Master Thesis

The influence of teachers' knowledge and self-efficacy on elementary school teachers' acceptability of differentiated instruction in Indonesia

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Abstract

Differentiated instruction is a new approach used by the government to reform the education in Indonesia. Teachers, as the ones that are required to carry out the approach, may have subjective perceptions of whether differentiated instruction is appropriate as an educational reform. These subjective perceptions called teachers' acceptability. This study investigated the influence of teachers' knowledge of differentiated instruction and teachers' self-efficacy in differentiation on teachers' acceptability of differentiated instruction. A total of 70 elementary school teachers participated in this study. All participants completed an online survey in which knowledge of differentiated instruction, self-efficacy in differentiation, and acceptability of differentiated instruction were measured. Results showed that knowledge of and self-efficacy in differentiated instruction significantly influence acceptability of differentiated instruction, but no significant association was observed between knowledge of and self-efficacy in differentiated instruction. In addition, professional development was found to influence teacher acceptance of differentiated instruction. Thus, the results in this study suggest that professional development which improves knowledge and also promotes teachers' self-efficacy in differentiation can enhance teachers' acceptability of differentiated instruction.

Introduction

The triennial 2018 PISA report shows that Indonesian students achieved a low rank for reading, mathematics, and science (OECD, 2019). This fact corroborates the argument that Indonesia needs improvements for its educational quality (Bjork, 2005; Sofo, Fitzgerald, & Jawas, 2012; Suprayogi & Valcke, 2016; Raihani, 2007). Several factors that are having a negative impact upon student attainment and learning outcomes in Indonesia are managerial shortcomings, irrelevant change of regulation, and the quality of teaching (Sofo, Fitzgerald, & Jawas, 2012; Bjork, 2005; Raihani, 2007). Managerial shortcomings mean that the central education authority determines almost every aspect of schooling (Raihani, 2007), thus limiting schools from adjusting curriculum or assessment to their schools. As a result, there is a mismatch between what the school offers and what students need so that students do not achieve optimal learning outcomes. Sofo, Fitzgerald, and Jawas (2012) uttered a second problem, namely the erratic change of education policies. For instance, in ten years, the Indonesian government has changed the curriculum three times. The latest curriculum (K-2013) has new learning goals that created new demands for schools and teachers. However, there is minimum support from the government for schools and teachers to implement K-2013. As a result, schools and teachers are not completely able to applied K-2013. Thus, the goals of K-2013, such as higher students' achievement, have not accomplished. Lastly, related to massive centralization, the way teachers work in Indonesia is regulated by the government. With demands from the government, teachers choose to apply a teacher-centered approach in order to meet all these obligations (Bjork, 2005). Regarding academic achievement, teacher-centered teaching methods decrease students' academic achievement (Precious & Feyisetan, 2020).

The government, who was represented by the Ministry of Education and Culture, prepared five measures to tackle the problems (Cahya, 2019). These measures were made through an intensive assessment of the education problems in Indonesia and aimed to accommodate everyone's (i.e., students, teachers, and schools) needs. The government also prepared schools and teachers for implementing the measures. One of the measures is a new learning concept called *Merdeka Belajar* (*Free to Learn*). Nadiem Makarim (minister of education and culture of Republic of Indonesia) explained this new learning concept reflects freedom of thought for students, teachers, and schools (Bunga, 2019). Although the government provides guidance, schools have the autonomy to determine and design curricula to be applied. As an example, schools are allowed to modify the assessment process and determine whether students can graduate or not yet. With greater decision-making authority at the school level,

schools can respond more efficiently, effectively and flexibly to the needs of their students (Sofo, Fitzgerald, & Jawas, 2012). In a study in Pakistan, it was proven that school autonomy leads a better teachers' performance and academic achievement of students (Shabbir, et al., 2014).

In Merdeka Belajar, teachers are also given freedom in teaching. Teachers are expected to teach responsively to the needs of students. The government designed a series of professional development courses for increasing Indonesian teachers' knowledge and skills (Kemendikbud RI, 2020). One of the topics is differentiated instruction so that teachers can create a student-centered class instead of teacher-centered class. Differentiated instruction can be defined as a systematic way to conceptualize the process of teaching and learning such that each student's learning needs are honored and each student's learning potential and outcomes are maximized (Santangelo & Tomlinson, 2012).

In differentiated instruction, teachers are encouraged to provide an effective learning process for students (Tomlinson, 2017). Differentiated instruction is one approach to restructuring the traditional classroom to include the diversity of students (Dack, 2019; Subban, 2006). The diversity of students is increasing and the use of the one-size-fits-all curriculum no longer meets the needs of students. In differentiated instruction, teachers should pay attention to students' readiness, interest, and learning profile so that they can differentiate one or more curricular areas that are appropriate for their students (Heacox, 2012). That way, education can cater for a variety of learning characteristics (Subban, 2006; Suprayogi & Valcke, 2016).

The practice of differentiated instruction in Indonesia has been reviewed by several studies (e.g., Suprayogi, Valcke, & Godwin, 2017; Suprayogi & Valcke, 2016; Handayani, Kartika, & Sugoto, 2017; Wilujeng, 2012). Based on Suproyogi and Valcke's (2016) study, it is assumed that differentiated instruction is an appropriate approach in Indonesia considering the diversity of students. Yet, Handayani, Kartika, and Sugoto (2017) explained that Indonesian teachers have insufficient knowledge to differentiate even though they are aware of the benefits of differentiated instruction. Teachers mentioned that they are unsure how to differentiate a class appropriately. This knowledge gap may limit the application of differentiated instruction (Turner, Solis, & Kincade, 2017). However, Handayani, Kartika, and Sugoto have not described clearly about teachers' knowledge of differentiated instruction (i.e., what teachers know or do not know about differentiated instruction). For this reason, it is important to examine teachers' knowledge about differentiated instruction. This information can be used to design an appropriate professional development for teachers.

The attitude of teachers to differentiated instruction, as a new approach used by the government to reform the education in Indonesia, is also important to acknowledge. Teachers can have various attitudes towards an intervention and have an impact on the implementation (Easton & Erchul, 2011). Treatment acceptability is the subjective perceptions of teachers who are called upon to implement new interventions (Donnell & Gettinger, 2015). Even though teachers have received professional development related to an intervention, teachers may not implement it in the classroom because they do not accept the approach. As explained by Elliott (1988), knowledge of an intervention affects the acceptability of an intervention. Teachers are more receptive to interventions that they understand (McKee, 1984; Vereb & DiPerna, 2004). However, the relation between knowledge and acceptability has received less attention so that further research is needed to clarify it.

