Teachers' Perceptions on Curriculum Differentiation for Students with Special Needs: Does Variation in Teachers Demographic Attributes Matter?

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ABSTRACT:

The current study examines primary school teachers' perceptions of curriculum differentiation (hereinafter CD) for students with special needs in South Ethiopia. Grounded on Tomlinson's model of differentiated instruction, a study employed concurrent explanatory (QUAN→ qual) design. Randomly selected 471 teachers responded to survey questionnaires, and 14 participated in interviews. Descriptive and inferential statistics and narrations were utilized to analyze data. Results indicated that primary school teachers' familiarity with the general concepts of CD closely matched the theories. Also, they have high perceptions specific to CD elements ranking from highest to lowest: lesson planning, assessment, content, student interest, product, and process. However, the qualitative results expressed the teachers' general and technical understanding gaps of the CD elements. Additionally, no significant variations were measured in teachers' perceptions based on their educational qualifications and fields of study. This implies teachers who are qualified with diplomas, degrees, and master's and trained in language, mathematics, natural sciences, and social sciences have close perceptions. Comparisons among their work experiences, except for the student interest element, teachers grouped with various work experiences have nearly the same perception of the remaining elements. It could mean that the teacher's work experience in this study mattered less to their perceptions of CD.

Keywords: Curriculum, Differentiation, Inclusion, Teacher Perception, Students with Special Needs

INTRODUCTION

In the rapid changes in the global educational environment and the recognition of the diversity of students, teachers are expected to meet the diverse needs of students in the regular classroom with higher degrees of accountability (VanTassel-Baska & Stambaugh, 2005). When responding to such diversity and providing learning support, adequate curriculum differentiation is required for better support and integration of individuals regardless of any learning barriers they experience (Mooij & Smeets, 2006). Concerning curriculum differentiation (CD), Hall (2002) mentioned that it is a compilation of many educational theories and practices supporting the maximization of all students learning in the same class. Common terms found in the literature have described curriculum differentiation or differentiated instruction as a set of strategies, a belief system, and a process of teaching and learning that is based on students' needs and preferences (Algozzine & Anderson, 2007; Levy, 2008; Rock et al., 2008; Tomlinson & Strickland, 2005). A prominent scholar in CD Tomlinson (2004) also stated that differentiation is a philosophy of teaching purporting that students learn best when their teachers effectively address the variance in students' readiness levels, interests, and learning profile references. It is a response to the learning needs of students (Tomlinson, 2000).

In today's inclusive classrooms, whether at the elementary or secondary level, CD plays a critical role in meeting the diverse needs of individual students. While differentiating the curriculum and addressing the diversified needs of all learners, teachers are major role players and successful differentiation mainly relies on teachers (Engelbrecht, 2006). In this regard, Santangelo and Tomlinson (2012) mentioned that effective differentiation is grounded in teachers' understanding of and appreciation for students' unique needs and interests. Scholars (Kiley, 2011; Taylor, 2015; Tomlinson, 2008) also specified that differentiation requires teachers to understand and experience different ways of teaching and learning and solid knowledge of their students, including their backgrounds, experiences, interests, and learning profiles. Similarly, Westwood (2007) explained that to realize differentiation, teachers must have appropriate skills and be able to alter the lesson's format, change the group's arrangement, change the way the instruction is delivered, use different materials, and provide alternative tasks. In a differentiated classroom, teachers must recognize that students are different and have diverse learning needs (Tomlinson, 2001). Therefore, it is possible to claim that a teacher with knowledge and skills of differentiation is more likely to reach out effectively to varied students, and several studies have given an increased responsibility for differentiation to teachers.

In the Ethiopian context, the Education and Training Policy states that the teacher education and training components emphasize the basic knowledge, professional code of ethics, methodology, and practical training of teachers (Ministry of Education [MoE], 1994). The 2012 Special Needs/Inclusive Education Strategy also indicated that all teachers will be equipped with appropriate attitudes, values, and skills to teach diverse populations, including learners with special needs (MoE, 2012a). In addition, the first Guideline for Curriculum Differentiation and Individual Educational Programme emphasized teachers as having an essential role in making appropriate changes to the curriculum in an inclusive classroom. They need to understand how to create an inclusive learning environment and what differentiations are required to provide all students with access to learning (MoE, 2012b). However, the current pedagogical skills of general education teachers in the country are broadly insufficient for effective teaching to all children (MoE, 2017). Teachers in the regular schools found it difficult to accommodate and support all learners because of their inadequate preparation in the pre-service and/or in-service programs. Most of them lack competence, improvisation, adequate preparation, and disability-related specific skills (Team & Mergia, 2020). In this regard, a local study revealed that teachers perceived differentiated instruction as time-consuming and challenging owing to lack of materials, lack of knowledge, workload, lack of commitment, lack of leadership support, lack of conducive environment, and the presence of diverse student populations (Merawi, 2018).

