DIFFERENTIATED INSTRUCTION IN ELT: INDONESIAN PRE-SERVICE AND IN-SERVICE TEACHERS' CAPABILITIES, STRATEGIES, AND BARRIERS

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Abstract: This study examines how the capabilities and the strategies of pre-service and in-service teachers in applying DI in their classroom as well as the barriers to that application. A descriptive qualitative study was employed through questionnaire distribution to thirty-six pre-service and in-service teachers and interviews with four in-service teachers. The data

were analyzed by using descriptive statistics and thematic analysis. Results show that in-service teachers gained a higher level of capability in DI implementation rather than pre-service teachers. Hence, pre-service teachers need more understanding and practices of DI in the lecture and teaching practicum. Diverse strategies were implemented by the teachers, such as flipped classrooms, creating diverse forms of materials, outdoor learning, etc. Several barriers were also experienced by the teachers including limited time of learning, diverse materials and rubric preparation, and lack of facilities. The barriers related to content, process, product, and learning style can be solved by other teachers' strategies addressed, for instance adapting materials and flipped classrooms.

Keywords: *differentiated instruction, capability, strategy, barrier*

INTRODUCTION

Since the commencement of Indonesia's latest curriculum transformed its new curriculum policy namely the *Merdeka* Curriculum (Emancipated Curriculum), the government admitted that English language subjects have significance and become one of the main priorities in the new curriculum (Rohmah et al., 2024). The *Merdeka* Curriculum has been programmed to select educational stakeholders from primary to high school levels (Hidayati & Sujarwati, 2023; Mardianti & Damayanti et al., 2024), the appliance of the *Merdeka* Curriculum also allows English as a Foreign Language (EFL) teachers to accommodate a variety of learners with diverse English language proficiency with a proper classroom learning strategy through differentiated learning (Maruf, 2023; Suwastini et al., 2021).

Differentiated instruction (DI) is a learning technique to facilitate the multiple needs of students in diverse forms of teaching approaches and strategies (Klepsch & Seufert, 2020; Shareefa, 2021; Sun, 2023). This teaching phenomenon has garnered attention in

Indonesia's educational policy as its use is in line with a country having diverse cultures and linguistic backgrounds (Maruf, 2023). Furthermore, the provision of differentiated classrooms can be the spaces for teachers to creatively indulge in maintaining the lesson to be a proper learning environment for diverse learners which can elevate their learning interest and examination grades (Baecher et al., 2012; Fitzgerald, 2016; Goodnough, 2010). DI also holds an important part of instructional approach development in recognizing and accommodating diverse learning needs within a diverse classroom. This approach emphasizes the need to tailor teaching methods, materials, and content to suit students' learning styles, abilities, and interests (Smets & Struyven, 2020).

Recent research in differentiated learning has highlighted its effectiveness in promoting student engagement, motivation, and academic achievement. A study by Tomlinson and Allan (2000) investigated the impact of DI on student learning outcomes in mathematics. The researchers found that students who received DI significantly improved their understanding of mathematical concepts compared to those who received traditional instruction. This suggests that adapting DI to meet the diverse needs of students can lead to better learning outcomes. In a similar study, Smith et al. (2023) examined the effects of differentiated learning on student engagement in a high school science classroom. The researchers found that students were more engaged and motivated to learn when they were given choices in how they accessed and demonstrated their understanding of the material. This highlights the importance of providing students with opportunities to take ownership of their learning through DI.

While some studies have mentioned its essential to apply DI in general education, this teaching strategy is thus evident to be a suitable approach for EFL teachers to be implemented in classrooms that have students with different levels of English language skills (Klepsch & Seufert, 2020; Shareefa, 2021). A correlations-analysis study by Maruf (2023) explored the relationship between teachers' ideas, attitudes, and professional skills on the use of DI and its outcome for EFL learners in Indonesia. By implementing DI, the study highlighted one of the

significant results that can boost students' motivation and engagement. In dealing with English language skills, Jufrianto et al. (2023) proposed a quasi-experimental research design to investigate the effectiveness of DI on 142 students' reading comprehension from the Technical Implementation Unit of State Senior High School 3 Takalar. The study found that DI is a better teaching approach than traditional classroom instruction, although there were some hurdles, such as the lack of time and resources to complete the task on time. Using the same research design, Pourdana and Rad (2017) examined the students' achievement in listening comprehension through tiered listening tasks for mixed-ability Iranian female EFL learners. By using tiered tasks, the participants were encouraged to work on leveled tasks which showed the use of DI elements to match the students' readiness and differences. The finding showed an improvement in their listening comprehension through working on low-level tasks to difficult ones by integrating DI through their learning. Based on the research stated above, EFL teachers can use differentiation to occupy the entire students' needs based on their variation of language proficiencies.