Furthermore, teachers' self-efficacy in implementing a new initiative is significantly proven to have an impact on teachers' acceptability of the initiative (Donnell & Gettinger, 2015). When teachers feel efficacious in implementing a new initiative, they will be more likely to accept it. Conversely, if teachers feel that the challenges of a new initiative are difficult, they will be reluctant to carry them out. Related to the conditions of teachers in Indonesia who are habituated to working with an exact direction without freedom of innovation, the changes can present new challenges to teachers and re-evaluate of their efficacy (Wan, 2016). This study will measure the self-efficacy of teachers on differentiated instruction and its effect on the teachers' acceptability of differentiated instruction. If the teachers' self-efficacy is proven to have an effect on levels of acceptance, then it can be useful information for increasing teachers' acceptability of differentiated instruction.

Based on the aforementioned studies, teachers' knowledge of and self-efficacy in differentiated instruction are clearly manifesting as contributing factors to teachers' acceptability. Some studies found a significant relation between teachers' knowledge and self-efficacy (i.e., Zakeri & Alavi, 2011; Schwartz & Drager, 2008; Lu et al., 2020). To gain more insight, this study will also investigate the influence of teachers' knowledge of differentiated instruction on teachers' self-efficacy in differentiation

Theoretical framework

Differentiated instruction

Differentiated instruction is an approach to teaching in which teachers proactively modify curricula, teaching methods, resources, learning activities, and student products to address a broad range of learners' needs (Tomlinson, et al., 2003). Differentiated instruction is an instructional approach that is characterised as a student-centered teaching method (Tomlinson, 2017; Suprayogi & Valcke, 2016; Gaitas & Martins, 2016). Teachers who adopt differentiated instruction believe in the diversity of their students. These differences can be in the form of prior knowledge and prior experiences, readiness, language, culture, learning preferences, and interests (Suprayogi & Valcke, 2016; Santangelo & Tomlinson, 2012; Tomlinson & Imbeau, 2010; Oliver, 2016). With this knowledge of student diversity, teachers differentiate to accommodate their students' needs (Heacox, 2012; Gaitas & Martins, 2016).

According to Santangelo and Tomlinson (2012), there are four curricular elements that can be modified in the differentiated instruction approach, namely content, process, product, and learning environment. Differentiation in content refers to modifying what will be taught to students (i.e., essential knowledge, understandings, and skills) (Gaitas & Martins, 2016) and also how students access the information (Santangelo & Tomlinson, 2012). Differentiation in process includes activities for students to think about, work with, and personalize the content (Santangelo & Tomlinson, 2012). Teachers can also differentiate the product which should facilitate students' ability to critically think about, apply, and demonstrate what they have learned (Santangelo & Tomlinson, 2012). Lastly, teachers can also design the class by displaying student work or changing sitting positions to differentiate the learning environment. This arrangement aims to increase students' engagement, although it needs to be done carefully to hinder the detrimental effect on the learning process (Tomlinson & Imbeau, 2010).

Teachers are free to choose the curricular elements that comply with their students' needs (Handayani, Kartika, & Sugoto, 2017). For example, in one class, teacher A differentiates the process when he teaches a mathematical concept. In another class, teacher B differentiates the product of a science project. In summary, differentiated instruction is a flexible, fluid philosophy grounded in a set of conceptual tools about responding to diverse needs and interests (Dack, 2019).

Several studies have shown positive outcomes from the use of differentiated instruction. Tulbure (2011) found that implementation of differentiated instruction resulted in higher academic scores. Students also had a better understanding of the lesson in a differentiated class

(Joseph, Thomas, Simonette, & Ramsook, 2013) and teachers were helped by differentiated instruction in maximizing student potential (Wilujeng, 2012). In another study, Chien (2012) revealed that students in her English class enjoyed the lesson because students had several options about the task or the media that they can choose during the class. At the end, the enjoyment led to better learning outcomes. However, as a part of an educational reform in Indonesia, teachers may have various reactions to differentiated. In the next section, teachers' acceptability of differentiated instruction will be discussed.

Teacher acceptability of a new initiative

Treatment acceptability refers to judgments by laypersons, clients, and others of whether treatment procedures are appropriate, fair, and reasonable for the problem or client (Kazdin, 1981). For this study on differentiated instruction, treatment acceptability can be defined as teachers' subjective perceptions of whether differentiated instruction is appropriate as an educational reform in Indonesia. The acceptability of teachers are relevant because teachers are the ones who have to carry out differentiated instruction in their classes (Easton & Erchul, 2011; Eckert & Hintze, 2000).

In Kazdin's (1980) study, treatment procedures that are viewed by undergraduate students as more acceptable are more likely to be sought out and adhered to once treatment has begun. As a result, the treatment will involve fewer dropouts, greater compliance, and greater overall satisfaction (Calvert & McMahon, 1987). Witt and Robbins (1985) examined six classroom intervention strategies for reducing the students' inappropriate behaviour with an experimental method. Teachers choose interventions that are conducted by teachers themselves rather than interventions that are conducted by other individuals outside the classroom. In other research, Kurita and Zarbatany (1991) found that teachers prefer familiar, effective, and practical strategies over time consuming and unfamiliar strategies. These findings lead to the assumption that teachers' familiarity (e.g., what is differentiation? how to implement differentiated instruction?) and teachers' perceptions (e.g., am I able to implement differentiated instruction in my class? will differentiation be effective for my class?) of differentiated instruction influence teachers' acceptability of differentiated instruction. Teachers' knowledge of and self-efficacy in differentiated instruction will be explained in the next section.

Teachers' knowledge and acceptability of differentiated instruction

As mentioned by Nicolae (2014), knowledge of differentiated instruction is needed to help teachers understand the approach and then implement it in the classroom. In the Handayani, Kartika, and Sugoto's (2017) study, Indonesian teachers perceived differentiation instruction as "just a tool of delivering method". Indonesian teachers also described limited strategies to tackle the student diversity (Suprayogi & Valcke, 2016). Dack (2019) found that prospective teachers perceived less challenges of differentiation as they gained more knowledge of differentiated instruction. With less perceived challenges, prospective teachers strengthened their belief in differentiated instruction.

McKee (1984) conducted a study to see the relation between knowledge and teachers' acceptability of several classroom treatment strategies. The result showed that more knowledge of behavioral principles is predictive of relatively higher acceptance ratings for behavioral treatments. Vereb and DiPerna (2004) made a similar study related to ADHD. In line with McKee, knowledge was proven to have a positive relationship with rating of medication acceptability. As far as the researcher is aware, there has not been any specific study on the relation between knowledge of differentiated instruction and the acceptability of it. This study will measure the relation. It is expected that knowledge has a significant influence on the teachers' acceptability of differentiated instruction.

