

An Investigation into Factors Affecting Intervention Fidelity of Differentiated Instruction in Primary Schools of Bahir Dar City Administration

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Abstract

The main purpose of this study was to investigate factors affecting the intervention fidelity of Differentiated Instruction (DI) in primary schools of Bahir Dar City Administration, Ethiopia. For this study, mixed methods approach with convergent parallel design was utilized and data were collected from 10 randomly selected full-cycle primary schools of Bahir Dar City Administration. Among the 10 general primary schools, fifty teachers (five from each school and one from every department) and 10 school principals were selected through simple random and comprehensive sampling techniques, respectively. Similarly, 10 students from grade eight, who could properly articulate and provide valuable information (e.g., student representatives and class monitors) were selected using purposive sampling technique. Data on factors affecting the execution of DI were collected through questionnaire, interview, focus group discussion, and observation. Data were analyzed using percentage, descriptions, and narrations. The main findings revealed that the majority of primary school teachers in Bahir Dar City Administration were not in a position to execute DI components due to a number of encumbering factors. The knowledge and training gaps of teachers on how to implement DI, scarce school resources and lack of conducive school environment, low motivation and commitment of teachers, inflexible curriculum structure, work overload, lack of committed and devoted school leadership, poor background knowledge of students, lack of parental support for the students' learning, weak staff collaboration or experience sharing, and large number of students' diversity in the classroom were among the investigated factors. In order to tackle those identified hampering factors for the execution of DI, contextualized, need-based and continuous on-the-job trainings should be provided for primary school teachers and school principals.

Key words: Content differentiation, differentiated instruction, process differentiation, product differentiation

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Introduction

Background of the Study

Nowadays, teacher education has faced an increase in student diversity (Roy et al., 2013). Every time, diverse students in their backgrounds and abilities (e.g., Tomlinson & McTighe, 2006) and in their pace of learning, culture, gender, readiness, interest and learning profiles (e.g., Dee, 2010; Kanevsky, 2011; Landrum & McDuffie, 2010; Santangelo & Tomlinson, 2012) are joining schools. However, in many schools of the world, a large number of students who have diversified interests, readiness and learning profiles are learning together the same lesson in one classroom by the same method through a ‘one-size-fits-all’ approach (Koeze, 2007; Santangelo & Tomlinson, 2012).

Conversely, the diverse student characteristics have made it necessary for teachers and schools to use appropriate and fitting teaching approaches (Bender, 2012; Heacox, 2012). To address student diversity, several educational institutions have tried to design a more responsive pedagogy also called differentiated instruction [DI] (Dee, 2010; Guay et al., 2017; Tadesse, 2018, 2020). For instance, in different countries, (e.g., Belgium, Canada, Holland; Hong Kong, Romania, Taiwan, Switzerland, USA), available research evidence underpins that DI has been developed in response to the tendency to integrate students of various abilities in the same classroom (Burris, 2011; Nicolae, 2014; Roy et al., 2013; Ruys et al., 2013; Smit & Humpert, 2012; Tobin & Tippett, 2013; Tomlinson & Imbeau, 2010; Wan, 2017). Across the world also, there exists a plethora of research carried out on DI (e.g., Bender, 2012; Dee, 2010; Dixon et al., 2014; Guay, et al., 2017; Heacox, 2012; Kanevsky, 2011; Landrum & McDuffie, 2010; Reis et al., 2011; Santangelo & Tomlinson, 2012).

Conceptually, DI is a philosophy for effective teaching through organizing and structuring curriculum and teaching strategies in response to students’ diverse interests, readiness, and learning profiles in terms of content, process, product, and environment (Tomlinson, 1999, 2014). Tomlinson and Imbeau (2010) stated that in order to address the readiness, interest, and learning profile of students, the core of the classroom practice of differentiation is the modification of four curriculum related elements – *content* (what teachers teach and students learn), *process* (how teachers teach and students learn), *product* (how students demonstrate the way they have learnt) and *learning environment* (the way the classroom feels and functions safe and stimulating). Similarly, other scholars (e.g., Bender, 2012; Roy et al., 2013; Santanglo & Tomlinson, 2012; Tobin & Tippett, 2013; Tomlinson, 2014) also supplemented that teachers who utilize DI take into consideration addressing students’ readiness, interest, and learning profiles.

