer, one aspect of students' readiness can be detected through the use of abstract and concrete learning materials. In analyzing students' readiness for learning sociology, particularly on the topic of social groups, teachers map students' needs in a gradual manner. For abstract content, students can be supported with materials like illustrations of social groups to stimulate their thinking. For students who prefer concrete learning materials, such content makes it easier to convey the lessons. In the sociology lessons, the data shows that 45% of students require abstract content, while 50% prefer concrete content. Students in need of concrete materials benefit from visual aids about social groups. For these students, the planned content is designed around the school environment and videos about social groups.

Concrete objects in sociology lessons provide important stimuli for students to engage with the subject matter. Through the use of real-world objects, the learning process engages all of the students' senses. Concrete media are tangible, real-world objects that can be substantiated. Such media help students experience real-world learning during their educational process. In sociology lessons, the content provided includes real-world examples from the school environment and the community, particularly concerning social groups. Tomlinson's index also includes aspects of simplicity and complexity. The distinction between simple and complex learning lies in whether students can grasp the subject matter holistically or need a broader understanding to comprehend more complex concepts. In the case of sociology, on the topic of social groups, 43% of students exhibit readiness for complex learning, while 57% demonstrate simpler learning needs. This variance in readiness highlights the necessity for differentiated content to cater to both simple and complex learners. For students with complex thinking, the content can be designed with diverse materials, fostering collaborative learning. For students with simpler readiness, content should be presented in a sequential, from specific to general, manner.

Another continuum perspective is the open and structured thinking styles. The research data shows that 44% of students are open-minded, meaning they can easily accept change or criticism and, thus, adapt more easily to learning. In contrast, 56% of students

exhibit structured thinking, which makes it more difficult for them to accept critique or change. Here, the teacher's role is crucial in guiding students to adopt more open-minded approaches to understanding the realities of sociology learning. Students' openness to learning facilitates the differentiation process in instruction.

The continuum of independence versus dependence illustrates a difference between students who can learn autonomously without the need for teacher support and those who depend on the teacher's help. In sociology lessons, 68% of students are dependent, while 32% are independent learners. Such a learning environment necessitates teacher intervention to support students, especially since a significant portion of the class still relies heavily on teacher assistance. Therefore, in content-differentiated learning, teachers must prepare content for both independent and dependent students.

The next perspective in Tomlinson's index concerns the continuum of slow versus fast learners. Teachers must understand that students' mastery of a subject may vary in speed. In the differentiated sociology lessons, 74% of students are slower in mastering the content, while 26% grasp the material quickly. The Equalizer, as developed by Carol Ann Tomlinson, clearly illustrates students' readiness to learn. This data demonstrates that each student has a different way of thinking. Some students respond quickly to lessons, while others take more time to process the information.

This study indicates that students' readiness to engage in differentiated learning processes varies. Student readiness is a crucial aspect that teachers must consider when designing differentiated instruction. Readiness for learning reflects the condition in which students are prepared to engage in learning activities with full awareness to acquire knowledge, understanding, skills, and attitudes through observation, imitation, practice, and new experiences. Learning readiness is the overall condition that enables a person to respond to situations in specific ways (Siagian et al., 2021). Tomlinson suggests that teachers' understanding of student readiness should inform the differentiation of content, processes, products, and appropriate learning methods. The concept of readiness encompasses students' knowledge, understanding, and skills related to the planned teaching. Readiness is not synonymous with intellectual ability but rather a construct that involves prior learning experiences, attitudes towards school, as well as cognitive and metacognitive skills. The goal of differentiating readiness is to ensure that all students receive appropriately challenging

learning experiences based on their individual readiness needs (Santangelo & Tomlinson, 2012).

3.2 Content-Differentiated Sociology Instruction

Sociology instruction within the framework of the Merdeka Curriculum emphasizes the students' capacity to apply sociological knowledge to their daily lives as individuals within social groups, addressing the issues inherent to those groups. The primary objective of sociology education is to cultivate critical, analytical, and collaborative thinking among students, thereby fostering awareness of both individual and social dimensions in a diverse society. Moreover, students are expected to develop heightened sensitivity and a sense of responsibility towards contemporary social issues (Kemendikbudristek BSKAP, 2022). The content and objectives of this curriculum necessitate the design of innovative instructional strategies by educators. Based on the analysis of students' readiness for learning, it is evident that students exhibit a wide range of abilities, thus requiring teachers to implement differentiated instructional strategies that are responsive to the varied needs of each learner.