Teachers' self-efficacy and acceptability of differentiated instruction

The concept of self-efficacy was introduced by Bandura who defines self-efficacy as an assessment of one's capabilities to attain a desired level of performance in a given endeavour (Dixon, Yssel, McConnell, & Hardin, 2014). Related to the role of the teacher, teacher efficacy is the teacher's belief in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Suprayogi, Valcke, and Godwin (2017) then included differentiated instruction in the definition and interpreted teacher differentiated instruction self-efficacy as teacher belief in his or her ability to implement differentiated instruction on their daily teaching activity.

Teachers' self-efficacy represents an important influence on teachers' behaviour (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Dixon, Yssel, McConnell, and Hardin (2014) found that efficacious teachers are more willing to adjust their teaching methods to meet students' needs, whereas teachers with low self-efficacy have less confidence to try a new approach. Donnell and Gettinger (2015) also explained that teachers appear to be more

accepting of school reform when they feel efficacious in implementing new practices. Differentiated instruction is a new approach for teachers in Indonesia. If Indonesian teachers feel unable to carry out differentiated instruction, then they will tend to be resistant to the concept. In sum, it is expected that there is a significant influence of teachers' self-efficacy on the teachers' acceptability of differentiated instruction.

Teachers' knowledge of and self-efficacy in differentiation

The relation between teachers' knowledge and self-efficacy has been analyzed by several studies. Although Bandura proposed four sources that contribute to teacher self-efficacy, Lu et al. (2020) found that the richer the teachers' autism spectrum disorder (ASD) knowledge, the higher their professional self-efficacy. In contrast, Schwartz and Drager (2008) found a negative relationship between speech-language pathologists' ASD knowledge and their professional self-efficacy. In Schwartz and Drager's study, speech-language pathologists are confident in providing services to children with autism, despite a deficit in knowledge of autism. Based on these contradictory findings, this study will also examine the influence of teachers' knowledge of differentiated instruction in teachers' self-efficacy in differentiation. It is expected that there is a significant influence of teachers' knowledge of differentiated instruction on teachers' self-efficacy in differentiation.

Current study

The research question of the current study is:

To what extent do the knowledge of and the self-efficacy towards differentiated instruction influence elementary school teachers' acceptability of differentiated instruction in the Indonesian context?

In order to answer the research question, sub questions are formulated. The literature review led to the according hypotheses.

What is the influence of teachers' knowledge on their acceptability of differentiated instruction?
H1: Teachers who score high on knowledge of differentiated instruction have a higher acceptability of differentiated instruction.

What is the influence of teachers' self-efficacy on their acceptability of differentiated instruction?
H2: Teachers who score high on self-efficacy in differentiation have a higher acceptability of differentiated instruction.

What is the influence of teachers' knowledge on their self-efficacy in differentiation?
H3: Teachers who score high on knowledge of differentiated instruction have a higher self-efficacy in differentiation.

Method

Participants

A total of 134 participants took part in the study. Participants were first to sixth grade teachers from several elementary schools located in Indonesia, specifically in Jakarta, Bogor, Depok, Tangerang and Bekasi. Of these, 70 teachers (9 male, 61 female) provided complete survey data. The rest of the participants (64 teachers) decided to discontinue their participation (i.e., did not finish their survey). The age ranged from 22 to 56 years old, with a mean age of 34.41 years (*SD* = 8.90). The majority of the participants reported having either more than ten years of experience (*n* = 26, 37.1%) or less than five years (*n* = 25, 35.7%); approximately 81.4% of participants held a bachelor's degree (*n* = 57) and 67.1% participants graduated from a teacher preparation program (*n* = 47). Most reported having received teacher's professional development (*n* = 63, 90.0%) and most professional development was linked to teacher development, such as curriculum training (40.86%) and instructional strategies (35.48%). Only one participant received a training related to differentiated instruction. Table 1 summarizes the demographic data.

Table 1

Demographic data

Category	Frequency	Percentage
Teaching experience		
less than 5 years	25	35.7%
5 – 10 years	19	27.1%
more than 10 years	26	37.1%
Degree		
Diploma	3	4.3%
Bachelor	57	81.4%
Master	10	14.3%
Teacher has joined a teacher preparation program		
Yes	47	67.1%
No	23	32.9%

Teacher has joined one or more professional development courses		
Yes	63	90.00%
No	7	10.00%
Themes of professional development		
Curriculum training	38	40.86%
Instructional strategies	33	35.48%
In-depth study of a school subject	11	11.83%
In-service teacher training	9	9.68%
School/classroom management	1	1.08%
Differentiated instruction	1	1.08%

Design

This study has a quantitative design. A correlational design was chosen in order to be able to establish statistical relationships between teachers' knowledge and self-efficacy and teachers' acceptability of differentiated instruction.

Measurements

To answer the research questions, four instruments were administered: a demographic questionnaire, the Abbreviated Acceptability Rating Profile (AARP), a knowledge test measuring knowledge of differentiated instruction, and a teachers' self-efficacy questionnaire. The knowledge test was developed in the Indonesian language: Bahasa. The AARP and teachers' self-efficacy questionnaire was translated from English. These instruments then were translated following the forward-backward translation method. In order to check for the clarity of questions, a pilot study was conducted. The pilot version of the instruments was presented to six participants that consisted of two teachers and four former teachers. These data were not included in the data analyzed. Based on their feedback, modifications were made in the wording of the questionnaire to make the text clearer and more relevant to the Indonesian context.

Demographic data

In the demographic questionnaire, data on teacher variables were collected. The variables were age, gender, school location, classroom size, teaching experience, teachers' qualification (degree and has / has not joined a teacher preparation program), and professional development.

Acceptability of differentiated instruction

An adapted version of AARP (Tarnowski & Simonian, 1992) was used to measure teachers' acceptability of differentiated instruction. The scale comprised of eight items that measured a unitary acceptability. Appendix A shows the acceptability of differentiated instruction instrument. Similar with Donnell and Gettinger's (2015) study, some words in the original AARP item were modified to fit the context (e.g., the term "treatment" was replaced with the differentiated instruction approach). Participants rated the scale item on a six-point Likert rating, ranging from 1 (strongly disagree) to 6 (strongly agree). The total score was obtained by summing all items with higher scores representing a greater level of acceptability (scores ranged from 8 to 48). An example item was: "I like the differentiated instruction approach". The reliability of AARP was found high (Cronbach's $\alpha = .88$).