Although DI consistently produced favorable outcomes across a wide variety of English language learners (Baecher et al., 2012), Ginja and Chen (2020) highlighted that teachers may encounter some increasing difficulties in applying DI nowadays. Indonesian teachers remain struggling to apply DI because they have attached to the use of teacher-centered learning (Digna et al., 2023; Wan, 2016), which showed their tendencies to have limited competence, time, and resources to confidently prepare and design the learning procedure with differentiation (Cahyono et al., 2023; Suprayogi & Valcke, 2016). A study by Suwastini et al. (2021) explored the significance and nature of DI, along with its design, strengths, and weaknesses in the EFL context. The research indicated the potential problems appeared in differentiation in which teachers had insufficient teaching time, performed an additional amount of work, and missed the point of DI implementation because of the distinctive behavior towards the students. This finding is supported by much literature that similarly finds the hindrances in using DI (Suryati et al., 2023; Tamiru, 2019).

Thus, implementing DI can pose obstacles for EFL teachers from many factors, and addressing these barriers is crucial to ensuring the successful implementation of DI.

As the implementation of DI in the EFL context is possibly daunting for some EFL teachers, the teachers should be supported by the right strategies and the understanding of the potential barriers to managing the challenges in teaching a heterogeneous classroom (Lavania & Nor, 2021; Shareefa et al., 2019). It requires them to have significant capability to address those varied lessons for multi-level students (Uy, 2023), tailor different types of teaching techniques (Aldossari, 2018), or manage the classroom (Kupers et al., 2024). To differentiate properly, they must continuously develop their skills professionally (Kupers et al., 2024). One of the key aspects of DI in Indonesia is the emphasis on teacher professional development (Suprayogi et al., 2017; Suprayogi & Valcke, 2016). Teachers who comprehended and were intensively involved in professional development in training DI revealed positive outcomes towards the implementation of DI in the classroom (Burkett, 2013). Further preparations in applying the DI strategy and continuous professional development are necessary to support teachers in accommodating differences in the classroom (Wan, 2016). One of the main factors supporting teachers' success in applying DI is their involvement in professional development (Suprayogi et al., 2017). The study resulted in the need to improve teachers' professional backgrounds for DI to equip teachers with knowledge and skills to apply DI. Similar studies also have endorsed the notion focusing on the importance of teacher professional development for DI application (De Neve & Devos, 2016b; Ginja & Chen, 2020; Hinojosa, 2023; Suprayogi & Valcke, 2016). Thus, teachers need more external experiences and their willingness to implement it in the classroom (Suprayogi et al., 2017).

Teachers should understand four crucial elements representing DI strategies to be successfully applied in the classroom based on the preferred needs of the students (Smets & Struyven, 2020; Tamiru, 2019), which include content, process, product, and learning environment (Lavania & Nor, 2021; Tomlinson, 1999, 2001; Tomlinson & Imbeau,

2023). Based on Tomlinson and McTighe's (2006) framework, content represents what is being taught by teachers to the students and how they access the learning information (Wan, 2016). This can be done by applying diverse readability levels of reading materials, creating tape-recorded text, making lists of spelling and vocabulary based on the student's level of readiness, introducing concepts with various learning techniques both visually and auditory, engaging the students with reading partners, and creating a small-group of reteaching mini-lesson for low-achiever learners or providing extension for high-achiever learners to think and improve the skill. Process refers to how teachers create activities for the students to learn and master the content (Tomlinson, 2000; Wan, 2016). Strategies can be provided, such as tiered activities, using centers to explore particular branches of topics, making individualized agendas in terms of time and subject learning, facilitating students with alternative materials, and giving the students a specific time-length for both low- and high-achiever learners.

The third aspect is product. It centers on what is being produced by the students at the end of the lesson (Tamiru, 2019; Tomlinson, 2000) and demonstrates what they have gained from the content (Wan, 2016). Teachers can differentiate the product by allowing the students to choose the way to present their learning outcomes, creating a scoring rubric based on the student's skills, letting them decide to work in a small group or individually, and motivating the students to produce a product assignment on their own based on the learning criteria (Tomlinson, 2000). By designing the product, students are allowed to present the idea of how they respond based on their learning preferences (Wan, 2016). Learning environment defines how teachers manage the classroom to be realized as a positive and optimistic atmosphere for the students to have opportunities to deliver their understanding in the learning process and to provide motivations for them to learn according to their needs, learning style, and readiness to learn in the classroom (Tamiru, 2019; Tomlinson, 2000; Wan, 2016). Differentiating learning environments can be done by eliminating any distractions in the class, showing multiple cultural materials, giving

proper rules to follow for learning independently, creating positive classroom routines to strengthen the relationship between teachers and students, and encouraging students' understanding of how their peers' way of learning (Tamiru, 2019; Tomlinson, 2000; Wan, 2016).

