



Student's Perceptions About Implementation of Differentiated Instruction: A Literature Review

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Abstract. Each student has different characteristics and abilities; therefore, different specific learning strategies are needed to support the diversity. The hierarchical relationship and teacher authority make it a challenge for teachers and students to have a democratic relationship. Differentiated Instruction (DI) has been defined as an instructional approach characterized as a student-centered teaching strategy that allows the accommodation of various students with learning needs. The teaching strategies in DI are structured by identifying student readiness, increasing collaboration, and autonomy in learning. Implementing the DI, teachers can modify four aspects of learning, namely, content, process, products, and learning environment. A Systematic literature review is used for this study by reviewing the existing literature related to DI. This study focused on the student perception about implementation of DI. Using the process of inclusion and exclusion, the study included 18 articles, from 26 articles. The result of the study revealed that according to the student perception, the implementation of DI improves the problem skill of students, stimulates the student learning, adjusts the interest and various student learning styles, problem solving ability. Furthermore, implementation of DI is also perceived as fun, effective, and informative.

Keywords: Differentiated Instruction · Education · Perceptions · Students · School

1 Introduction

Education plays an important role ensuring the continuity and development of a country. The function of education is to develop capacity and improve the quality of a country and its human resources. Education is able to change a person's attitudes, habits and behavior depending on the environment and learning obtained. Education also aims to develop students' intellectual potential during the learning process. So that students are no longer seen as mere learning objects, because the unique characteristics of each student are expected to actively participate and become partners in the learning process.

Each student has different characteristics. These characteristics include cognitive development, talents, interests, attitudes, learning motivation, learning styles, intelligence, family background, culture, ethnicity, religion, and others [1]. This diversity of

students is called learning differentiation. Therefore, efforts are needed to address the differences of each student. Some teachers understand that students have different ways of learning and have diverse student needs.

However, most teachers still use traditional patterns with the term "one size fits all" [2]. One size fits all is when learning material presented in general without regard to student characteristics which then becomes a problem in learning [3].

Teachers should be able to guide and facilitate students in learning with various conditions and learning objectives. Teachers need to create a learning atmosphere that can embrace the diversity of students and can improve the quality of education. One way that can be used is through Differentiated Instruction (DI). Therefore, teachers need to understand Differentiated Instruction to meet the needs of all students, restore or speed up instruction, and provide learning opportunities for all students [2].

Differentiated Instruction or Differentiated Learning or Differentiated Teaching was first introduced by Carol Ann Tomlinson. According to Tomlinson [4] Differentiated Instruction (DI) is not a strategy, program, or "something", but a way of thinking. A philosophy of how to respond to student differences by adapting teaching to meet students' needs. Tomlinson [4] stated that DI is a learning that is tailored to the needs of students with the aim of maximizing the potential of each student. Differentiated instruction is a modification of the curriculum where all children can learn in one class with different ability levels. This approach is carried out in the teaching and learning process in a class with various abilities of different children in the class [5].

The results of Santangelo & Tomlinson [4] research on the application of DI in higher education indicate that DI can increase student interest in learning and the suitability of student learning needs. Meanwhile, other studies have shown that DI can also increase student motivation [5]. DI is effective for improving students' mathematical connection abilities [1] and improving student skills [6]. Perception is a person's assessment or interpretation of how to perceive or interpret something that is captured by his senses [7]. Another opinion is according to Khairani [8] who defines perception as perception as a process of giving meaning to the environment by individuals. However, research that focuses on student perceptions regarding the implementation of DI is still lacking and needs to be explored more. This research aims to examine students' perceptions of the implementation of DI. This study aims to be used systematically for research development and reviewing existing literature related to DI. The results of our literature review can also be used for the development of research related to Differentiated Instruction in Indonesia.

2 Methods

The study uses a literature review research design. Literature review research design is a method of summarizing existing or collected information of a particular topic and to formulate the expected contribution of research [9]. Literature review allows researchers to identify and develop a theory or method, and to show the gap and differences between a theory and its relevance in the field or to a research result [10]. Researchers have to analyze descriptively by re-explaining the information that has been obtained through the literature, adding explanations and understandings from the researchers.