Teachers' differentiated instruction self-efficacy

Teachers' differentiated instruction self-efficacy was measured with a Bahasa translation of part III of the Survey of Practices With Students of Varying Needs of Tomlinson et al. (1995). A total of 9 items was answered with a 5-point rating scale (1 = no confidence to 5 = very confidence). The instrument of teachers' differentiated instruction self-efficacy can be seen in Appendix B. Teachers' self-efficacy was calculated by the sum of the scores of each participant, resulting in scores ranging from 9 to 45. An example item was: "Identifying gifted students". Reliability of the self-efficacy questionnaire, as measured with Cronbach's α, was $\alpha = .81$.

Knowledge of differentiated instruction

A list of questions was developed to collect data about teachers' knowledge of differentiated instruction (see Appendix C). The questions were formulated based on Santangelo and Tomlinson's (2012), Heacox's (2012) and Suprayogi, Valcke, and Godwin's (2017) studies. There were eleven open questions about differentiated instruction. To begin the questionnaire, participants were given a description of a situation that they might have experienced. Participants then were asked about the definition (question 2 and 4), the rationale (question 1), the need of ongoing assessment (question 3 and 10), learner characteristics (question 5), process modification (question 6), content modification (question 7), product modification (question 8), learning environment modification (question 9), and differentiation instructional strategy (question 11).

The range of the total score was 0-100 points. The questions did not have the same weight value. The definition and the modification were greater than the other question. In Dack's (2019 study, most teachers have misconceptions about the definition of differentiated instruction. These misconceptions lead to confusion of implementing differentiated instruction. When teachers are unsure how to differentiate, teachers become less confident in their abilities (Handayani, Kartika, & Sugoto, 2017) and might resist differentiation. Moreover, Donnell and Gettinger (2015) found that the understanding of the rationale for an intervention approaches the significant level in influencing the treatment acceptability. Considering the finding, the weight value of each question did not differ too much (weight value ranged from 8 to 10).

In addition, participants' responses were assessed as a whole and a score for one question could be obtained from responses to another question. For instance, several participants answered that they did not know which instructional strategies align with differentiated instruction (question 11). However, the same participants mentioned one or more differentiation strategies in other questions. Participants then were still given a score for knowledge of the differentiation instructional strategy. For more detailed information on the scoring system, see Appendix D. Reliability of the questionnaire, as measured with Cronbach's α, was .72. A second scorer assessed 10% of the data (i.e., 7 tests). An acceptable interrater reliability level was observed (Cohen's kappa = 0.73).

Procedure

The questionnaire was administered online. It was started with the information about the nature of the study and an approximated duration of 25-30 minutes to fill in the questionnaire. Furthermore, participants were informed about confidentiality and anonymity of the data. They were also informed that participation was fully voluntary and they could stop at any point of time. Finally, by proceeding to the following page, participants consented that their data were allowed to be used in this study. The first part of the survey battery was the demographic questionnaire (e.g., gender, age, teaching experience, school location, etc.). Participants continued with the subscale measuring their knowledge of differentiated instruction. Subsequently, the questions concerned with the participants' self-efficacy were applied, followed by the AARP. Substantial information, such as mentioning that there were no right or wrong answers, or how to answer the subscales was given at the beginning of each page.

Data analysis

Multiple linear regression analysis was used to examine the extent to which teachers' knowledge of and self-efficacy in differentiated instruction account for teachers' acceptability of differentiated instruction. The influence of teachers' knowledge on teachers' self-efficacy in differentiated instruction was investigated by multiple linear regression. The normality of the error distribution was met by all of the variables. T-tests and one way Anovas were used to compare specific subgroups of participants, i.e., teacher qualification (degree and has / has not joined a teacher preparation program), teaching experience and professional development. A significance level of $p < .05$ was put forward.

Results

Acceptability of differentiated instruction

The results show that teachers indicated to have a high degree of acceptability of differentiated instruction (*M* = 4.64; *SD* = 0.80; min mean score = 2.75; max mean score = 6). For most of the items, teachers typically placed themselves more towards the end of the continuum representing the acceptance of differentiated instruction than towards the end representing the resistance of differentiated instruction. Having a closer look at the data, they agreed with all statements except for "the differentiated instruction approach will not have side effects for any of the students in my class", which teachers valued around neutral (*M* = 3.40; *SD* = 1.38). Table 2 shows teachers' mean scores on the acceptability of differentiated instruction.

Table 2

Means and standard deviations of the acceptability of differentiated instruction (*n* = 70)

Scale	M	SD	Min	Max
Acceptability (1 - 6)	4.64	0.80	2.75	6.00

Knowledge and self-efficacy

For an overview of means and standard deviations of the independent variables (knowledge and self-efficacy), see Table 3. The results show that teachers had moderate to high scores on the knowledge about differentiated instruction (*M* = 70.21; *SD* = 13.81). Furthermore, teachers felt fairly efficacious about their ability to differentiate their classes (*M* = 4.00; *SD* = 0.58).

Table 3

Means and standard deviations of teachers' knowledge and self-efficacy (*n* = 70)

Scale	M	SD	Min	Max
Knowledge (0 – 100)	70.21	13.81	32	92
Self-efficacy (1 – 5)	4.00	0.58	2.56	5.00

In-depth analysis of teachers' knowledge of differentiated instruction

As mentioned in the method section, there were different weight values for each question. To compare the scores, the percentage for each question was calculated. Based on the percentage, teachers had the highest score for the topic about definition (M = 14.76; SD = 3.84). Conversely,

teachers showed a lack of knowledge of learning environment modification (M = 3.19; SD = 1.82). The results also indicate that some teachers had misconceptions about differentiated instruction ("differentiation is an individualized program" n = 6; "differentiation can only be applied in a small classroom size" n = 8). However, the frequency of these misconceptions was few compared to the whole responses. Table 4 shows the teachers' mean scores on the knowledge of differentiated instruction.

Table 4

Means and standard deviations of the knowledge of differentiated instruction

Topic	Mean	SD	Percentage
Definition (0 – 18)	14.76	3.84	82.00%
Rationale (0 – 8)	6.41	2.19	80.13%
Learner characteristics (0 – 8)	5.64	2.68	70.50%
Ongoing assessment (0 – 18)	14.01	3.99	77.83%
Process modification (0 – 10)	7.76	1.66	77.60%
Content modification (0 – 10)	6.06	2.35	60.60%
Product modification (0 – 10)	6.34	2.35	63.40%
Learning environment modification (0 – 10)	3.19	1.82	31.90%
Differentiation instructional strategy (0 – 8)	6.03	1.33	75.38%

The comparison between subgroups of teachers

After testing the normality of the distribution and considering the number of categories in the group, t-tests and one way Anovas were conducted to examine the effect of teacher qualification (degree and has/has not joined a teacher preparation program), teaching experience, and professional development on teachers' acceptability of differentiated instruction. For a detailed overview of the outcomes, see Table 5. The results show that teachers who have joined one or more professional development courses reported a significantly higher degree of acceptability of differentiated instruction as compared to teachers who have never participated in professional development. Meanwhile, teaching experience and qualification (degree or has/ has not joined a teacher preparation program) did not impact the teachers' acceptability of differentiated instruction significantly. Furthermore, the contribution of teacher qualification (degree and has/has not joined a teacher preparation program), teaching experience and professional

development on the independent variables (i.e., knowledge and self-efficacy) was also examined. The results showed no significant differences of knowledge and self-efficacy level between these groups.