Despite its extensive elaboration on the benefits and difficulties of DI, its notion has been recognized in many countries from Western to Eastern countries as its application can facilitate a heterogeneous classroom. However, the empirical support for the importance of DI implementation and its challenges emanates mainly from Turkey, Nepal, Australia, Hong Kong, the USA, Iran, and others with a similar theory of what strategies and challenges faced by the teachers (Goodnough, 2010; Idrus et al., 2021; Lavania & Nor, 2021; Nepal et al., 2024; Obrovská et al., 2023; Shareefa et al., 2019; Smets et al., 2022; Wan, 2016). These studies have shown its implementation on general educational subjects such as mathematics and English. There is also a shred of growing evidence that the use of DI can have a significant impact in the specific area of ELT context (Baecher et al., 2012; Cahyono et al., 2023; Chien, 2015; Gülşen, 2018; Karimi & Nazari, 2021; Maruf, 2023; Sun, 2023).

In fact, little literature still fully demonstrates the idea of pre-service and in-service EFL's capabilities, strategies, and challenges in implementing DI in the ELT context (Chien, 2015) in developing countries such as Indonesia. Therefore, this study focused on DI implementation in the ELT context. The aim was to analyze pre- and in-service Indonesian EFL teachers' capabilities in implementing DI. By assessing these capabilities, the study seeks to identify potential gaps in knowledge and skills among pre-service teachers, which could inform universities of the need to enhance their training programs. Furthermore, should the findings indicate that in-service teachers also exhibit low levels of proficiency in DI, this could serve as a critical recommendation for government initiatives aimed at professional development. This research aspires to contribute to the improvement of EFL teaching practices in Indonesia, ensuring that educators are well-equipped to foster inclusive and effective learning environments. The purpose of this study, in addition, was to identify the strategies

and barriers discovered by in-service teachers in implementing DI in diverse classroom settings. By examining these four elements of DI strategies based on Tomlinson & McTighe's (2006) framework, the study seeks to contribute to the research gap in this area and provide extensive insights into both the area of ELT context and EFL teachers implementing DI in Indonesia. To bridge the gap, the present study is one such attempt that addressed the following questions:

1. How are the capabilities of the pre-service and in-service English teachers in applying DI?
2. How are the strategies applied by the in-service teachers related to DI in teaching English?
3. What are the barriers experienced by the in-teachers in applying DI in teaching English?

METHOD

This study utilized descriptive qualitative to answer the research questions. Qualitative methodology is particularly applied when the variables of the research problems are not known yet and need to be investigated (Creswell, 2012). It is in line with the objective of this study which is to investigate the English pre-service and in-service teachers' capabilities in applying DI, the different strategies implemented by the teachers as well as the challenges in implementing DI in teaching English. Pre-service and in-service teachers were involved in this study to respond to the research questions. The data of the participants is presented in Table 1.

Table 1. The participants involved in this study

Role		Gender		School Area	
Pre-service	In-service	Female	Male	Urban	Rural
19	17	21	15	20	16

Table 1 indicated that 36 participants were involved in this study. Those included 19 pre-service high school teachers and 17 in-service high school teachers in Indonesia who were willing and fulfilled the criteria to participate in this study. The teachers could participate in this study if 1) the English teachers implemented DI or

the University students coming from the English Language Education Department at least in the 6th semester (since they already learned about curriculum and teaching practicum), 2) the teachers taught English in high schools, especially in Indonesia, and 3) the teachers were willing to involve in this study. The teachers were given a consent form to ensure that they agreed to participate in this study.

This study employed a convenience sampling by enrolling four in-service teachers who had implemented DI and were willing to spend the time for an interview. Two teachers were male and two other teachers were female from urban and rural areas. The interview was conducted through hybrid methods such as Zoom for those who lived in remote areas and face-to-face for those who lived in urban areas.

The data were collected through close-ended questionnaires and semi-structured interviews. Both the questionnaire and interview addressed the implementation of DI including several aspects such as content, process, product, as well as learning environment. To answer the first research question, the questionnaire adapted from Digna et al. (2023) was distributed to pre-service and in-service teachers. The questionnaire was validated by an English lecturer at one of the State Universities in Indonesia. It consisted of 12 close-ended questions, such as: a) I can present English materials in various forms, b) I can apply diverse assessments with different levels of difficulty, c) I can create a learning environment that accommodates students' various learning styles, etc. The questionnaire employed a 4-point Likert scale including 1=Strongly Disagree, 2=Disagree, 3=Agree, and 4=Strongly Agree. It was distributed in the form of printed and online questionnaires (Google Forms). The participants were allowed to decide completing the online or printed questionnaire.