In light of this ground and the absence of studies on teachers' perception of differentiation-specific to students with special needs, this study focused on the primary school teachers' perceptions of CD for students with special needs in four towns of South Ethiopia. The study evaluated the teachers' perceptions in line with the six curriculum components premised on the following three research questions: (1) how do primary school teachers comprehend CD's general concepts (meaning, purpose, and process)? (2) to what extent do teachers perceive the elements of CD (student interest, assessment, lesson planning, content, process, and product) for students with special needs? and (3) do variations in teachers' demographic attributes (qualifications, field of study, and experiences) influence their perceptions of CD elements?

LITERATURE REVIEW

A significant number of researchers or educators have shed light on what curriculum is through their reviews of, or critical comments on, this term. In its broadest sense, curriculum refers to the total learning experiences of individuals in school and society (Bilbao et al., 2008). From a narrow perspective, a curriculum is defined as prescribed courses that learners must fulfill in order to pass a certain level of education. It focuses on the planned program of objectives, content, learning experiences, resources, and assessment offered by the school (MoE, 2012b). Correspondingly, a school's curriculum is the formal and informal content and process by which learners gain knowledge and understanding, develop skills, and alter attitudes, appreciations, and values under the auspices of that school (Doll, 1996). In relation to the contemporary inclusive curriculum, account should be taken of the key characteristics such as flexibility, relevance, and adjustability to the diverse characteristics and needs of all learners; as mentioned by (UNESCO, 2005), an inclusive school curriculum must be flexible enough to provide possibilities for adjustment to individual needs and to stimulate teachers to seek solutions that can be matched with the needs and abilities of every pupil.

On the other hand, differentiation is an essential way of facilitating access to the curriculum for all learners in one class. According to Tomlinson (1999), differentiation shapes an approach to teaching in which teachers proactively modify curricula, teaching methods, resources, learning activities, and student products to address the diverse needs of individual students. It ensures that what a student learns, how he/she learns, and how the student demonstrates what he/she has learned matches that student's readiness level, interests, and preferred mode of learning (Tomlinson, 1999). In addition, Tomlinson (2001) elaborated that teachers who differentiate instruction focus on their role as coach or mentor, give students as much responsibility for learning as they can handle, and teach them to handle a little more. These teachers grow in their ability to (1) assess student readiness through a variety of means, (2) "read" and interpret student clues about interests and learning preferences, (3) create a variety of ways students can gather information and ideas, (4) develop varied ways students can explore and "own" ideas, and (5) present varied channels through which students can express and expand understandings (Tomlinson, 2001).

When reviewing different studies, teachers are often challenged with being able to assist students in achieving their full potential and meeting their learning needs through differentiation (Gouws, 2007). Suprayogi, Valcke, and Godwin (2017) found that many teachers feel that they are not well prepared and do not possess the appropriate prerequisite skills needed to teach diverse learners in the classroom. Teachers lack proper understanding or sufficient knowledge about differentiation strategies; thus, it stands in the way of implementation (Siam & Al-Natour, 2016). Similarly, Maddox (2015) indicates a gap in understanding how teachers perceive differentiated instruction and what they do with this knowledge. Several scholars (George, 2005; UNESCO, 2005; Vaillant, 2011) also mentioned that teachers' inability and lack of capacity to differentiate the curriculum was a real educational and professional dilemma in present schools. Due to this and other related factors, most of the time, children with special needs have requested to go back to segregated schools and programs (USAID, 2015).

On top of these, throughout the literature, several models and frameworks of differentiation have emerged to address students' learning needs and diversity. Tomlinson's model of differentiated instruction (Tomlinson, 1999), a model grounded in this study, reflects a teacher's response to students' varying learning needs and explains that a differentiated lesson should be based on ongoing assessment and adjustment, allow flexible grouping, and provide respectful tasks. For teachers, differentiation aims to extend the potential of all learners by identifying students' needs through insightfully designing classroom educational experiences (Hall, 2002; Santangelo & Tomlinson, 2012). According to the model, to maximize learning, a responsive teacher will modify and bring alterations to the instruction that allow students to access ideas and skills in different ways that are sensible to them (Tomlinson, 2014). With this regard, Tomlinson identifies six areas as components of differentiation, namely student interest, assessment, lesson planning, content, process, and product (Tomlinson, 2010). Each element is interrelated and can be adjusted according to a student's readiness, interest, and learning profile (Fitzgerald, 2016; Lang, 2019; Tomlinson, 2017).

To be more specific, according to Tomlinson (2014), teachers can modify and differentiate the instruction by content (the subject matter), process (strategies adopted in delivering the lesson), product (how learners demonstrate their learning), and learning environment (the physical arrangement of the classroom or learning space), based on individual differences of students. In addition, using student interest in teaching is also a vital component of differentiated instruction. As suggested by

Tomlinson (2010), teachers understand student culture, individual student life situations, and students' learning abilities and disabilities. Teachers should acknowledge students' personal experiences as those factors can lead to teaching toward individual interests, allowing further learning. Concerning assessment as the other key component to differentiated instruction, Tomlinson suggests that high-quality assessments are a tool to guide students in understanding essential learning outcomes, their status relative to those outcomes, and ways in which they can work effectively to maximize their growth toward and beyond those outcomes (Tomlinson, 2010). Finally, lesson planning is entertained as an additional element of differentiation, and when teachers are planning lessons, they need to acknowledge Vygotsky's theory of the zone of proximal development and Howard Gardner's theory of multiple intelligences (Darling-Hammond & Bransford, 2007).