Table 5

Comparison between subgroups of teachers

Group	Acceptability		Knowledge		Self-efficacy	
	M	SD	M	SD	M	SD
Degree						
Diploma	36.33	3.51	60.33	25.38	34.00	4.58
Bachelor	37.16	6.64	69.68	13.13	36.12	5.64
Master	36.90	6.39	76.10	13.25	36.20	2.97
Teaching experience						
Less than 5 years	34.64	6.91	69.20	13.43	34.44	4.85
5 – 10 years	37.84	4.94	71.42	14.51	35.68	5.50
More than 10 years	38.88	6.42	70.27	14.14	37.85	5.11
Teacher preparation program						
Has joined	36.79	6.64	68.32	14.15	36.04	5.49
Has not joined	37.70	6.09	74.04	12.53	36.04	4.90
Professional development						
Has joined	37.78	5.74	70.68	13.95	36.40	4.78
Has not joined	30.86	9.25	65.86	12.62	32.86	8.34

Correlations between the teachers' acceptability of differentiated instruction and the independent variables

Correlations have been calculated between all of the variables included in this study. Table 6 reports the Pearson inter-correlations between the variables. Consistent with the empirical framework for the study, knowledge and self-efficacy were both correlated significantly ($p < .01$) with the teachers' acceptability of differentiated instruction. Nonetheless, knowledge and self-efficacy were not significantly correlated.

Table 6

Correlations between the acceptability, knowledge and self-efficacy

Variable	1	2	3
1. Acceptability	1		
2. Knowledge	.375**	1	
3. Self-efficacy	.560**	.111	1

Note. ** *p<0.01.*

The influence of the independent variables on the teachers' acceptability of differentiated instruction

Two simple linear regression analyses have been conducted to explore the relation between the dependent variable (teachers' acceptability of differentiated instruction) and the independent variables (knowledge and self-efficacy). These analyses were done after controlling for the effect of professional development. The first model, which included knowledge as an independent variable, explained 9.0% of the variance in teachers' acceptability scores (R^2 = 0.09). Statistical significance was found, indicating that teachers who score high on knowledge of differentiated instruction have a higher acceptability (p < .05). The second model, which include teachers' self-efficacy in the model explained approximately 33.3% of the variance in teachers' acceptability scores (R^2 = 0.333). Statistical significance was also found, indicating that teachers who score high on self-efficacy in differentiation have a higher acceptability (p < .01). Table 7 shows the results.

Table 7

Regression analysis summary for knowledge and self-efficacy predicting acceptability of differentiated instruction

Variable	Unstandardized		Standardized	*p* value
	Beta	SE	Beta	
Knowledge	.102	.044	.247	.023*
Self-efficacy	.595	.127	.496	.000**

Note. * *p<0.05;* ** *p<0.01.*

The influence of each topic of knowledge on the teachers' acceptability of differentiated instruction

In order to explore the relation between each topic of knowledge of differentiated instruction and teachers' acceptability of differentiated instruction, nine simple linear regression analysis have been conducted. For a detailed overview of the outcomes, see Table 8. Topic about definition had statistically significant influence on teachers' acceptability of differentiated instruction.

Table 8

Regression analysis summary for each topic of knowledge predicting acceptability of differentiated instruction

Variable	Unstandardized		Standardized	*p* value
	Beta	SE	Beta	
Definition	.492	.178	.334	.008**
Rationale	.390	.368	.134	.294
Learner characteristics	.500	.263	.237	.062
Ongoing assessment	.325	.188	.216	.089
Process modification	.546	.422	.163	.201
Content modification	.454	.305	.197	.142
Product modification	.225	.315	.091	.478
Learning environment modification	.011	.404	.004	.978
Differentiation instructional strategy	.713	.555	.162	.204

Note. ** *p<0.01.*

The influence of teachers' knowledge of differentiated instruction on teachers' self-efficacy in differentiated instruction

A simple linear regression analysis has been conducted to explore the relation between teachers' knowledge of differentiated instruction and teachers' self-efficacy in differentiated instruction. The model explained 1.1% of the variance in teachers' self-efficacy scores (R^2 = 0.011). No statistical significance was found, indicating that teachers' self-efficacy in differentiation is not dependent on teachers' knowledge of differentiated instruction (see Table 9).

Table 9

Regression analysis summary for knowledge predicting self-efficacy in differentiated instruction

Variable	Unstandardized		Standardized	*p* value
	Beta	SE	Beta	
Knowledge	.037	.044	.107	.406

Discussion

The purpose of this study was to investigate whether teachers' knowledge of differentiated instruction and self-efficacy have influence on teachers' acceptability of differentiated instruction. In order to yield an insight about the relationships, an online survey was administered to a sample of Indonesian elementary school teachers. Generally, teachers reported a high degree of acceptability of differentiated instruction. High acceptability of differentiated instruction may result in higher possibility of the implementation of the approach. As the Indonesian teachers were still given professional development, this study was not able to assess the level of implementation of differentiated instruction. According to the results, most of teachers agreed that differentiated instruction is an appropriate approach to address students' diversity. These results are in line with Suprayogi and Valcke's (2016) finding, that most Indonesian elementary school teachers do not agree with the one-size-fits-all strategy. Moreover, the results also show moderate to high scores of the knowledge of differentiated instruction and the self-efficacy towards differentiated instruction possessed by Indonesian teachers.

In terms of hypotheses, it was expected that a high score on the knowledge of differentiated instruction was associated with more acceptance to differentiated instruction. This hypothesis is confirmed by the results of this research. This finding supports previous studies that higher knowledge of a treatment or intervention encourages higher acceptability ratings for the treatment or intervention (e.g., McKee, 1984; Vereb & DiPerna, 2004). Furthermore, this study indicates that the definition of differentiated instruction predicted the teachers' acceptability of differentiated instruction. Dack (2019) found that misconceptions of the definition of differentiated instruction disconcert teachers. As teachers' understanding of what is differentiation are corrected, teachers resolve their concern about differentiated instruction. Therefore, the understanding of the definition of differentiated instruction might yield a higher level of the acceptability of differentiated instruction.