The theoretical framework of DI is guided by the following four principles and beliefs: (a) a focus on essential ideas and skills in each content area, (b) responsiveness to individual student differences, (c) integration of assessment and instruction, and (d) ongoing adjustment of content, process, and products to meet the individuals’ levels of prior knowledge, critical thinking and expression styles (Rock et al., 2008, p.33).

There are also various reasons why DI is recommended by different scholars. For Burriss (2011) and Whipple (2012), DI recognizes individual differences and allows students from all backgrounds with diverse abilities to demonstrate what they know, understand, and are capable of doing. Similarly, DI avoids teaching by responding to the full range of learner needs (Subban, 2006) and helps to tackle learner differences and offers the possibility to create different expectation levels about task completion (Tobin & McInnes (2008). As also diverse studies (e.g., Koeze, 2007; Tomlinson et al., 2008; Tomlinson & Imbeau, 2010) disclosed, DI reflects promising benefits for both teachers and students not only to cope with the diversity of students but also to improve the students' achievement. Consequently, calls have been issued for teacher education programs to improve the execution of DI by practitioners to respond to academic diversity of students (Guay et al., 2017).

Despite the potential benefits of the strategies of DI in improving students' learning, embracing change and adopting such an innovation was challenging for many teachers (Moosa & Shareefa, 2019). Other scholars (e.g., Nicolae, 2014; Santangelo & Tomlinson, 2012; Tobin & Tippett, 2013) also revealed that implementing DI can be very daunting for teachers. Its implementation in different countries, including Ethiopia, is infrequent, inconsistent, and incorrect due to various reasons (Goddard et al., 2010; Morrison-Thomas, 2016; Smit & Humpert, 2012; Tadesse, 2020; Watts-Taffe et al., 2012; Whitley et al., 2019). Accordingly, there is a need to find out what factors may affect teachers' execution of DI strategies in the Ethiopian schools.

Statement of the Problem

The complexity of the concept and the difficulties in adopting DI strategies result in less use of them (Tomlinson, 2004). Many scholars (e.g., Deunk et al., 2015; Nicolae, 2014; Smit & Humpert, 2012; Tobin & Tippett, 2013) argued that providing DI is considered a vital but multifaceted teaching skill which many teachers have not mastered and feel unprepared for. As a result, adequate implementation of DI in primary schools was not self-evident where one-size-fits-all instruction remains common (Tomlinson, 2004).

Internationally, various scholars examined the details for the inept execution of DI and suggested reasons. DI's time taking nature to plan lessons, instruction and assessment (Goddard et al., 2010; Goodnough, 2010; Nicolae, 2014; Whitley et al., 2019), large class size and lack of human and physical resources (Chien, 2015; Goddard et al., 2010; Nicolae, 2014; Smit & Humpert, 2012; Whitley et al., 2019), lack of professional support (Tadesse, 2020), as well as lack of safe and stimulating learning environment for students and inflexible standardized schedules (Santangelo & Tomlinson, 2012) were some to mention. Teachers' lack of understanding and skill in using DI (Chien, 2015; Nicolae, 2014; Smit & Humpert, 2012; Whitley et al., 2019), teachers' perception problems towards DI (McTighe & Brown, 2005; Tadesse, 2018), and lack of experiences in DI (Roberts & Inman, 2013; Rodriguez, 2012) were also presented barriers for executing DI in different countries.