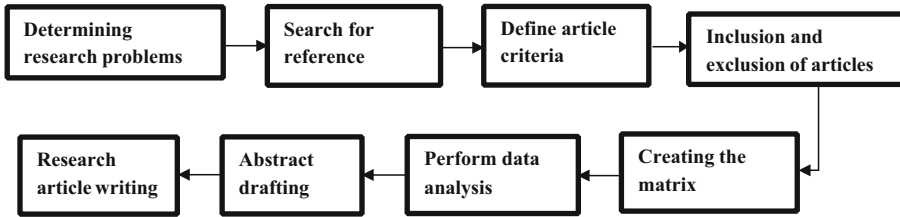


Fig. 1. Literature Review Process

In the literature search process, researchers obtained 18 journals from 26 journals. There are several criterias that are determined as the attempt to improve the quality of the literature and the results of the study. The literature criteria are divided into two, namely inclusion and exclusion criteria.

The inclusion criterias in this study are: 1) Literature published in the range of 2011–2022; 2) Literature in the form of journals; 3) Literature explains about DI variables and student’s perceptions of DI; 4) Literature in English or Indonesian language;

The exclusion criterias in this study are: 1) Does not match the criteria for the topic of the research; 2) Irrelevant sample or related to teacher’s perception and not the student.

Literature in the form of journals obtained was traced by using the Google search engine and Google Scholar search. The keywords to look for are differentiated instructions and perception in English and Indonesian language The results were 26 findings in the form of journals from 2009–2022 in Indonesia and English language. The inclusion and exclusion process from those 26 journals was by considering the criteria according to the criteria and research needs. 18 journals were obtained as the inclusion journals that could be used as a source of data for our literature review research.

Literature Review Process

The process of our literature review report is on the following,

3 Results and Discussion

Using the process of inclusion and exclusion, from 26 articles we come up with 18 selected articles as can be seen in Table 1.

Table 1 list of reviewed reference articles. There is the literature analysis carried out, the following are 18 inclusion journals from 2011–2022. Based on the results that can be seen in Table 2.

Based on the data in the table above, it can be seen that students’ perceptions regarding the implementation of DI can be grouped into 5 categories, namely: problem solving ability, there is 1 article, increasing interest in learning, found in 6 articles, suitability with learning needs, found in 5 articles, increasing motivation learning is found in 5 articles, and the perception of improving skills is found in 3 articles. To get a more detailed picture, we present the results of the literature review in Fig. 1.

From Fig. 2, we can see that the perception that most students feel is that the implementation of DI can increase students’ interest in learning, while the least perception is that the implementation of DI can improve problem solving skills.