As an addition, some misconceptions regarding differentiated instruction were found in the present study even though the quantity was relatively few compared to the appropriate responses from teachers. Some teachers considered differentiated instruction as an individualized instruction and only suitable for small classroom sizes. The misconceptions that were mentioned by teachers are similar to those reported by Tomlinson (2017). According to Nicolae (2014), misconceptions regarding differentiated instruction can raise doubts about the success of the approach. Thus, the misconceptions should be corrected. Most teachers in this

study had more than 20 students in their classes. Teachers should be educated through professional development that differentiation is not individualized instruction and can be applied with a combination of individual and group instruction. That way, misconceptions of differentiated instruction can be avoided and teachers might be more open to differentiated instruction.

In the second hypothesis, it was expected that teachers who had high self-efficacy in differentiation were more receptive to differentiated instruction. The results confirm this hypothesis. These results affirm that a higher degree of self-efficacy goes together with higher positive perceptions of intervention (Donnell & Gettinger, 2015) or more favorable attitudes toward an intervention (Karabenick & Noda, 2004). High levels of self-efficacy towards teaching is indicated by the presence of teachers' beliefs in their ability to plan, organize, and conduct activities to fulfil the educational goals they set (Lu, et al., 2020). With regard to differentiated instruction, teachers with a high level of teaching self-efficacy believe that they are capable to modify the class according to the learning characteristics of students. This belief leads to positive attitude towards differentiated instruction.

It is remarkable that most teachers in the present study had high self-efficacy for differentiation. It is assumed that knowledge of differentiated instruction provides a clear understanding for teachers so that they can estimate their ability to implement differentiation (Chung, et al., 2015). Several studies have found a correlation between knowledge and self-efficacy (e.g., Corona, Christodulu, & Rinaldi, 2017; Lu, et al., 2020). In the Corona, Christodulu, and Rinaldi's (2017) study, teachers are more confident in their ability to educate students with ASD as their knowledge about ASD increases. On the other hand, the results in this study indicate that knowledge of differentiated instruction did not predict self-efficacy in differentiation. Mastery experience is considered as the most powerful influence among the four sources that influence teachers' self-efficacy (Pendergast, Garvis, & Keogh, 2011). Nevertheless, this study did not measure the teaching experience related to differentiated instruction. Teachers may have successful experiences of differentiated instruction and these experiences increase teachers' self-efficacy in differentiation. Furthermore, it is possible if teachers have a high self-efficacy in differentiation before teachers become more knowledgeable of differentiated instruction as found in the Sharp, Brandt, Tuft, and Jay's (2016) study. Teachers in this study might belief that they will be successful in implementing differentiated instruction despite the knowledge of differentiation they possess. Yet, teachers may have an overly positive view of their abilities because they only focus in one or two aspects of differentiation (Eysink, Hulsbeek, & Gijlers, 2017). In Eysink, Hulsbeek, and Gijlers' study, teachers' sense of self-efficacy towards

differentiation change after teachers implement differentiated instruction as they are more aware of the approach. This finding suggests to measure the teachers' knowledge and teachers' self-efficacy during the implementation of the approach. During the implementation, teachers may be more aware of differentiated instruction and may notice some misconceptions that they possess.

In addition to knowledge and self-efficacy, the results also show that professional development was significantly related to teachers' acceptability of differentiated instruction. Nielsen, Barry, and Staab (2008) asserted that professional development can build teachers' knowledge and also increase teachers' self-efficacy of an intervention. With a comprehensive knowledge of an intervention and a higher confidence in applying it, teachers are more open to the intervention (Donnell & Gettinger, 2015). A closer look at the professional development themes in this study, only one participant that admitted had a differentiated instruction professional development. However, most of the professional development themes were about curriculum or instructional strategies (i.e., flipped class, using learning aids as additional tools for teaching and assessing students' understanding, making mind maps, etc.) that might represent strategies in differentiated instruction. The absence of the relation of professional development, knowledge, and self-efficacy in differentiation in this study might happen because of the imbalance in the number of teachers who have and have never participated in professional development (n = 63 *and* n = 7).

Practical implications and future research

The results of this study reveal practical implications. First, the provision of professional development for teachers is considered appropriate. Professional development of differentiated instruction will boost the acceptability of Indonesian teachers of differentiated instruction. Second, related to the influence of the knowledge of differentiated instruction, the government or educational experts should consider the content to be taught in the professional development. In accordance with differentiated instruction, knowing the prior knowledge of the learners (in this case the teachers) in advance is needed so that the content, process, and product of professional development can be adjusted to the needs of teachers. The results show teachers still need knowledge related to the modification, especially in the learning environment modification. It is also important for knowing and correcting the misconceptions held by teachers. That way, it is hoped that the teachers' acceptability of differentiated instruction will be increased. Third, the data in this study indicate that self-efficacy also predicts teachers' acceptability of differentiated instruction. Thus, professional development should not only increase knowledge, but also formulate to bolster teachers' beliefs in implementing

differentiated instruction. Karabenick and Noda (2004) stated that an effective training needs to focus on building skills, expanding resources, and enhancing teachers' sense of efficacy and confidence. With higher teachers' self efficacy in differentiating, they are expected to be more open to differentiated instruction.

In future research, the researcher suggests using a balanced sample and obtain detailed information about professional development so that an explanation of the influence of professional development on acceptability can be well-established. The next step is also using a measuring instrument that is more objective in assessing acceptability instead of teacher self-report. According to McKee (1984), studies on acceptability ideally involve direct practice by teachers in real situations (real problems and students present). Moreover, acceptability needs to be assessed not merely before the training, but also at the end of the training and during the implementation period. Changing circumstances (e.g., the transition from face-to-face meeting to online class and back again to face-to-face meeting, request from parents, etc.) can shift the level of acceptability of teachers (State, Harrison, Kern, & Lewis, 2016). Research on the level of implementation of teachers after participating in professional development would also be interesting to be done. This research can provide insight into the effect of the acceptability level. Several studies have linked teachers' high acceptance of treatments / interventions with levels of implementation (e.g., Witt & Elliott, 1985; Richardson, 1994). If the association between acceptability and implementation is proven, then the teachers' acceptability needs to be counted when the government or educational experts formulate an educational policy related to them.