Therefore, rooted in Tomlinson's differentiated instruction model, this study examines the teachers' general understanding of CD for students with special needs and their perception along with demographic variables, namely educational qualifications, fields of study, and experiences that were reportedly associated with their perceptions specific to the CD elements. The six elements, student interest, assessment, lesson planning, content, process, and product, were discussed in the survey, as Tomlinson (2010) supported. Moreover, the teachers' demographic variables were assumed to influence their perceptions of CD elements, and these variables were then allied together to form the conceptual framework directed by both theory and empirical findings.

METHODS

The present study employed a mixed-methods research approach of concurrent explanatory design (QUAN → qual). Its main data sources were primary school teachers of the South Ethiopia Regional State's four towns (Dilla, Wolita Sodo, Arba Minch, and Jinka). Fourteen primary schools (Kofe, Dawit, Dilla, Ligaba, Abiyot Chora, Otona, Sodo Giorgis, Arba Minch/Limat, Garo, Kulfo, Sikela, Nearry, Jinka/Kera, and Gorgorcha) were first selected purposefully by considering schools having a large number of students with special needs. Of the 4,676 teachers in four towns' primary schools, 471 (≈10% of teachers) were randomly selected to respond to survey questionnaires, and 14 senior teachers (one from each school) were purposefully selected to collect qualitative data through semi-structured interviews.

Regarding instruments, the study employed a modified version of the Teacher Survey on Differentiated Instruction (Page, 2007). Minor adaptations were made to the selected part of the original survey to fit the study's objectives. Of the two significant parts of the original survey, the teacher's understanding of differentiated instruction, a theme with 26 Likert scale items that measure the teacher's understanding of the CD elements (student interest, assessment, lesson planning, content, process, and product) for general students were chosen and contextualized to students with special needs. In addition, further enrichments made to the survey include incorporating questions related to demographic characteristics, designing additional Likert scale items on the general concepts of CD, and translating the survey to Amharic (Ethiopian primary official language). On the other hand, to triangulate the quantitative data semi-structured interview guide questions were designed and conducted with 14 senior teachers on teachers' understanding of the general concepts of differentiation and the elements of CD.

Regarding instrument validation, the face and content validity were first checked by senior researchers at Arba Minch University, and to examine the item's internal consistency of each category and sub-themes, a pilot study was conducted at Chamo Primary School in Arba Minch town. According to the reliability test results, the subscale of the teacher's understanding of the CD concepts shows (6 items; $\alpha = .747$), and the teachers' perceptions of the CD elements subscale shows (26 items; $\alpha = .839$). Hence, according to George and Mallery's (2003) rules of thumb, the results suggested an acceptable and good internal consistency of items of the two themes. In light of this, while conducting the main study, all sampled teachers were involved voluntarily, and informed consent was orally received before administering a questionnaire and conducting interviews. They were also informed that their data would be kept anonymous and serve only for academic purposes.

In relation to data analysis techniques, descriptive statistics such as frequency, percentage, mean, and standard deviation were computed to determine the teacher's agreement or disagreement with the items, referring to their general understanding of the concepts and perceptions towards the components of CD. Additionally, inferential statistics, namely one-way ANOVA, was utilized to determine whether there exists or not a statistically significant difference between the teachers' perceptions of the CD elements among their demographic variables, such as educational qualifications, fields or subjects of study, and working experiences. Besides these, the obtained

qualitative data were analyzed through descriptions or narrations and used to substantiate the quantitative data.

RESULTS AND DISCUSSION

Teachers' Understanding of the Concepts of CD

In order to show teachers' understanding of CD, participants' responses to the survey questionnaire and semi-structured interviews were analyzed. Accordingly, as indicated in Table 1, five items were answered on the meaning, purpose, and processes of CD, such as strongly agree, agree, disagree, or strongly disagree. The first item, which explains the meaning of CD as "a process of modification or adaptation of the curriculum to meet the educational needs of all students in the same classroom without distorting the existing curriculum," responded by 35 % and 47.8 % of the teachers as strongly agree and agree respectively. The remaining 14.6 % and 2.5 % of the respondents were reported as disagreeing and strongly disagreeing, respectively. With this result and mean score (M=3.15 ±.759), it's possible to say that the majority (82.8%) of teachers were familiar with the mentioned meaning of CD. Likewise, with 39.3 % strong agreement, 47.1% agreement, and with mean score (M=3.24 ± .702), the majority (86.4%) of teachers well-perceived CD as the idea that taking into account the fact that each student is different, teachers respond to these differences by adapting and modifying learning process, content, assessment, and environment. Regarding the third item, 46.1% and 40.8% of the teachers respectively responded as strongly agreed and agreed on the statement that indicates CD's purpose as ensuring the curriculum meets the cognitive, emotional, social, and physical needs of all students. With the remaining 11% disagreement, 2.1 % strong disagreement, and mean score (M=3.31 ± .749), the majority (86.9%) of teachers confirmed their agreement of understanding of the stated purpose of CD.