Additionally, a semi-structured interview was conducted to answer the second and third research questions. Implementing open-ended interview questions, the voice of unrestricted participants as well as thorough, comprehensive information can be obtained (Creswell, 2012). The interview guideline consisted of questions adapted from Digna et al. (2023). The questions relate to how teaching methods, strategies, materials, and the barriers the English teachers

experienced in implementing DI related to four aspects including content, process, product, and learning environment. The four participants were asked for their consent to be interviewed. Several participants were interviewed directly and others were online based on the situation and their preferences. The recordings, then, were transcribed to be analyzed. The interview guidelines related to the strategy of DI implementation and barriers in implementing DI were also validated by an English lecturer at one of the State Universities in Indonesia.

The data obtained from questionnaires were analyzed and interpreted using descriptive statistics. The mean scores of each item in the questionnaire and the mean score of the overall item were measured. The mean score of each item was shown in Table 2 to compare the pre-service and in-service English teachers' capability related to DI. The mean score was then classified into three level ranges including 1.00 – 2.00 means low, 2.01 – 3.00 means moderate, and 3.01-4.00 means high (Talib, 1996). On the other hand, the data obtained from the interview were analyzed using thematic analysis. Thematic analysis is a data analysis technique applied by searching across a data set to identify, analyze, and report on repeated patterns (Braun & Clarke, 2006). It aligned with the data obtained from the interviews in which some teachers addressed similar or even the same words dealing with strategies and barriers in implementing DI. This thematic analysis was conducted through several steps. Firstly, the transcripts related to strategies and barriers were read by the researchers. Secondly, the data were coded and labeled based on the four aspects of DI. The findings were checked with the researchers. Lastly, the data were descriptively presented elaborated with theories and previous studies.

FINDINGS

The Capabilities of Pre-Service and In-Service English Teachers on Differentiated Instruction

The finding in Table 2 compares the mean scores obtained by the pre-service and in-service teachers. The finding indicated that pre-

service and in-service teachers reported moderate to high scores in the capabilities of DI.

Table 2. Pre-Service and In-Service Teachers' Capabilities Related to Differentiated Instruction

Differentiated Instruction	Pre-service Teachers	In-service Teachers
Presenting the material in various forms in teaching English.	3.00	3.35
Applying English skills to materials that students can learn independently.	3.11	3.18
Presenting English material so that students who have a high learning rate can convey it to their peers.	3.16	3.24
Presenting English material with various levels of difficulty in one theme.	2.90	3.00
Conveying English material in a variety of ways according to students' understanding abilities.	3.00	3.35
Grouping students based on their background so they can easily understand the material in learning English	3.00	3.18
Applying for the assessment based on the level of difficulty and student ability in teaching English.	3.16	3.30
Applying the assessment based on the student's understanding so that it is varied.	3.05	3.30
Designing the questions so that there are variations in the activity in doing the task.	3.21	3.35
Encouraging students to create their products in learning English.	3.11	3.18
Creating a learning environment that accommodates diverse learning needs and styles.	2.90	3.41
Providing resources and tools that help students explore and acquire knowledge at their own pace and in ways that suit their learning styles.	3.05	3.41
Mean of all items related to DI	3.05	3.27

Table 2 shows that the in-service teachers had higher capabilities than pre-service teachers in implementing DI. Pre-service teachers claimed moderate levels in five strategies, such as: presenting the material in various forms in teaching English (M=3.00), presenting English material with various levels of difficulty in one theme (M=2.90), conveying English material in a variety of ways according to

students' understanding abilities (M=3.00), grouping students based on their background so they can easily understand the material in learning English (M=3.00), and creating a learning environment that accommodates diverse learning needs and styles (M=2.90). On the other hand, in-service teachers obtained a moderate score only in presenting English material with various levels of difficulty in one theme (M=3.00). It means that both in-service and pre-service teachers found it hard to present English materials with various levels of difficulty in one theme. Different from pre-service teachers, however, in-service teachers reported higher scores in presenting the material in various forms in teaching English (M=3.35), conveying English material in a variety of ways according to students' understanding abilities (M=3.35), grouping students based on their background so they can easily understand the material in learning English (M=3.18), and creating a learning environment that accommodates diverse learning needs and styles (M=3.41).

The strategy that showed the highest score from pre-service teachers was designing the questions so that there are variations in the activity in doing the task (M=3.21). Additionally, pre-service teachers reported the same score for two strategies, including presenting English material so that students who have a high learning rate can convey it to their peers (M=3.16) and applying for the assessment based on the level of difficulty and student ability in teaching English (M=3.16). On the other hand, the in-service teachers reported the highest scores in two strategies, including creating a learning environment accommodating diverse learning needs and styles (M=3.41) and providing resources and tools that help students explore and acquire knowledge at their own pace and in ways that suit their learning styles (M=3.41). It means that the in-service teachers found it easy to implement DI in dealing with the learning environment.