Conclusion

In sum, this study provided evidence for knowledge and self-efficacy having influence on the acceptability of differentiated instruction. Professional development also contributed to the acceptance of differentiated instruction. These results strengthened the argument that professional development is important for shaping teachers' attitudes towards differentiated instruction. Moreover, professional development should not only improve knowledge, but also teachers' self-efficacy in differentiation. In accordance with the explanation of the limitations of the study, further research with a balanced sample and more objective data collection is needed so that the influence of the variables can be more well-established. In addition, further research is also needed to explain the influence between a high level of acceptability and the implementation of differentiated instruction after completing professional development.

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Appendices

Appendix A

The acceptability of differentiated instruction instrument

How do you perceive the differentiated instruction approach? Rate from 1 (strongly disagree) to 6 (strongly agree) by clicking the response that best describes your perceptions. There are no right or wrong answers. The best answer is the answer that describes the reality of your perceptions.

1. The differentiated instruction approach is an acceptable approach to cater for the diversity in student's learning characteristics	1	2	3	4	5	6
2. The differentiated instruction approach will be effective to cater for the diversity in student's learning characteristics	1	2	3	4	5	6
3. The diversity in learning characteristics among students in a regular classroom is large enough to justify the use of the differentiated instruction approach	1	2	3	4	5	6
4. I will be willing to use the differentiated instruction approach with the students in my class	1	2	3	4	5	6
5. The differentiated instruction approach will not have side effects for any of the students in my class	1	2	3	4	5	6
6. I like the differentiated instruction approach	1	2	3	4	5	6
7. The differentiated instruction approach is a good way to handle the diversity in learning characteristics among students	1	2	3	4	5	6
8. Overall the differentiated instruction approach will help all students in my class	1	2	3	4	5	6

Appendix B

The teachers' self-efficacy instrument

How confident do you feel about the following skills? Rate from 1 (no confidence) to 5 (much confidence) by clicking the response that best describes your feelings. There are no right or wrong answers. The best answer is the answer that describes the reality of your feelings.

1. Adapting my lessons to meet the needs of gifted learners	1	2	3	4	5
2. Adapting my lessons to meet the needs of remedial learners	1	2	3	4	5
3. Accommodating varying levels of ability in my class	1	2	3	4	5
4. Assessing the prior knowledge of learners in my class	1	2	3	4	5
5. Designing lessons matching the prior knowledge of learners in my class	1	2	3	4	5
6. Individualizing instruction to meet the needs of gifted learners	1	2	3	4	5
7. Individualizing instruction to meet the needs of remedial learners	1	2	3	4	5
8. Identifying gifted learners	1	2	3	4	5
9. Identifying remedial learners	1	2	3	4	5

Appendix C

The knowledge of differentiated instruction instrument

The following example describes a situation that you may encounter while teaching. Use your knowledge and experience as a teacher and write what you believe is the most appropriate answer.

In a class at an elementary school in Jakarta, there are 30 students. The teacher, Maya, is aware of the fact that the students differ in their learning characteristics. On one day, Maya is going to teach them about one topic from "Bahasa" course. When teaching this topic, she wants to take into account the diversity in learning characteristics of her students. She plans to use the differentiated instruction approach that she learned from a training.

1. Based on the situation above, is it appropriate to use the differentiated instruction approach in Maya's class? Why or why not?

2. In your own words, please define "differentiated instruction".

3. If Maya wants to implement the differentiated instruction approach in her class, what should be done before she can give a differentiated lesson?

4. In Maya's class, can all students participate in the learning process if she uses the differentiated instruction approach? Why or why not?

5. Which students' learning characteristics are relevant to take into account when designing a differentiated lesson?

6. How can Maya apply the differentiated instruction approach to the content students must grapple with in order to reach the learning goals?

7. According to the differentiated instruction approach, what can Maya do to support the way students take in and make sense of the content?

8. Maya also thinks of doing a differentiated assessment. What can she do to assess the success of her students in learning the content so that it aligns with the differentiated instruction approach?

9. Is there anything else Maya can do to implement the differentiated instruction approach in her class apart from modifying the content, how she supports the way students make sense the content, and the assessment?

10. At the end of the session, Maya gets the results of the assessment conducted on that day. What could Maya do with it according to the differentiated instruction approach?

11. Based on your understanding of the differentiated instruction approach, what instructional strategies do you know that align with the approach? You can use terms you know or describe briefly.

Appendix D

Scoring scheme for the knowledge questionnaire

Please be aware of the bold words (keywords). The participant may use different words to describe these keywords. Different words that have same meanings can have the same values.

Please be aware of the participant' overall answers. There are conditions when the participant can have a score from another question (the specific information will be provided below).

No.	Topic	Question and score	Max score
1	Rationale	Based on the situation above, is it appropriate to use the differentiated instruction approach in Maya's class? Why or why not? *If the answer is …, then give score in the brackets* - **Appropriate**, because **Maya realized that her students differ in their learning characteristics in her class / the approach can facilitate the diversity of student characteristics in Maya's class** - include appropriate and correct reasoning (8) - **Appropriate, another reason for score 8** (e.g., it is possible to do that, differentiation helps the teacher to understand the diversity, etc.) - include appropriate and incorrect reasoning (6) - **Appropriate**, **no reason** (only answer "yes") (4) - **Inappropriate**, **one or more reasons** (e.g., too many students, one teacher is incapable to handle 30 students) - include inappropriate and reasoning (correct or incorrect) (2) - **Inappropriate**, **no reason** (only answer "no") (0)	8
2	Definition	In your own words, please define "differentiated instruction". *If the answer is …, then give score in the brackets* - A **teaching method / process** that **proactively (preplanned) takes into account / respects / is adjusted** with **the diversity of student characteristics (or needs)** in the classroom – include all four keywords (10) - A **teaching method / process** that **takes into account / respects / is adjusted** with **the diversity of student characteristics (or needs)** in the classroom – include all three keywords (8) - Participant explains how he/she delivers the lesson or conditions in his/her class and include three key words as in the answer to score 8 (do not write the definition in a straightforward manner) (6)	10