Moreover, as shown in Table 1, the fourth and fifth items focused on the teachers' understanding of the differentiation processes. According to the results, 49.9 % and 40.8 % of teachers respectively rated as strongly agree and agree for the fourth item mentioned as the differentiation process involves teachers planning what students want to learn and how they want to learn based on their current abilities and how to demonstrate what they have learned. This result implies that the majority (90.7%) of teachers assured their agreement of understanding with a mean value (M= 3.39± .679). Similarly, the last item,

Table 1. **Descriptive statistics that show teachers' understanding of the CD concepts (N=471)**

Items/Statements	Rating Scales								M	SD
	SA		A		D		SD			
	f	%	f	%	f	%	f	%		
CD is a process of modifying or adapting the curriculum to meet the educational needs of all students in the same classroom without distorting the general curriculum.	165	35.0	225	47.8	69	14.6	12	2.5	**3.1529**	**.75933**
CD is the idea that taking into account the fact that each student is different, teachers respond to these differences by adapting and modifying the learning process, content, assessment, and environment.	185	39.3	222	47.1	60	12.7	4	.8	**3.2484**	**.70248**
CD helps to ensure the process that the curriculum meets the cognitive, emotional, social, and physical needs of all students.	217	46.1	192	40.8	52	11.0	10	2.1	**3.3079**	**.74998**
CD involves teachers planning what students want to learn and how they want to learn based on their current abilities and how to demonstrate what they have learned theoretically.	235	49.9	192	40.8	40	8.5	4	.8	**3.3970**	**.67910**
CD involves the process of teachers' adaptation and modification of the content, teaching methods, teaching materials, and assessments to reach students with special needs.	184	39.1	220	46.7	60	12.7	7	1.5	**3.2335**	**.72392**
Overall teachers' understanding of CD /Grand Mean									**3.2679**	**.52200**

SA=Strongly Agree, A=Agree, D=Disagree, SD=Strongly Disagree, f=frequency; M= Mean; SD= Standard Deviation

which was mentioned as "the CD involves the teachers' process of adaptation and modification of the content, teaching methods, teaching materials, and assessments to reach students with special educational needs," was responded by teachers with 39.1% strong agreement and 46.7% agreement of teachers. With (M=3.233 ± .723) mean score, this result also indicates that the majority (85.8%) of teachers were in a position of good perceptions of the mentioned concept of the CD process.

On the other hand, the interviewee teachers also reflected their general understanding of CD's meaning, purpose, and processes. According to their responses, T_1 from Dilla town described the CD concept as "*a process that helps to simplify learning in a way that students are comfortable with the lesson. Its main objective is to adapt or meet the educational situation of all students in the same classroom*". The other teacher, T_3, in the same town, expressed CD as an educational approach that helps achieve the learning objectives of all students in the integrated classrooms, as we regularly do in our school. For the same question, a teacher T_4 from Wolita Sodo town also stressed CD as "*a process that promotes student and teacher togetherness in teaching-learning. Also, it may help parents to assist and follow-up their child's everyday activities at home*". Additionally, the concept of CD was understood by T_6, one of the teachers in the same town, as "*an inclusive teaching approach that focuses on all learners by considering their learning difficulties, interests, and gender.*"

In addition, another teacher from Arba Minch town, T_{10}, forwarded her understanding of CD as an advanced method of teaching that aims to make learning easier for all students. Similarly, another teacher, T_{11}, in the same town, added that "*CD is an instructional approach that helps to teach students with different educational needs together with others in general education settings. It aims to coordinate all the school community to transfer education in a way that is convenient for all students.*" Moreover, according to a teacher T_{14} from Jinka town, the concept of CD was explained as "*a process of making the designed general curriculum more suitable for the teaching and learning in the way to ensure quality education.*" In the same town, T_{13}, one of the teachers also mentioned CD as a teaching and learning method that helps students understand the concepts or subject matter they need to know based on the curriculum.

Therefore, the obtained quantitative and qualitative data disclosed the teachers' understanding of the general concepts of CD. It revealed the teacher's familiarity with the concepts of CD as confirmed by the survey results with the grand mean (M=3.26 ± .522). Though it is very general and broad, the interview results complement the mentioned teachers' understanding of the concepts. From this, one can conclude that the majority of primary school teachers perceived the general concepts of CD to closely match what is found in theories and current research outputs. This means that large misconceptions don't exist, and teachers have a considerable understanding of the concepts obtained from their university or college courses and work experiences. Moreover, scholars' reflections on differentiation also go with these findings; for instance, Tomlinson (2001) advocated differentiation as a purposeful and mindful act of planning and teaching to address the diverse needs of students. It is an approach to teaching essential content in a way that addresses the varied learning needs of students to maximize the potential of each learner. To Yatvin (2004), differentiation has become a model that educational systems are recommending for implementation to provide teaching adapted to the interests and learning needs of each student in the classroom.