Table 1. Inclusion Journals

No	Reference articles
1.	Arviana, N. N., Application of the Differentiated Instruction Approach to Develop the Mathematical Problem-Solving Ability of Class VII Junior High School Students on Cubes and Blocks, <i>Jurnal Ilmiah Pendidikan Matematika</i> , 3(3), 2014
2.	Joseph, S., Thomas, M., Simonette, G., & Ramsook, L., The Impact of Differentiated Instruction in a Teacher Education Setting: Successes and Challenges, <i>International Journal of Higher Education</i> , 2(3), 2013
3.	Santangelo, T., & Tomlinson, C. A., The Application of Differentiated Instruction in Postsecondary Environments: Benefits, Challenges, and Future Directions, <i>International Journal of Teaching and Learning in Higher Education</i> , 20(3), 2019
4.	Andini, D.W., Differentiated Instruction: Learning Solutions in Student Diversity in Inclusive Classes, <i>Jurnal Pendidikan</i> , 2 (3), 2016
5.	Wijayanti, A., <i>Development of Mathematical Self Efficacy Through Differentiated Instruction Learning</i> , Doctoral dissertation, UNPAS, 2017
6.	Rokhayah, L., Design Instructions and Problems with Mathematics According to Individual Student Variations in the Material of Systems of Linear Equations, <i>Pasundan Journal of Mathematics Education (PJME)</i> , 4(1), 2014
7.	Demir, S., The Impact of Differentiated Instructional Media on the Motivation and Opinions of Students towards Science Learning in Terms of Learning Styles, <i>International Journal of Education</i> , 9(3), 2021
8.	Pablico, J. R., Diack, M., & Lawson, A., Differentiated instruction in the high school science classroom: qualitative and quantitative analyses, <i>International Journal of Learning, Teaching and Educational Research</i> , 16(7), 30–54, 2017
9.	Alsulhi, N. R., Abdelrahman, R., Abdelkader, A. F., Al-Yatim, S. S., Habboush, M., & Al Qawasmi, A., Impact of using the differentiated instruction (DI) strategy on student achievement in an intermediate stage science course, <i>International Journal of Emerging Technologies in Learning (Online)</i> , 16(11), 25, 2021
10.	Iqbal, J., Khan, A. M., & Nisar, M., Impact of differentiated instruction on student learning: perception of students and teachers, <i>Global Regional Review</i> , 5(1), 364–375, 2021
11.	Mirawati, I. G. A., Suwastini, N. K. A., Haryanti, N. D., & Jayantini, I. G. A. S. R., Differentiated instructions: relevant studies on its implementation, <i>Prasi: Jurnal Bahasa, Seni, dan Pengajarannya</i> , 17(1), 11–21, 2022
12.	Saleh, A. H. A. E., The effectiveness of differentiated instruction in improving bahraini efl secondary school students in reading comprehension skills, <i>REiLA: Journal of Research and Innovation in Language</i> , 3(2), 135–145, 2021
13.	Idamayanti, R., Nurhidayah, N., & Ashar, A., Preparation of plans for implementing differentiated learning at SMP Negeri 4 Pangkajene in Pangkajene and Islands Districts, <i>Seminar Nasional Paedagoria</i> , 2, 75–83, 2022

(continued)

Table 1. (continued)

No	Reference articles
14.	Pertiwi, K. E., How to implement Differentiated Instruction, <i>APOTEMA: Jurnal Program Studi Pendidikan Matematika</i> , 7(2), 100–105, 2021
15.	Güvenç, G., The impact of virtual differentiated instruction practices on student and teacher perceptions in English language teaching: Virtual differentiated instruction practices, <i>International Journal of Curriculum and Instruction</i> , 13(3), 3146–3164, 2021
16.	Fatimah, A. E., Improving the mathematical problem-solving abilities and learning independence of 1 Percut Sei Tuan State Senior High School students through a differentiated instruction approach, <i>MES: Journal of Mathematics Education and Science</i> , 2(1), 2016
17.	Pham, H.L., Differentiated Instruction and the Need to Integrate Teaching and Practice, <i>Journal of College Teaching & Learning</i> , 9(1), 2011
18.	Lailiyah, E., A differentiated instruction approach to improve students' mathematical critical thinking skills, <i>Nabla Dewantara: Jurnal Pendidikan Matematika (ISSN 2528–3901)</i> , 1(2), 55- 64, 2016

Table 2. Student's perception from literature review

No	Student's perception	No of reference	Reference articles
1	Problem solving ability	1	1
2	Increase interest in learning	6	2,5,6,8,9,17
3	Suitability with learning needs	5	3,10,13,14,15
4	Increase learning motivation	5	3,4,7,11,12
5	Improve skills	3	12,16,18

Based on research with literature review, the results found several student perceptions of DI. The first perception is the student's problem-solving ability. From the research conducted by Arviana [11] regarding the application of the DI approach to developing students' mathematical problem solving, it shows that the improvement of students' problem solving abilities after participating in learning with the DI approach. Overall, the application of learning with the DI approach to develop mathematical problem-solving skills received a positive response, indicating that almost all students better understand the surface area and volume of cubes and blocks after learning with the Differentiated Instruction approach.