On the other hand, compared to other countries, the problem of addressing the diverse interests of students in Sub-Saharan Africa is huge (UNESCO, 2017). Similarly, in a diverse,

multi-cultural and multi-lingual Ethiopian society, education is entangled with complex problems of relevance, quality and equity (MoE, 2015, 2018, 2020; Tadesse, 2020; Tesfaye, 2014). In Ethiopia, the quality of education is the recurring problem (Tadesse, 2020; Tilaye et al., 2020). According to the reports of different researchers (e.g., Fekede & Fiorucci, 2012; Tilaye et al., 2020; Tesfaye, 2014; Tadesse, 2015, 2018, 2020) and policy documents (e.g., MoE, 2015, 2018, 2020), the quality of education was not enhanced, and students' achievement in different exams is not improved. This is directly or indirectly related to teachers' quality in addressing learners' diversity in their classroom teaching (Tadesse, 2018, 2020). Consistently, Tilaye et al., (2020) pinpoint that there is still a wider gap in accommodating learners' diversity, meritoriously practicing teachers' continuous professional development, delivering competency-based curriculum, participating teachers in the curriculum development and review process, and employing active learning methods and formative continuous assessment techniques. Other earlier researchers (e.g., Joshi & Verspoor, 2013; Tesfaye, 2014) also confirmed that there was little evidence of active student learning and inquiry processes in the Ethiopian classrooms.

Although there is a policy backup on the execution of DI in Ethiopia (MoE, 2018, 2020) to address learners' diversity (MoE, 2015; 2018, 2020) and teachers have positive perceptions towards DI (Tadesse, 2020), its actual execution is low (Tadesse, 2018, 2020). While many teachers are aware of the disadvantage of their traditional teaching style, they seem quite willing to continue with this style (Joshi & Verspoor, 2013; Tesfaye, 2014; Tadesse, 2018, 2020).

Across regions as well, Tadesse's (2018, 2020) research findings clearly depicted that the majority of primary school teachers in the Amhara Region of Ethiopia insufficiently adapted their instruction to student differences and many of them prefer to continue a 'one-size-fits-all' approach. The reports of the Amhara Regional Education Bureau [BoE, 2017] also disclosed that many primary school teachers (86.99%) were not widely utilizing appropriate learner-centered approaches in their classroom teaching so as to address learner diversity. As a result, the achievement of Amhara Region primary school students in the General Primary School Completion Exam (GPSCE) was much lower (86 pass rate) than the national (88 pass rate) (MoE, 2016, 2020). A survey study conducted by BoE (2016) by drawing 9,332 sixth grade students of the Amhara Region further revealed that 80.1% of grade six students scored less than 50% in every subject. These problems were partly attributed to the low quality of teachers (MoE, 2020; BoE, 2017; Tadesse, 2018, 2020; Tilaye et al., 2020) and their limited knowledge to address students' learning diversity through the use of DI (Tadesse, 2018, 2020). Earlier research findings of Tadesse (2015, 2018, & 2020) and the actual classroom practices in different primary schools of Bahir Dar City correspondingly revealed that many teachers were seen dominantly applying teacher-centered teaching approaches such as lecture and question and answers.

Moreover, as to the researcher's knowledge at this point, there are no comprehensive studies exploring factors affecting the implementation of DI in Ethiopia in general and in Amhara Region in particular. Given that DI is recommended or required in many countries world-wide, its implementation in Bahir Dar City primary schools is found low (Tadesse, 2015). Accordingly,

conducting research to explore the major impending factors for the execution of DI is a timely concern.

The main purpose of this study, therefore, was to investigate the major factors that deter Bahir Dar City Administration primary school teachers' and principals' execution of DI. Accordingly, the current study can add to this limited research through exploring the following leading questions: (1) what are the major deterring factors that affect the execution of DI by primary school teachers of Bahir Dar City Administration? and (2) what is the intensity of each factor in affecting the implementation of DI?

Significance of the Study

Today's classrooms are becoming a versatile 'zoo' of students' abilities, orientations, responses, behaviors, and potentials. In order to create a kind of educational space which is beneficial for all students with different needs, the teaching methods are to be changed to fit with all the students, and major hampering factors need to be investigated. This study, therefore, is believed to make a number of contributions to different actors. Firstly, it can provide information for teachers about the major factors that are affecting the implementation of DI and ways of intervention strategies for the better employment of DI. Secondly, the results of this study could also help school principals, *woreda* and zonal education experts to make decisions that will tailor professional development opportunities to address the needs that teachers experience in practicing DI and to tackle the major impending factors on the implementation of DI. Thirdly, this study could also help Teacher Education Institutions [TEIs] and Universities, who are trainers of the primary and secondary school teachers, in providing the necessary information about the major factors primary school teachers encountered in implementing DI and intervention strategies to tackle the challenges. Finally, this study may again serve as a spring board for those interested scholars in conducting further research on DI and its effect on students' academic achievement.