In conclusion, the data reveals the different capabilities of in-service and pre-service teachers in implementing DI. While both groups struggled with presenting English materials with various levels of difficulty in one theme, in-service teachers demonstrated higher proficiency in other strategies such as presenting materials in various

forms, conveying material according to students' understanding, grouping students by background, and creating a learning environment accommodating diverse needs. In contrast, pre-service teachers excelled in designing questions with varied activities and applying assessments based on difficulty and student ability. The findings suggest that in-service teachers have a stronger grasp of creating a supportive learning environment, which is crucial for effective DI. These differences highlight the importance of ongoing professional development for teachers to enhance their skills in implementing DI and better support diverse student needs.

Diverse Strategies of Differentiated Instruction Applied by In-Service English Teachers

The strategies for applying DI are diverse. The teachers identified the students' learning styles, characteristics, needs, and interests in designing the English materials, activities, assessments, and also learning environments.

Content

Content is one of the aspects addressed in DI. Firstly, the teachers presented materials in various forms. Teacher 1 stated, "In every meeting, I at least provide 3 forms including text/printed, poster, or infographic form for the visual learners, song or video for the audio and audiovisual learners, as well as a game for the kinesthetic learners". Additionally, Teachers 2 and 3 reported that they designed the materials covering various learning styles. Teacher 3 revealed,

> "Most of the students are easy to understand the lesson through pictures and texts, that is why I always provide them for example in the form of power points. Then, I ask them to repeat after me and practice the vocabulary with movements like eating, and dancing."

From that statement, it proves that Teacher 3 provided the materials for visual learners but designed the activities for facilitating the kinesthetic learners as well. Related to materials, teachers sometimes give the same text with different instructions. Teacher 3

stated "I provided the same materials but different activities and exercises including filling in the blanks, guessing words, etc. Teacher 4 revealed "I provided several texts, and then they chose the text based on their interest and level, because some texts contain more difficult words. Moreover, Teacher 2 sometimes simplified the questions to the lower-level students as stated,

> "I sometimes simplify the question to the lower-level students, the higher-level students have to come forward to speak maximally, while the lower students have to speak in front of the class even though they don't do it not that maximal, at least they get used to doing that. The feedback will also be different, the higher-level students get stricter feedback. For reading basically, the text will be the same, but the different approach for the different level students".

Not only considering the students' learning styles and abilities, materials are also adjusted to the students' needs. Teacher 1 revealed, "The students need many vocabularies to understand the text they read. Thus, I provide at least 3 vocabularies in a day. They have to write it as their glossaries". Additionally, Teacher 2 added, "I know that they need casual conversation related to their daily so I give them materials and activities that encourage them to have a conversation".

In conclusion, the implementation of DI in the classroom encompasses various aspects, including the provision of materials in diverse forms to cater to various learning styles and the adaptation of activities to facilitate kinesthetic learners. Furthermore, the provision of materials with different instructions and exercises, as well as the simplification of questions for lower-level students, is crucial for effective learning and feedback. Teachers have adjusted to the students' learning styles, abilities, and needs.

Process

Secondly, the teachers applied the strategies encouraging students to be autonomous learners. Teacher 1 implemented flipped classrooms by asking students to read the materials before having class and write the difficult words to create their own glossary, as stated,

> "I ask my students to read a text or material before the next meeting. They have to write the grammar that is difficult/glossary and the meaning in the school, at least 3 vocabs in a day, sometimes giving tasks (not interested)".

Having another strategy, Teachers 2, 3, and 4 applied group work or pair work to accommodate students learning outside the classroom to do discussion and observation. Teacher 2 revealed, "I ask the students to work in pairs and discuss with their group outside the class, sometimes I also give them homework". Teacher 4 added, "I sometimes ask my students to observe the things outside. The students can find and write anything related to the topic I have taught". Also implementing pair work, Teacher 3 stated, "I rarely give tasks, but I usually give pair works so that the students can practice with their friends. I need to give clear instruction".

In addition, the teachers encouraged higher-level students to help their friends. Teacher 4 revealed, "I ask the active and higher-level students to explain the English lesson to their classmates since the higher-level students usually finish the lesson earlier". Teacher 1 added, "I group the students based on their ability, there will be a higher-level student in each group so that they can help their friends to understand". Then, in grouping the students, Teachers 1, 2, and 4 grouped the students randomly so that the students could adapt to various characteristics. Teacher 3 pays attention to the students' characteristics and abilities as addressed,

> "I usually group the students based on their ability. The students with having higher level of understanding of the materials will be in the same group as those having a lower level. And sometimes based on the characteristic, the silent one will be with the active/excited student."

The teachers encouraged students to create products, for example, the same product with different topics or themes based on their interests. The teachers argued that they were supposed to ask the students to create different projects based on their learning styles. However, the teachers assumed that it would take a long time to make

the different rubrics. On the other hand, Teacher 4 still tried to implement it for speaking skills as revealed.