In the context of the school under study, sociology teachers employ differentiated content by integrating diverse media such as films, comics, and images. This approach aims to facilitate students' understanding of sociological concepts within a contextual framework. Assessment practices are varied, including the evaluation of student-produced projects such as posters, short films, graphic media, comics, and academic papers. This diversity in assessment is further supported by collaborative efforts among teacher leaders within the school. The establishment of a learning community plays a critical role in assisting teachers with overcoming challenges in designing and implementing diverse instructional approaches. This aligns with findings by (Langelaan et al., 2024), which underscore the importance of teacher collaboration in the development of programs that integrate active learning, collaboration, and reflective practices, all of which contribute to sustainable and in-depth learning outcomes.

Differentiated instruction has been extensively studied and proven to be an effective pedagogical approach for addressing the diverse needs of students (Tomlinson, C.A., & Allan, 2000). A student's readiness for learning in a differentiated classroom is a pivotal factor in achieving the desired learning outcomes. Teacher collaboration within the Merdeka Curriculum, facilitated by the creation of a learning

community, significantly contributes to the successful implementation of differentiated teaching strategies. The data on students' learning readiness presented earlier indicates the diversity of student needs, highlighting the necessity for teacher expertise in crafting well-suited instructional plans. Differentiated instruction proves to be most effective when supported by collaborative efforts among educators (He & Lo, 2024).

Collaboration among teachers plays an important role in supporting differentiated learning, particularly through the establishment of learning communities. These communities are typically formed through professional development programs, workshops, or regular meetings where teachers share strategies, resources, and experiences. For example, teachers can collaborate in lesson planning sessions to design activities that meet the diverse needs of students.

The impact of such collaboration is significant. It fosters a culture of shared responsibility and innovation, enabling teachers to implement differentiated learning more effectively. By sharing best practices and reflecting on classroom learning outcomes, teachers can gain insights to adjust materials based on students' readiness, interests, and learning profiles. Furthermore, collaborative communities provide support that reduces feelings of isolation when facing new teaching challenges, thereby improving overall teaching quality.

Furthermore, learning resources aligned with the specific needs of students must be meticulously designed by teachers, taking into account the diverse abilities and backgrounds of learners (Grecu, 2023). The analysis of student readiness for learning, as proposed by Tomlinson, is a form of assessment for learning. Assessment for learning, conducted throughout the learning process, serves as a diagnostic tool that informs the design of differentiated instruction (Mariati et al., 2021). Additionally, assessment as learning, a formative approach, is utilized during differentiated content and process stages. Finally, assessment of learning, typically summative in nature, is employed to measure the extent to which students have achieved the intended learning objectives. Preparation is a critical determinant of success in the learning process. Well-structured preparation enhances the quality of learning outcomes compared to those derived from inadequate preparation. Thorough lesson preparation ensures that a greater number of students achieve success and facilitates easier tracking of learning progress. Student readiness for learning is a fundamental prerequisite for achieving educational goals. Therefore, the design of instructional

preparation should be given due consideration, as it enables students to better absorb and comprehend content. Furthermore, effective preparation aids in the clear communication of ideas by the instructor and fosters an environment of positive feedback and motivation, which ultimately influences learning outcomes.

4 CONCLUSION AND SUGGESTIONS

Learning readiness is one of the fundamental factors in designing differentiated instruction. Designing differentiated learning can be achieved by varying the content according to the students' readiness in sociology education. Based on the research findings, it is crucial for teachers to analyze students' readiness in learning. This analysis can be conducted at the beginning of the learning process, allowing the lesson design to align with the students' needs. This approach facilitates the creation of meaningful learning experiences. Collaboration in designing differentiated instruction in schools is essential to address the challenges teachers face on a personal level. A learning community provides a platform for teachers to work together in preparing well-structured lessons. Also, this research identifies limitations in the development of contextual content that is relevant to sociology material. These limitations may be caused by a lack of resources to create material that is more aligned with the local context or students' everyday lives. To address this, the research could consider utilizing available resources, such as collaborating with local communities or using technology to create more contextual material. Additionally, professional development programs for teachers are also crucial to enhance their ability to design and implement content that is more relevant to real-life situations. With such efforts, the development of contextual content can be more effectively carried out and support more meaningful sociology learning.

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