Method

For this study, a mixed methods approach with convergent parallel design was employed since this design provides the researcher with the opportunity to have good understanding about the problem and the issue under study (Creswell, 2014). Mixed methods involve integrating both qualitative and quantitative data and analyze for a more multidimensional approach to inquiry (Creswell, 2014; Miles et al., 2014). So, the quantitative aspect of this study (using a questionnaire) was used to investigate factors affecting the implementation of DI. Respondents were also asked to put the major factors in a rank order. Similarly, in order to obtain deeper explanations for why a phenomenon occurs, qualitative approach was employed. The qualitative approach (using interviews, FGDs, and classroom observations) was used to get data that capture the different dimensions of teachers, school principals and students' experiences, personal perspectives, and their challenges in implementing DI from the inside (Miles et al., 2014; Saldana, 2011).

Participants

The target populations of the study were Bahir Dar City Administration primary schools in Amhara Region, Ethiopia. There are about 39 government primary schools in the city administration. Among these, 10 full cycle government primary schools were selected through simple random sampling. In these full cycle primary schools, there are five departments (Social Science, Natural Science, Mathematics, Language, and Aesthetics and Physical Education). From the 10 full cycle general primary schools, 50 teachers (five from every school and one from every department) and 10 school principals (school directors) were selected through systematic random sampling and comprehensive sampling techniques, respectively. Table 1 demonstrates the selected schools and sample teachers based on their sex, qualification, departments and teaching experiences. Similarly, from each school, one student representative who properly articulates and provides valuable information (e.g., student representative or a class monitor) was selected using purposive sampling technique.

Table 1

Characteristics of Teacher Participants

N	Participants	Responses		N	Participants	Responses			
		n	%			n	%		
1	<i>Schools</i>	Sertse Dingel	5	10	3	Qualification	Diploma	21	42
		Shimbit	5	10			Degree	29	48
		Shumabo	5	10			Natural Science	10	20
		Gedro	5	10	4	Departments	Social Science	10	20
		Zenzelma	5	10			Mathematics	10	20
		Addis Amba	5	10			Language	10	20
		Qulkual Meda	5	10			HPE	10	20
		Dona Berber	5	10	5	Teaching Experience	0-5 years	4	8
		Dilchibo	5	10			6-10 years	11	22
		Sebatamit	5	10			11-15 years	12	24
2	Gender	Male	27	54			16-20 years	12	24
		Female	23	46			>20 years	10	20

Instruments

For this study, multiple data collection methods (questionnaire, interviews, FGDs, and classroom observations) were utilized.

Questionnaire

In order to investigate the major factors affecting the implementation of DI, questionnaire (both close ended and open ended) was used as the major instrument. In the questionnaire, about 17 listed factors that were adapted from Adlam's (2007) and Rodriguez's (2012) standardized questionnaires of DI in the elementary schools were included. First of all, in order to realize whether the given factors were the real challenges for primary school teachers to implement DI, teachers were asked to rate them by saying "Yes" or "No" for each of the factors mentioned. They were also asked to rank the given factors in order of hierarchy (from first to last) as per their influencing powers they feel. Moreover, in the open ended part of the questionnaire, these teachers were asked to mention other factors they believed to be major challenges affecting their execution of DI.

Interviews

For this study, individual based face-to-face semi-structured interviews were employed to probe if further explanation is needed (Bryman, 2012). A total of five interview questions that focus on factors affecting the execution of DI were designed to generate details about impending factors affecting teachers' practice of DI and its components. Thus, a total of 10 teachers (one from every sample school and two from each department) were selected through available sampling. Moreover, 10 students and 10 school principals (one student and one principal from each school) were selected through purposive sampling and interviewed and their voices were tape-recorded based on their consent.