> "I ask the students to create the product they prefer. For example, if they like drawing then they have to draw and then speak based on that picture. If they want to create something, they can make something unique and present it. Thus, the rubric will be the same".

Considering the students' interests and learning styles, the teachers employed diverse strategies in teaching English. Teacher 1 stated,

> "The learning should be *Merdeka*, which means that the lesson has to fit the student's interest and learning style. I always try my best to make the class interactive like asking students to stick to the paper on the board. If I just give a question and mention one of them, they will ask their other friends and don't want to answer the questions. So, I make group work, they will answer it in a group, get points, and move."

Additionally, Teachers 2 and 3 offered the same points in the learning environment. Teacher 2 revealed, "It is not easy to know students' needs and learning. I usually make them comfortable in the class by showing videos and fun advertisements from Thailand, I also give them ice-breaking". Teacher 3, additionally, stated, "I convey the lesson with games in the beginning". Those statements indicate that in the teaching and learning process, teachers design the learning based on the students' interests and learning styles as well as create fun learning by giving ice-breaking, games, videos, etc.

In conclusion, the teachers effectively employed various strategies to promote autonomous learning among students, including flipped classrooms, group work, and peer-assisted learning, while also considering students' abilities, learning styles, interests, and characteristics to ensure effective learning experiences.

Product

Thirdly, teachers also differentiated the strategies of the product. The teachers asked students to create, for example, the same

product with different topics or themes based on their interests. The teachers argued that they were supposed to ask the students to create different projects based on their learning styles. However, the teachers assumed that it would take a long time to make the different rubrics. On the other hand, Teacher 4 still tried to implement it for speaking skills as revealed.

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The statement of Teacher 4 indicates that the students were asked to create a product based on their preferences and learning styles. The students may simply draw or create something, after that, the students are asked to present the product. Furthermore, Teacher 2 also implemented project and group work in the classroom as stated,

> "I ask them (the students) to learn with various sources, they can do the project, report them of passage. The data will be paraphrased. The students are asked to have a collaborative project or discovery learning".

This statement shows that the teacher sometimes implements project-based learning and discovery learning. The teacher gave the students a chance to find a text from diverse sources, the students were asked to paraphrase the text. Additionally, the students were asked to create a project and make a report on the project.

In conclusion, the teachers in the study demonstrated a commitment to differentiating assessment strategies, allowing students to create products aligning with their interests and learning styles.

Learning Environment

Lastly, the learning environment built by the teachers was adapted to the facilities provided by schools and students' characteristics. Teacher 4 stated, "I usually have an outdoor class if it is

not raining, it encourages students' motivation and concentration. They are bored in class and sleepy so their concentration is distracted". Thus, the outdoor class, conducted by Teacher 4, can also be a reference for other teachers to conduct fun and interesting learning and to engage the students' learning motivation. As mentioned earlier in the 'process', Teacher 3 built a class with collaborative work and discovery learning. "….. The students are asked to have a collaborative project or discovery learning". It indicates that the teacher aims to make a student-centered and active learning environment.

On the other hand, Teacher 2 revealed, "It needs time to analyze students' necessities and learning styles and the teacher needs to make the class comfortable and fun by giving games and various videos". Teacher 1 also addressed different strategies, as stated, "I always want to build active and fun learning, but sometimes the activities and media are limited, so I create several media based on the topic they like and they will be active in the class to learn English". The statements addressed by Teachers 2 and 1 indicate that learning environments need to be built through various strategies using media and school facilities.

Diverse materials and media were adapted from various sources by teachers such as websites, YouTube videos, books, and traditional media. Teacher 2 revealed that both digital and traditional media were applied and created interactive learning based on how the teacher presented and designed the class activities. Teacher 1 addressed several specific media and sources used such as Cambridge, Oxford, and the British Council. The teacher assumed that those were great but sometimes needed to be adjusted. The teacher also mentioned that certain media are sometimes created or designed by themselves since the students are interested in saving the media or materials completed with cartoons. Additionally, Teacher 3 applied podcasts, books, articles, dictionaries, and short conversations for adults. It means that the teachers implemented various materials and media that are authentic and engaging.

In conclusion, the teachers in this study recognized the importance of building a learning environment that is fun, comfortable,

active, and student-centered to engage the students' learning motivation and obtain the expected learning outcome. The teachers adapted their teaching methods to the facilities provided by the schools and the unique characteristics of their students, incorporating a variety of media and interactive activities to keep students motivated and focused.