Teachers' Perceptions of the CD Elements for Students with Special Needs

Using survey questionnaires and interviews, this study also revealed the extent of teachers' perceptions specific to the elements of CD for students with special needs. At first, using the questionnaire, teachers were asked to rate the importance of ideas mentioned under each component of CD as very important, fairly important, somewhat important, or unimportant. As presented in Table 2, to measure the teachers' perceptions of differentiating the first component- student interest, teacher respondents forwarded their responses for four items that asked about the importance of knowing or awareness of the individual student interest and can relate them to instruction; individual student culture and expectations and can relate to instruction; individual student life situation and how they impact their learning; and student's learning difficulties and disabilities and how to address them in lessons so as not to affect their learning. As a result, most teachers replied as very important and fairly important of the mentioned items, reflecting their high perceptions of the student interest differentiation element for students with special needs with a mean score (M= 3.33 ± .550).

Concerning measuring teachers' perceptions of assessment differentiation, five items were asked concerning the importance of pre-assessing students before instructing; pre-assessing readiness to adjust the lesson; assessing during the unit to gauge understanding; assessing at the end of the lesson to determine knowledge acquisition;

and determining student's learning styles. According to their response, a large number of teachers responded that it was essential and fairly important for the mentioned items. An average score (M= 3.41 ± .532) shows that most teachers have ample knowledge about the assessment differentiation for students with special needs. Similarly, regarding teachers' perceptions of the lesson planning differentiation, the majority of teachers responded that the five items used to measure their perceptions of differentiating lesson planning were very important and fairly significant. Items include the importance of teaching by assuring each student works towards their highest potential; varying materials to adjust to students' reading/interest abilities; involving learners in designing/selecting learning activities; adjusting for diverse learner needs with scaffolding, tiering instruction, and provide student choice in learning activities; and providing tasks that require students to apply and extend their understanding. Therefore, based on the result, one can say that the majority of teachers were very familiar with the concepts of lesson planning differentiation for students with special needs with a mean score (M= 3.42 ± .497).

When it comes to teachers' perceptions of content differentiation, as indicated in Table 2, items employed to measure the teachers' perceptions of content differentiation include the importance of curriculum being based on central concepts and generalizations, clearly articulating what they want students to know, understand, and be able to do; using a variety of materials other than the standard text; and providing a variety of support strategies (organizers, study guides, study buddies). According to the results, the majority of teachers reflected their perceptions of

Table 2. **Descriptive statistics show the teachers' perception of the elements of CD (N=471)**

CD Elements	Items Related to Teacher's Understanding of CD	Rating Scales								M	SD
		Very Important		Fairly Important		Somewhat Important		Not Important			
		f	%	f	%	f	%	f	%		
Student Interest	I know individual student interests and can relate them to instruction.	200	42.5	192	40.8	68	14.4	11	2.3	3.3307	.55050
	I know individual student cultures and expectations and can relate to instruction.	200	42.5	192	40.8	68	14.4	11	2.3		
	I know individual student life situations and how they may impact their learning.	243	51.6	166	35.2	54	11.5	8	1.7		
	I am aware of student's learning difficulties and disabilities and how to address them in lessons so as not to affect their learning.	258	54.8	161	34.2	49	10.4	3	.6		
Assessment	I pre-assess students before instructing.	241	51.2	141	29.9	67	14.2	22	4.7	3.4157	.53220
	I pre-assess readiness to adjust the lesson.	249	52.9	165	35.0	48	10.2	9	1.9		
	I assess during the unit to gauge understanding.	245	52.0	164	34.8	58	12.3	4	.8		
	I assess at the end of the lesson to determine knowledge acquisition.	312	66.2	110	23.4	42	8.9	7	1.5		
	I determine student's learning styles.	279	59.2	149	31.6	37	7.9	6	1.3		
Lesson Planning	I teach by assuring each student works toward their highest potential.	269	57.1	152	32.3	37	7.9	13	2.8	3.4170	.49771
	Materials are varied to adjust to students' reading/interest abilities.	254	53.9	155	32.9	57	12.1	5	1.1		
	Learners play a role in designing/selecting learning activities.	262	55.6	170	36.1	35	7.4	4	.8		
	I adjust for diverse learner needs with scaffolding, tiering instruction, and providing student choice in learning activities.	220	46.7	174	36.9	64	13.6	13	2.8		
	I provide tasks that require students to apply and extend their understanding.	289	61.4	138	29.3	39	8.3	5	1.1		

Content	The curriculum is based on major concepts and generalizations.	202	42.9	216	45.9	45	9.6	8	1.7	3.3827	.54227
	I clearly articulate what I want students to know, understand, and be able to do.	269	57.1	158	33.5	42	8.9	2	.4		
	I use a variety of materials other than the standard text.	260	55.2	145	30.8	58	12.3	8	1.7		
	I provide a variety of support strategies (organizers, study guides, study buddies).	238	50.5	168	35.7	62	13.2	3	.6		
Process	The pace of instruction varies based on individual learner needs.	166	35.2	185	39.3	80	17.0	40	8.5	3.1300	.60070
	I use learner preference groups and/or learning preference centers.	129	27.4	197	41.8	98	20.8	47	10.0		
	I group students for learning activities based on readiness, interests, and/or learning preferences.	209	44.4	189	40.1	49	10.4	24	5.1		
	The classroom environment is structured to support a variety of activities including group and/or individual work.	256	54.4	157	33.3	48	10.2	10	2.1		
Product	I provide multiple modes of expression in the final product.	309	65.6	124	26.3	28	5.9	10	2.1	3.2818	.55668
	I provide students with the choice to work alone, in pairs, or in small groups.	198	42.0	203	43.1	58	12.3	12	2.5		
	The product connects with student interest.	203	43.1	190	40.3	64	13.6	14	3.0		
	I provide a variety of assessment tasks.	177	37.6	190	40.3	74	15.7	30	6.4		