Focus Group Discussion (FGD)

In order to obtain shared understandings from several individuals (Bryman, 2012; Creswell, 2014) and to triangulate the collected data through interviews on individual bases on factors affecting the implementation of DI, FGD was also employed. FGD is conducted to cross-check the consistency of the responses given individually through interviews. Therefore, from three randomly selected full cycle primary schools, a group of teachers involving 4 to 5 members with different qualifications, teaching experiences and departments were taken as key informants. Besides, student representatives (class monitors, student committee members, and group leaders from upper primary levels) were purposely selected for the discussions. FGDs with these participants helped to further investigate the commonly understood and shared major hampering factors affecting the execution of DI in their classrooms and schools and also to confirm the results obtained via interviews.

Observations

Classroom observations were made using observation checklists on how teachers differentiate the lessons learnt (content), the methods of teaching (process), the assessment (product) and aspects of the classroom environment. Moreover, school environment observations were conducted to check whether or not the school and classroom environments were conducive for the execution of DI. For this purpose, the structured observation checklist of Subban and Round (2015) was used to collect data from observations of classrooms and school environment. After observations, follow-up interviews were made from the ongoing analyses as ideas and events were clarified and explained by participants at the end of each classroom observation period. In order to check the internal consistency of observations and to minimize bias (Bryman, 2012), inter-observer reliability was made by two individuals (the researcher and other assistant observer, who is an assistant professor from the teacher education and curriculum studies department) and finally the average rated result was obtained. About eight classroom teaching observations from different departments and grade levels (one period for each) were made by two different observers in order to yield the same findings in a more credible manner than those gathered according to personal patterns (Denzin, 1989).

Data Analysis

For this study, simple statistical technique (percentage and rank ordering) and qualitative data analysis techniques were employed. To analyze the questionnaire data, percentage and rank ordering were employed. But, the data generated through interview, open-ended questions and observation were analyzed qualitatively through thematic descriptions and narrations. The interview data analysis procedure followed transcribing, coding and developing themes since a thematic approach is one of the analysis techniques of qualitative research (Creswell, 2014).

Results and Discussion

Many studies done over the past decades showed that teachers face difficulties in addressing students' individual differences through applying DI. Other scholars also mentioned challenges for effective practice of DI. As DI requires new ways of thinking about curriculum and instruction, implementing it can be a daunting issue for teachers. For instance, in the previous studies of Tadesse (2015, 2018, 2020), many primary school teachers of Bahir Dar City Administration and Awi administrative zone did not properly implement DI and its components. In those studies, Tadesse concluded that most primary school teachers in these areas were teaching diverse students using a "one-size-fits-all" approach. Hence, the reasons why primary school teachers did not differentiate instruction were investigated. This study, therefore, focuses on examining the major hampering factors affecting the execution of DI by primary school teachers of Bahir Dar City Administration.

In order to investigate the major factors affecting the execution of DI, 17 factors were presented in the close ended questionnaire, and teachers were asked to rank those factors in order of influencing powers. Thus, Table 2 below presents major challenges for effective implementation of DI in the primary schools of Bahir Dar City.

Table 2

Major factors affecting the execution of DI

N	Responses	Teachers' responses (N = 50)				Ranks
		YES		NO		
		N	%	N	%	
1	Lack of resources/ instructional materials	45	90%	5	10%	4th
2	Traditional thoughts of one size-fits-all approach	43	86%	7	14%	6th
3	Large number of student diversity in the classroom	42	84%	8	16%	8th
4	The presence of rigid/inflexible curriculum	44	88%	6	12%	5th
5	DI demands excessive planning and teaching	38	76%	12	24%	13th
6	Lack of parental support	30	60%	20	40%	16th
7	Lack of good school leadership	41	82%	9	18%	10th
8	Teacher workload	42	84%	8	16%	8th
9	Lack of incentives for effective teachers	40	80%	10	20%	12th
10	Poor background knowledge of students	32	64%	8	36%	14th
11	Lack of collaboration with other teaching staff	28	56%	22	44%	17th
12	Lack of knowledge and experience of DI	48	96%	2	4%	1st
13	Lack of teachers' motivation and commitment	43	86%	7	14%	6th
14	Lack of conducive school environment	46	92%	4	8%	3rd
15	Lack of training on DI	47	94%	3	6%	2nd
16	Time shortage for teachers	41	82%	9	8%	10th
17	Teachers regular engagement on routine tasks	31	62%	19	38%	15th