Barriers in Applying Differentiated Instruction

A number of barriers were experienced by the in-service teachers in implementing DI. The barriers were related to the requirements for example the teaching time as well as the teachers' skills. Several teachers assumed that the main barriers were the limited time of teaching and learning process as well as the huge number of students in a class. Teacher 1 stated, "I think it's good to implement DI since it covers all students' learning styles, however, the limited time with a large number of students makes it hard to apply diverse materials and activities". This means that to implement DI, the teachers struggled to manage the time to cover various activities based on diverse learning styles with a huge number of students

The limited facilities also became a challenge for the teacher to convey diverse materials in various ways. Teacher 3 stated, "I sometimes need LCD, speakers, or interesting media, but it is not available or limited so we have to share them with the teachers that have the same teaching time with me". That, consequently, became an obstacle for the teachers to teach in different ways. the implementation of DI by in-service teachers was hindered by various barriers, including time constraints, limited facilities, and teachers' skills. These obstacles prevented teachers from effectively catering to the diverse needs of their students and utilizing a range of materials and activities in their teaching.

Other barriers were related to the teachers' skills and abilities. The teachers stated that implementing DI takes a long time to prepare the various media, materials, and activities. Moreover, related to the assessment, the students assumed that when the teachers ask the students to make different tasks or projects based on their interests and

learning styles, the teacher needs to provide several rubrics. It became a demand for the teacher to provide diverse rubrics for a project or task. Additionally, classroom management and classroom control became the barriers the teachers experienced in applying DI. Teacher 2 revealed,

> "When I group students, I sometimes find it hard to know their characteristics since I teach some classes. And I also feel that it takes more effort to control and ensure all groups work on their own".

That statement indicates that the barrier occurred in the teaching and learning process especially when students work in a group. Teacher 3 also addressed that another teacher found it difficult to group the students, particularly considering their learning styles. Teacher 3 told,

> "I feel confused to manage the group if they are always grouped based on the learning style, so sometimes I encourage them to work randomly or just based on characteristics, the active students will be in a group with the quiet ones".

To sum up, DI was implemented based on not only students but also the classroom situation and possibility. However, the implementation of DI in the classroom faces various barriers, including the time required to prepare diverse media, materials, and activities, the need for multiple assessment rubrics, and challenges in classroom management and control.

DISCUSSION

The present study indicates that pre-service English teachers reported lower scores than in-service teachers in implementing DI. Based on the interview data, the pre-service teachers revealed that they already learned the *Merdeka* Curriculum but not had the seminars or training yet related to it. On the other hand, the in-service teachers stated that there have been several times of training and seminars related to the *Merdeka* Curriculum including the implementation of DI.

That is related to the claim of Suprayogi et al. (2017) addressing that involvement in professional development may become one of the factors affecting teachers' success in applying DI. This means the factor of the different capabilities among pre-service and in-service dealing with DI is probably caused by their less involvement in professional development. The finding also corroborates the previous studies to enhance teachers' professional development regarding the application of DI (De Neve & Devos, 2016a; Ginja & Chen, 2020; Hinojosa, 2023; Suprayogi & Valcke, 2016). In conclusion, the present study suggests that pre-service English teachers exhibit lower levels of capability in implementing DI compared to in-service teachers. This disparity can be attributed to the limited involvement of pre-service teachers in professional development programs, as indicated by previous studies.

The teachers identified the students' learning styles, characteristics, needs, and interests in designing the English materials, activities, products, and also learning environment. That is in line with the ideas of previous studies (Smets & Struyven, 2020; Tamiru, 2019) that the four elements representing DI are the main aspects of covering students' different needs. Lavania and Faizah (2021), Tomlinson (2001), Tomlinson and Imbeau (2023) also addressed in their theories dealing with those four aspects of DI that need to be contemplated. By aligning with previous research, it is evident that the four elements of Differentiated Instruction (DI) serve as the foundation for effective teaching and learning practices.

Dealing with the aspect of content, the teachers addressed various learning styles by presenting materials in various forms, such as text, posters, infographics, songs, videos, and games. Additionally, teachers provided the same materials but with different activities and exercises to accommodate different levels of students or provided diverse texts with different difficulty levels and themes. This confirms the study conducted by Smets and Struyven (2020) revealing that teaching methods, materials, and content need to suit students' individual needs, to recognize and accommodate various learning needs, learning styles, abilities, and interests. Stating the similar

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benefits, Jufrianto et al. (2023) considered DI to be a better teaching approach than traditional classroom instruction.

Additionally, several strategies were implemented related to the aspect of the process and product for instance flipped classrooms, group work, pair work, projects, etc. Lastly, in the aspect of learning environments, various teaching strategies, including interactive group work, ice breaking, and the use of games, videos, and diverse authentic sources, were applied to facilitate the students' needs. This supports the study of Baecher et al. (2012), Fitzgerald (2016), and Goodnough (2010) addressing that teachers need to creatively indulge in maintaining the lesson to be a proper learning environment for diverse learners which can elevate their learning interest and examination grades. The result of this study seems to be consistent with other studies (Klepsch & Seufert, 2020; Shareefa, 2021; Sun, 2023; Tomlinson, 1999) revealing that DI becomes the means of facilitating the different students' needs by applying various forms of teaching approaches and strategies.