		- **An updated / new / thematic teaching method / process** (there is a description explaining the teaching method, but it is not clear) (4) - **A teaching method / process** (no further explanation) (2) - Blank / I don't know / Incorrect answer (0)	
3	Ongoing assessment	If Maya wants to implement the differentiated instruction approach in her class, what should be done before she can give a differentiated lesson? *If the answer is …, then give score in the brackets* - **Assess / identify / map characteristics** of each student in the class (9) - **Group students based on their characteristics** (7) - Answers that explain the activities **before** class**,** such as search and prepare the materials, set the class, etc. **(5)** - Answers that explain activities to **start** the lesson, such as pray and sing together, do ice breaking, etc. **(3)** - Blank / I don't know / Incorrect answer (0) Participant can provide more than one answer and include answers for different scores. In this case, give the highest score.	9
4	Definition	In Maya's class, can all students participate in the learning process if she uses the differentiated instruction approach? Why or why not? *If the answer is …, then give score in the brackets* - **Yes**, because the approach **facilitates all students (or student characteristics, needs, or potentials) –** include yes and correct reasoning (8) - **Yes, another reason than reason for score 8** (e.g., it allows students to interact with other students, etc.) – include yes but incorrect reasoning (6) - **Yes**, **no reason** (only answer yes) (4) - **No**, **one or more reasons** (e.g., too many factors that can't be controlled, time/teacher limitation, etc.) – include no and reasoning (correct or incorrect) (2) - **No**, **no reason** (only answer no) (0)	8
5	Learner characteristics	Which students' learning characteristics are relevant to take into account when designing a differentiated lesson? 1. Readiness: knowledge / understanding / skills that students already have → cognitive domain	8

		2. Interest: what students are interested in, objects / topics / things that attract students' attention 3. Learning profile: a student's preferred mode of learning that can be affected by a number of factors, including learning style, gender, and culture This question assessed the characteristics of the student, not the characteristics of the material or class. If the participant answers the characteristics of the material or class or those that are not related to students, then he/she does not get a score. *If the answer is …, then give score in the brackets* - **Answers that represent three characteristics** (one or more for each characteristic) (8) - **Answers that represent two characteristics** (one or more for each characteristic) (6) - **Answers that represent one characteristic** (one or more answers) (4) - Blank / I don't know / Incorrect answer (0)	
6	Process modification	According to the differentiated instruction approach, what can Maya do to support the way students take in and make sense of the content? Process can be thought of as the "sense-making" activities that allow students to begin thinking about, working with, and personalizing the content—either in class or at home. Example : - The topic is the question words. To differentiate the process, Maya can teach by using the jigsaw method. Make a group consist of five students and assign each group with one question word (what, who, when, where, why). Then, ask them to learn it together in the group. After such amount of time, split them and make a group that consist of one member of the former group. So the new group has at least one member that understands each question word. Then, she/he must explain the word in the new group. (10) - Split students into several groups based on their characteristics (7) - Explain the content with songs or fables or using audio visual tools (7) - Cooperative learning, inquiry learning, and discussion (4) The answer to this question can be related to content or product modification.	10

		If the answer is …, then give score in the brackets - Explains clear and specific process modification **related to Bahasa course** (see Example) (10) - Explains process modification in detail or clearly, but **does not relate to Bahasa course** (7) - **Brief answer** such as use several teaching methods, etc. (only one word or two words, no clear explanation / description) (4) - I don't know / answers that irrelevant to process modification (0)	
7	Content modification	How can Maya apply the differentiated instruction approach to the content students must grapple with in order to reach the learning goals? Content consists of what is being taught (i.e., essential knowledge, understandings, and skills) as well as how students access that information. Example : - The topic is the question words. Maya can split the topic into group "who", group "when", group "where", etc, then each group is asked to organize a conversation using the word and present the conversation in front of the class. (10) - Relate the topic to students daily life (7) - Provide material before start the lesson and ask students to read first (7) - Attract students (4) The answer to this question can be related to process or product modification. *If the answer is …, then give score in the brackets* - Explains clear and specific content modification **related to Bahasa course** (see Example) (10) - Explains content modification in detail or clearly, but **does not relate to Bahasa course** (7) - **Brief answer** such as split the content, etc. (only one word or two words, no clear explanation / description) (4) - I don't know / answers that irrelevant to content modification (0)	10
8	Product modification	Maya also thinks of doing a differentiated assessment. What can she do to assess the success of her students in learning the content so that it aligns with the differentiated instruction approach? Product assignments are typically performance oriented and should facilitate students' ability to critically think about,	10

		apply, and demonstrate what they have learned. They can replace, or be used in conjunction with, traditional assessment strategies such as tests or quizzes. Example : - The topic is the question words. Maya can give paper and pencil tests (measure the understanding of the question word) for each student, but she also allows students to choose how they express their understanding, such as using song / making a video to explain the question words. Another option is that Maya can assess how each student performs his / her assignment while working in groups (10) - Set a rubric based on the content modification / the student characteristics (7) - Describe the student progress qualitatively based on his/her characteristics (7) - Observe students (4) The answer to this question can be related to process or content modification. *If the answer is …, then give score in the brackets* - Explains clear and specific product modification **related to Bahasa course** (see Example) (10) - Explains product modification in detail or clearly, but **does not relate to Bahasa course** (7) - **Brief answer** such as observation, etc. (only one word or two words, no clear explanation / description) (4) - I don't know / answers that irrelevant to product modification (0)	
9	Learning environment modification	Is there anything else Maya can do to implement the differentiated instruction approach in her class apart from modifying how she supports the way students make sense the content, the content, and the assessment? *If the answer is …, then give score in the brackets* - **Learning environment modification** (10) - One or more answers that are **relevant to differentiation and are not related to process/content/product modification** such as build a positive relationship with students, join a teacher training, etc. (7) - One or more answers that are **related to process/content/product** modification (4) - Blank / I don't know / Incorrect answer (0)	10
10	Ongoing assessment	At the end of the session, Maya gets the results of the assessment conducted on that day. What could Maya do with it according to the differentiated instruction approach?	9

		- Evaluate the teaching strategy (is the strategy effective or not), - Evaluate the student progress (write the report, find out if the student achieves the learning goals, provide rewards or feedback, etc.) - Plan the next lesson *If the answer is …, then give score in the brackets* - **Answers that represent all the aspects above aspects** (one or more for each aspect) (9) - **Answers that represent two aspects** (one or more for each aspect) (6) - **Answers that represent one aspect** (one or more answers) (3) - Blank / I don't know / incorrect answer (0)	
11	Instructional strategy	Based on your understanding of the differentiated instruction approach, what instructional strategies do you know that align with the approach? You can use terms you know or describe briefly. Add learning help tools (audio visual tools, etc.), group discussion, group work, individual program, offline and online class, discovery learning, inquiry learning, discussion, cooperative learning, jigsaw, the current or other curriculum (K13/IB), etc. The answer to this question can be assessed based on the answers in question 6, 7, and 8 (process, content, and product modification) or it could be on another question **IF** the participant answers "don't know" "nothing". *If the answer is …, then give score in the brackets* - **More than one correct strategies** (8) - **One correct strategy** (6) - **"I don't know" or "nothing", but the participant provides correct process, content, or product modification** (4) - **"I don't know" or "nothing"** and the participant **does not provide correct process, content, or product modification** (0)	8