f= frequency; M= Mean; SD= Standard Deviation

the four items by rating the scales as very important and fairly significant. This implies that with an average score (M = 3.38 ± .542), most teachers have high perceptions of content differentiation for students with special needs. Likewise, with a mean score (M = 3.13 ± .601), a study revealed the teachers' high perceptions of the process differentiation for students with special needs. In their very important and fairly important responses, a large number of teachers agreed on the importance of knowing the pace of instruction varies based on individual learner needs, using learner preference groups and/or learning preference centers, grouping students for learning activities based on readiness, interests, and/or learning preferences; and structuring the classroom environment to support a variety of activities including group and/or individual work.

By the same token, for the last differentiation component, product, the majority of teacher respondents also rated as very important and relatively important of the four items that measured their high perceptions of the product differentiation with mean value (M = 3.28 ± .556). Items used to calculate the teachers' perceptions of product differentiation reflect the importance of providing multiple modes of expression in the final product; providing students with the choice to work alone, in pairs, or small groups; connecting the product with student interest; and providing a variety of assessment tasks.

On the other hand, to substantiate the survey data, interviews of the senior teachers were conducted on the teachers' understanding of the elements of CD for students with special needs. According to the interview results, one of the respondent teachers, T_2, from Dilla town, reflected, "*In my understanding, CD is a very important approach in school that helps teachers to make the curriculum more centered on students' diversified needs. Utilizing various teaching methods and materials are the major techniques to employ differentiation*". The other teacher, T_1, in the same town described his understanding as "*CD has a process of mainstreaming or participating students with special needs in the daily lesson. It is one of the classroom tasks that teachers perform differently based on the general curriculum. Technically, I don't know the details of how to implement it, but I* do not doubt *its importance in improving students' academic performance*." For the same question, T_5, a teacher from Wolita Sodo town, said that "*differentiating the curriculum includes a process of providing the curriculum or lesson to students by addressing their unique educational needs. It is a daily activity of the teacher to make the lesson more concrete and meaning-*

ful." His understanding was similar to the response of T_6 from the same town, who said, "*I am not very clear on the components, but I understand that CD helps to make the curriculum more accessible and understandable to all needy students in the general classroom."*

Regarding Arba Minch town, T_{10} also forwarded her perceptions of CD elements, stating that "*it includes consideration of all students who have different needs. It is a way that helps to make education more effective. In our school, I know that some teachers (including me) are good in understanding and practicing content, teaching strategies, and teaching aids differentiation*". In addition, without explaining the elements of CD, a teacher, T_9, in the same town, also said that CD includes preparing and teaching students according to their different educational needs and levels of understanding. Similarly, interviewee T_{12} from Jinka town mentioned her reflection: "*I'm thinking that CD is an approach to education where instruction is implemented as planned to benefit all students in general and students with disabilities in particular.*" CD aimed to enable the needy groups to acquire appropriate education and skills according to their needs and abilities, as stated by T_{13} from Jinka, the town where they live.

Therefore, the aforementioned survey and interview results reported the teachers' perceptions of the CD elements for students with special needs. The quantitative results revealed the teachers' high perceptions of the elements of CD. This means that teachers were familiarized with the items mentioned under each component of CD, which were rated as very important and fairly important by the majority of teachers. When ranking, the teachers' extent perceptions of the six components range from highest to lowest, including lesson planning, assessment, content, student interest, product, and process. Regarding the qualitative results, even though the quantitative data revealed teachers' high perceptions, the data obtained from the interview demonstrates the teachers' understanding gaps specific to the elements and techniques of CD. In supporting these differences, Wan (2017) reported that there can be inconsistencies between teachers' teaching beliefs on differentiation. Such perception differences, or sometimes contradictory views, were due to differences in training, beliefs, and variations in contexts and environments. Rodriguez (2012) also stated that differentiating instruction is a new approach for many teachers, and little is known about teachers' knowledge of differentiation, how they use it, and what factors affect the implementation of differentiated instruction. In addition, Scott (2012) said that while much has been written about the theory behind differentiated instruction, there has been a lack of a deep understanding of how to implement differentiations fully. Furthermore, as stated by Freedman (2015) and Wan (2017), teachers' beliefs and perceptions of differentiated instruction, in turn, could affect their instructional decisions. To improve the teachers understanding and make differentiation effective, the type and nature of training or courses matter to influence teachers' understanding. Teacher education programs should provide pre-service teachers with a complete understanding of the tenets of differentiated instruction (Erickson, 2010).