The second student perception is increasing interest in learning. This perception is in accordance with research conducted by Wijayanti [12] on the development of mathematical self-efficacy through DI learning which shows a positive response from students about DI learning towards their self-efficacy. Students stated that learning DI really made them feel comfortable and became happier to learn mathematics. With different instructions that are tailored to the needs of students so that they are not discriminated

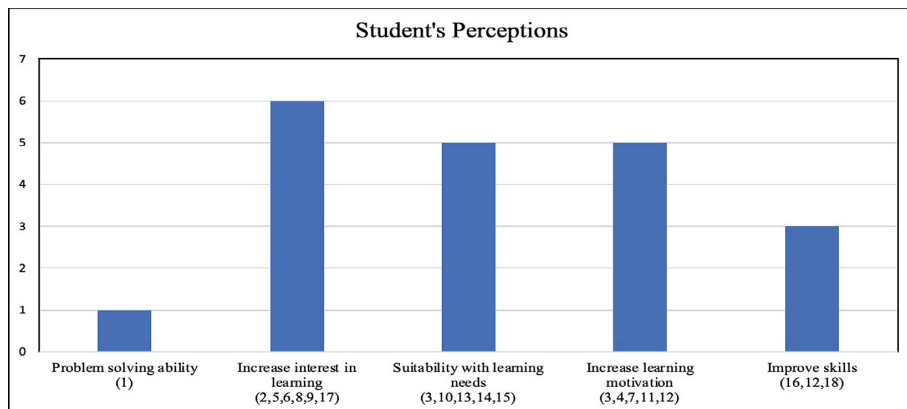


Fig. 2. Student's perceptions from literature review

against or humiliated, students can do something according to their abilities and they feel their abilities are increasing, students no longer feel afraid, hesitant or embarrassed to express opinions or ask questions. By increasing students' self-efficacy, students' interest in learning increases. Another journal that supports this perception is the journal from Publico, Diack, & Lawson [13] regarding the application of DI in higher education, students have a positive perception of DI. Alsalmi, et al. [14] on the impact of using the DI strategy on student achievement in science lessons. Rokhayah [15] about the design of mathematics learning modules with instructions according to individual student variations. Pham [6] on the need to integrate DI teaching and practice and Joseph, et al. [16] determination of the impact of DI on success and challenges for teachers.

The third student perception is suitability with learning needs. Research from Santangelo [4] on the application of DI in higher education shows that DI is beneficial for the learning process because students have different ways of learning, interests, experiences, and goals. The application of DI will be useful as an encouragement for students to systematically and reflectively explore ways to have meaningful and appropriate learning experiences. In accordance with research from Iqbal, Khan, and Nisar [17] students view that DI learning adds to student success and is effective for improving strategies in learning. Research from Güvenç [18] on the impact of DI on teacher and student perceptions of teaching English. The journal shows that student responses to DI activities are very positive and happy. Students said that DI was fun, effective, informative, and they were happy with the teacher's role as a DI learning teacher. Therefore, students' perceptions of DI about learning preferences arise. Other relevant research includes research from Idamayanti, Nurhidayah & Ashar [19] on the preparation of DI implementation plans. Research from Pertiwi [20] on how to apply DI and research from Mirawati, et al. [21] which discusses perceptions.

The fourth student perception is that DI can increase learning motivation. Andini's [5] research on DI in students' religious learning solutions in inclusive classes shows that the DI learning process provides activities that match student interests. So that students perceive that DI indirectly increases their learning motivation. Similarly, Demir's research [22] explains that students support the application of DI learning compared to

previous teaching methods. Students also gave a positive perception of DI, they said that DI effectively increased their learning motivation.

The last perception is improving skills. In accordance with Saleh's research [23] regarding the effectiveness of DI in improving students' reading comprehension skills, it is explained that the DI strategy helps students understand reading texts to answer questions correctly. Therefore, students perceive DI as being able to improve their reading comprehension skills. Similarly, research by Lailiyah [24] shows that DI learning helps students in critical thinking. Therefore, the students' perception of DI emerged that DI was indirectly able to improve their thinking skills. From the journals that have been reviewed, it can be concluded that DI plays a role and is influential in the learning process. The DI role in the education system is to meet learning needs and maximize the quality of student learning. In addition, the influence of DI in the learning process is that students become more involved and focused in class and students can relate lessons to life. In the learning process DI trains students to manage themselves and make plans for self-development [25].

4 Conclusion

The implementation of DI improves the problem skill of students, stimulates the student learning, adjusts the interest and various student learning styles, problem solving ability.

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