As indicated in Table 2 primary school teachers were asked to list the major encumbering factors that were affecting their practice of DI. Accordingly, 48 (96%) of the respondents identified that lack of knowledge and experience of DI was the first factor affecting the practice of DI. Likewise, the interview results of teacher, school principal and student respondents also divulged that teachers have wider knowledge gaps to address students' diversity by applying DI in classrooms. For instance, the following is a quotation extracted from the interview transcript of one of the primary school teachers' interviewed,

...Even though I understand that there are fast, medium and slow learners in my classrooms, I have the knowledge gap on how to address their interests. I was not familiar with the concept of DI and how to differentiate content, method and assessment in my classroom teaching. As the curriculum is not flexible, even the exam type I am using for these diverse students is the same. There are many factors for this. Inflexible curriculum and our limited knowledge to apply DI are key factors.

Similar to the teacher interviewee, the interviews made with the two school principals and three students also clarified that many teachers' lack knowledge and skills to differentiate instruction. The two school principals added that many teachers were not properly identifying the learning gaps of the students and as a result they dominantly employed a lecture method of teaching and a 'paper and pencil' test. Student respondents also shared the responses of school principals. For instance, one student respondent replied that "many teachers have limitations in subject matter knowledge, English language communication as a medium of instruction and pedagogy". Besides, the classroom observations made also confirmed that teachers have limitations to vary the methods of teaching and assessment practices depending on learners' differences. Hence, as the interviewee teacher, student and the school principals replied that the subject matter and pedagogy knowledge and skill gap of teachers is the major deterring factor to address the learners' learning diversity. Consistent to this finding, many authors (e.g., Chien, 2015; Goodnough, 2010; Knowles, 2009; Nicolae, 2014; Roberts & Inman, 2013; Rodriguez, 2012; Roy et al., 2013; Santangelo & Tomlinson, 2012; Tobin & Tippet, 2013) examined that lack of hands-on experiences and knowledge with differentiation of teachers is one of the major barriers to practice DI. These authors investigated that due to lack of knowledge and skills in adapting the curriculum material for learners' different learning styles and academic performances, general education teachers faced challenges to implement DI. Instead, teaching to the "norm" has been a common practice in many schools (Tomlinson, 2004). Nicolae (2014) also identified lack of teachers' knowledge and skills and lack of resources as the greatest challenges facing Romania's schools today that are mostly dominated by a traditional "sit and listen" approach. Studies in Hong Kong by Wan (2015) also indicated that primary school teachers make relatively few adaptations to accommodate differences among their students due to teachers' lack of confidence and preparedness for differentiated teaching practice. Likewise, lack of knowledge and experience (Rodriguez, 2012) and lack of classroom management skills (Corley, 2005) were major deterring factors affecting the application of DI.

Another factor related to the poor execution of DI was attributed to lack of capacity development training for teachers both in the pre-service and in-service training modalities. In this regard, 47 (94%) of teacher respondents replied that lack of sufficient pre-service or in-service trainings on DI was the second deterring factor for the execution of DI. The interview results of the school principals as well as the focus group discussion results of teachers depicted that primary school teachers have wider gaps in getting need-based in-service or on-the-job trainings after they graduated from the pre-service programs. According to the respondents, this fact strongly affects the quality of teachers' effectiveness in teaching. Congruent with this finding, authors (e.g., Goddard et al., 2010; Siam & Al-Natour, 2016) investigated that the lack of specialized training programs/ professional development to support teachers' practice of DI in schools was a major deterring factor affecting the application of DI. This finding is also consistent with the verdicts of some authorities in the area (e.g., Dee, 2010; Good, 2006; Santangelo & Tomlinson, 2012; Smit & Humpert, 2012; Watts-Taffe et al., 2012). Many of these authors showed that if teachers have not been trained in DI, they lack relevant strategies and knowledge to differentiate and meet the

needs of all students, and often continue to use the same practices, rather than incorporating different strategies for DI.