Teachers' Perceptions of the CD Elements and Demographic Attributes

A study also examined the mean comparisons of teachers' perceptions of differentiating curriculum elements among teachers' demographic attributes such as educational qualifications, field of study, and work experiences. First, one-way ANOVA comparisons were made to examine the teachers' perceptions of the CD components based on teachers' educational qualifications categorized as diploma in teaching, first degree, and master's degree holders. As summarized in Table 3, no statistically significant differences were found among teachers who have varying educational qualifications in their perceptions of the CD of the six components, such as student interest differentiation with $F(2, 468) = 1.006$, $p = .366$, assessment differentiation with $F(2, 468) = 1.514$, $p = .221$, lesson planning differentiation with $F(2, 468) = .710$, $p = .492$, content differentiation with $F(2, 468) = 1.956$, $p = .143$, process differentiation with $F(2, 468) = .808$, $p = .447$, and product differentiation with $F(2, 468) = 2.408$, $p = .091$.

Therefore, this result indicated that the mean scores of teachers' perceptions were nearly the same for CD components such as student interest, assessment, lesson planning, contents, process, and product of those diplomas, degree, and master's holder teachers. However, inconsistent with these findings, highly qualified teachers with at least eight years of experience in teaching portrayed positive perceptions about practicing differentiated instruction (Sheehan, 2011). Similarly, a quantitative survey by Davis (2013) also indicated that the faculty teachers who were certified had a minimum of a bachelor's degree and five or more years of experience and ranked their beliefs about differentiated instruction as highly positive.

Secondly, a study revealed the differences in teachers' perceptions among their fields or subjects of study. In this regard, Table 4 depicts the average comparisons of the teachers' perceptions of the CD components based on their fields of study, categorized into language, math-

Table 3. **One-way ANOVA that shows mean differences in teachers' perceptions of the components of CD among teachers' educational qualifications (N=471)**

Components /Variables/		Sum of Squares	Df	Mean Square	F	Sig.
Student Interest	Between groups	.610	2	.305	1.006	.366
	Within groups	141.824	468	.303		
	Total	142.434	470			
Assessment	Between groups	.856	2	.428	1.514	.221
	Within groups	132.268	468	.283		
	Total	133.124	470			
Lesson Planning	Between groups	.352	2	.176	.710	.492
	Within groups	116.072	468	.248		
	Total	116.424	470			
Contents	Between groups	1.145	2	.573	1.956	.143
	Within groups	137.061	468	.293		
	Total	138.206	470			
Process	Between groups	.583	2	.292	.808	.447
	Within groups	169.014	468	.361		
	Total	169.597	470			
Product	Between groups	1.484	2	.742	2.408	.091
	Within groups	144.164	468	.308		
	Total	145.647	470			

ematics, natural sciences, and social sciences streams. Accordingly, one-way ANOVA results reported that no significant differences were observed in teachers' perception of all CD components among their fields of study in the four study streams mentioned. In other words, no significant differences were measured while comparing the teachers' average perceptions of the CD elements such as the student interest differentiation with $F(3, 467) = .751$, $p = .522$, assessment differentiation with $F(3, 467) = 1.346$, $p = .259$, lesson planning differentiation with $F(3, 467) = .361$, $p = .781$, content differentiation with $F(3, 467) = 1.439$, $p = .231$, process differentiation with $F(3, 467) = 1.676$, $p = .171$, and product differentiation with $F(3, 467) = 1.050$, $p = .370$.

Therefore, from the mentioned results, one can conclude that the teachers' perceptions of the elements of CD were nearly the same among teachers who qualified in fields of study such as language mathematics, natural sciences, and social sciences. This result implies qualifying in different subjects or fields of study does not matter or affect the teachers' perceptions of the CD elements. Though further study is needed, this result may show the contemporary nature of CD, which has recently attracted attention in the country's primary schools. In supporting this, the first "Guideline for Curriculum Differentiation and Individual Education Program" was officially released and communicated to schools in the last twelve years with the aims of giving technical support to teachers and others working with learners with special educational needs, introducing curriculum differentiation, giving clear instructions to whom differentiations are meant to be made, and providing practical instructions on how to make curriculum differentiations (MoE, 2012b).

Furthermore, as indicated in Table 5, using one-way ANOVA, a study compared the mean values of the teachers' perceptions of the CD components among teachers' work experiences. To reduce the complexity, the teacher's work experiences were categorized into years between

Table 4. **One-way ANOVA that shows mean differences in teachers' perceptions of the CD components among teachers' fields or subjects of study (N=471)**

Components /Variables/		Sum of Squares	Df	Mean Square	F	Sig.
Student Interest	Between groups	.684	3	.228	.751	.522
	Within groups	141.750	467	.304		
	Total	142.434	470			
Assessment	Between groups	1.141	3	.380	1.346	.259
	Within groups	131.982	467	.283		
	Total	133.124	470			
Lesson Planning	Between groups	.270	3	.090	.361	.781
	Within groups	116.154	467	.249		
	Total	116.424	470			
Contents	Between groups	1.265	3	.422	1.439	.231
	Within groups	136.941	467	.293		
	Total	138.206	470			
Process	Between groups	1.807	3	.602	1.676	.171
	Within groups	167.791	467	.359		
	Total	169.597	470			
Product	Between groups	.976	3	.325	1.050	.370
	Within groups	144.671	467	.310		
	Total	145.647	470			