Building a fun, comfortable, and active learning environment, this study strengthens the previous study conducted by Barlian et al. (2023) which indicated that ensuring the students feel comfortable and interested in learning is essential. This finding, additionally, is in line with the previous study conducted by Mutmainah et al. (2023) which highlighted the significance of the student's involvement in learning.

Other than that, several barriers were experienced by the teachers in implementing DI. Firstly, it is related to the limited time to prepare various materials for a class. It was also stated in the study of Jufrianto et al. (2023). The researcher reviewed that applying DI offers several advantages but limited time and resources to prepare the materials became the obstacles.

Additionally, in the questionnaire, preservice (M=2.90) and in-service teachers (M=3.00) obtained a moderate score in presenting English material with various levels of difficulty in one theme (M=3.00). In other words, both found it hard to present English materials with various levels of difficulty in one theme. It rebuts the previous studies that claimed resources are the problem in preparing

the DI (Cahyono et al., 2023; Suprayogi & Valcke, 2016). The results even indicated that pre-service (M=3.05) and in-service teachers (M=3.41) obtained high capability in applying DI.

The teachers also found a problem in implementing DI in the classroom due to insufficient time in class and the huge number of students in a class. This also accords with our earlier study by Suwastini et al. (2021), which showed that insufficient teaching time and the additional amount of work become potential problems. The strategy used by Teacher 1, a flipped classroom, can be a solution to this problem. Since the students are given material to be learned at home, it will be reviewed and continued at school. Furthermore, the teachers assumed that preparing various media, materials, and activities for a meeting takes a long time. It is in line with the previous studies (Cahyono et al., 2023; Suprayogi & Valcke, 2016) indicating their tendencies to have limited competence, time, and resources to confidently prepare and design the learning procedure with differentiation. This can be solved by adapting or adopting the existing materials that were already implemented by Teachers 2 and 3. Adopting or adapting materials saves teachers' time. Using the existing video or text facilitates students with authentic materials. Moreover, the problem experienced by the teachers was not only related to the development of materials and media but also the diverse rubrics. No studies addressed the barrier dealing with the rubric. The teachers can switch or share the rubric with other English teachers or adapt it on the internet. All in all, the barriers experienced by teachers indicated and several previous studies are almost the same including demand for time, resources, the number of students, etc.

CONCLUSION

The finding of the study indicated that the pre-service teachers reported lower points rather than the in-service teachers. The in-service teachers had joined several times of development programs conducted by the school related to *Merdeka* Curriculum including the implementation of DI. It means that the pre-service teachers may

obtain more knowledge and practice about DI in the lecture and internship.

The implementation of DI in the classroom conducted by in-service teachers addressed the aspect of content, process, assessment, and learning style. Dealing with content, the teachers addressed various learning styles by presenting materials in various forms, such as text, posters, infographics, songs, videos, and games. They also provided materials in different formats, including power points, to cater to visual learners. Additionally, teachers provided the same materials but with different activities and exercises to accommodate different levels of students. Secondly, related to process, the teachers applied flipped classrooms, group work, and pair work, as well as encouraging higher-level students to explain lessons to their peers. The teachers also grouped students based on their abilities and characteristics to facilitate learning and peer support. Thirdly, in assessing the students, the teachers allowed students to create products based on their interests, preferences, and learning styles for different projects. Dealing with the learning environment, the teachers built fun, comfortable, active, and student-centered classes. The teachers provided games, ice-breaking, authentic videos, and fun advertisements. Overall, the teachers' efforts to create a dynamic and engaging learning environment were aimed at maximizing student motivation, concentration, and participation.

Barriers occurred in the implementation of DI by in-service teachers primarily related to the requirements and the teachers' skills. The limited time and large number of students in a class were perceived as major obstacles in applying diverse materials and activities. The lack of facilities and resources also hindered the teachers' ability to convey diverse materials in different ways. Additionally, the teachers faced challenges in preparing and providing diverse rubrics for assessments, as well as managing and controlling classroom groups. These barriers can be solved by adapting or adopting materials so that it saves teachers' time rather than developing. Additionally, for the rubrics, the teachers can adopt or adapt from the internet or other teachers. For the limited learning time in the class with the huge

number of students, the teachers can cope with it by implementing a flipped classroom.

This study is limited to identifying the capability, strategies, and barriers experienced by the teachers. Hence, the future researcher may conduct research related to DI with more detailed information, larger participants, or even conduct in a university. However, the researchers hope that this study helps the lecturers and stakeholders to pay attention to the pre-service teachers' capability before working or at least doing the internship. It is essential since the pre-service teachers will also teach the students in the school. The government also needs to know the in-service capability to ensure their teaching. Other than that, the strategies implemented by in-service teachers can be referenced by other teachers who teach English.

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