0-5, 5-11, 11-17, and >17. These groupings were made by merging two adjacent stages of teachers' career structure into one and named beginner and junior teacher, teacher and higher teacher, associate lead and lead teacher, and higher lead teacher, respectively. By doing so, as seen in Table 5, there was a statistically significant difference among teachers with different working experiences in perceptions of the student interest differentiation component with F (3, 467) =3.962, p =.008. On the contrary, significant differences were not observed between teachers with different years of work experiences in perceptions of the CD components, such as the assessment differentiation with F (3, 467) = 1.724, p = .161, lesson planning differentiation with F (3, 467) = .457, p = .712, content differentiation with F (3, 467) = 1.091, p = .352, process differentiation with F (3, 467) = .752, p = .522, and product differentiation with F (3, 467) = 2.323, p = .074.

Therefore, according to the results, it is possible to conclude that teachers with different years of work experience have a close perception of differentiating the assessment, lesson planning, contents, process, and product curriculum components. Consistent with this result, Donnell and Gettinger (2015) found no significant relation between teaching experience and teachers' perceptions of differentiated instruction. Hilyard's (2004) study also concluded that no significant differences existed between novice and experienced teachers in their perceptions of their understanding of or use of differentiated instruction. On the other hand, the mean comparisons of teachers' perceptions in differentiations of the student interest were significantly different. Concerning this result, Rodriguez (2012) reported that experienced teachers could discern the various instructional strategies compared to novice teachers. Compared to novice teachers, experienced

Table 5. **One-way ANOVA that shows mean differences in teachers' perceptions of the components of CD among teachers' work/teaching experiences (N=471)**

Components /Variables/		Sum of Squares	Df	Mean Square	F	Sig.
Student Interest	Between groups	3.535	3	1.178	3.962	.008
	Within groups	138.899	467	.297		
	Total	142.434	470			
Assessment	Between groups	1.459	3	.486	1.724	.161
	Within groups	131.665	467	.282		
	Total	133.124	470			
Lesson Planning	Between groups	.341	3	.114	.457	.712
	Within groups	116.083	467	.249		
	Total	116.424	470			
Contents	Between groups	.962	3	.321	1.091	.352
	Within groups	137.244	467	.294		
	Total	138.206	470			
Process	Between groups	.815	3	.272	.752	.522
	Within groups	168.782	467	.361		
	Total	169.597	470			
Product	Between groups	2.141	3	.714	2.323	.074
	Within groups	143.506	467	.307		
	Total	145.647	470			

teachers in Affholder's (2003) study favored differentiated instruction because they were familiar with the curriculum they taught. Similarly, according to Freedman (2015), experienced teachers see themselves as committed to student success and achievement and are more likely to adapt the educational activity in accordance with the needs of all students (Unianu, 2012). A study by (Liu et al., 2010) also showed that experienced teachers are familiar with a broader range of educational practices. Thus, they think more positively about their instructional approaches and practices.

CONCLUSIONS

While helping individual students to fully access the curriculum in an inclusive classroom, each element in the curriculum should be modified and adapted to accommodate the characteristics of all learners, including students with special needs. Understanding CD, inclusive teaching practices, and ways of delivering instruction that help teachers meet all students' needs is critical for effective implementation. According to the results of this study, teachers have a considerable understanding of the meaning, purpose, and process of CD that closely matches the theories and current research findings. Though it is very general, the interview results supplement the mentioned extent of teachers' understanding of the concepts. In addition, a study disclosed the teachers' high perceptions of the CD specific to the six elements. The descriptive analysis confirmed the teachers' familiarity with the CD elements. When ranking the teachers' extent of perceptions of the components from highest to lowest, lesson planning, assessment, content, student interest, product, and process were measured. However, the interview results vividly indicated the teachers' perception gaps on specific elements of CD.

On the other hand, the study revealed comparisons of teachers' perceptions of the CD elements among their demographic characteristics. Regarding comparisons in teachers' educational qualifications, no significant differences were measured in teachers' perceptions of all the six elements of CD. This result implies those diplomas, degree, and master's holder teachers have very close perceptions. Similarly, insignificant differences were observed in teachers' perceptions of CD components among their different fields of study, which were categorized into language, mathematics, natural sciences, and social sciences streams. This means that qualifying in different study subjects does not matter or affect the teachers' perceptions of the CD elements. Like that of teachers' educational qualifications, comparisons of teachers' perceptions among different groups of work experiences, except for the student interest, a study concludes teachers with different years of teaching experiences have nearly the exact extent of perceptions of differentiating the assessment, lesson planning, contents, process, and product elements. It could mean that the teachers' work experience possessed by teachers or measured in the present study, did not matter to the understanding of the majority of CD elements.

LIMITATIONS

The current study sought to develop a further understanding of inclusive teaching practice by examining primary school teachers' perceptions of CD for students with special needs. However, the study's findings are limited to primary school teachers and not generalizable to other-level teacher populations. Moreover, the teachers' implementation of CD is beyond the scope of this study, and to triangulate the teachers' considerable perceptions of CD, the authors suggest further study on implementation or practices specific to students with special needs.

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