Other authors (e.g. Gettinger & Stoiber, 2012; Goodnough, 2010; Smit & Humpert, 2012; Solomon, 2008; Tesfaye, 2014; Tadesse, 2018, 2020; Wan, 2015) also linked the problems of DI with the trainings of teacher education systems. They confirmed that teacher education institutions play the greatest role to address learners' diversity by effectively employing DI. Previous findings of many scholars (e.g. Dee, 2010; Gettinger & Stoiber, 2012; Koeze, 2007; Goodnough, 2010; Smit & Humpert, 2012; Solomon, 2008; Wan, 2015) also concluded that teacher preparation has an impact on teacher attitudes and confidence in working in inclusive settings. For instance, Smit and Humpert (2012) argued that an opportunity for training is a facilitator for effective DI. Moreover, Koeze (2007) also delved that those teachers who participated in the DI training reported frequent differentiation in the areas of readiness, interest, flexible grouping, choice, and learning styles. However, Dee (2011) as well as Smit and Humpert (2012) conversely stated that many education programs lack in preparing teachers for teaching in diverse classrooms, and the use of varied assessments for effective differentiation seems weak.

Although appropriate education entails that the general education classroom teachers possess the skills of adapting instruction and making modifications to content, process and product for students (Dee, 2010), this is not practically seen in teacher education institutions (Smit & Humpert, 2012; Tesfaye, 2014). Dee (2011) further complemented that teachers are ill-prepared and lack the support in delivering effective instruction in the daily classroom teaching. Similarly, in Ethiopia, as Tesfaye (2014) stated, many teachers are engaged to be teachers without the necessary qualifications and training pertinent to the profession. As a result, many teachers are seen suffering from subject matter and pedagogical knowledge deficits (Tadesse, 2015; Tesfaye, 2014), leave alone addressing divers interests of learners (Tadesse, 2018, 2020).

As also shown in Table 2, 46 (92%) and 45 (90%) respondents respectively rated that lack of conducive environment and lack of resources/ instructional materials to implement DI were the third and fourth ranked factors affecting teachers' practices of DI. In congruent with this, the interview results of school principals and FGD reports of teachers elucidated that the lack of conducive school environment (lack of appropriate and standardized classrooms with full of facilities, shortage of resources, laboratory equipment, sport fields, sufficient playing grounds, under shade reading corners, etc.) and lack of strong support from the school principals in helping teachers to effectively practice DI, are among the factors that affect the practice of DI. Interviews from teachers also complemented that institutional factors (lack of resources and facilities such as textbooks, tables and chairs, reference books, laboratory equipment, chemicals, lack of leadership support, and large number of students), and environmental factors (lack of conducive school environment, unclean classrooms, lack of pure water, lack of play grounds and facilities, etc.) were the major factors that affect the practices of the instructional strategies of DI. Classroom observations also confirmed the presence of the challenges mentioned.

Moreover, FGDs made with teachers disclosed that in order to properly implement DI fertile grounds are not set. The learning environment that consists of the routines, procedures, and

physical arrangement of the classroom as well as the overall mood that exists among and between the students and a teacher are not safe, stimulating and comfortable for students. In most cases, there are no comfortable chairs and tables (many chairs are fixed). Many classrooms are dusty and also instructional materials are not sufficiently available. In this regard, the study of MoE (2018) and BoE (2017) indicated that about 90% of the primary schools in Ethiopia are below the standards. The situation in the Amhara Region is becoming worse (BoE, 2017). For instance, 99% of the schools are below the standards in Waghimra administrative zone, and Bahir Dar city administration also accounts 92% (REB, 2017). Consistent with this, the findings of Santangelo and Tomlinson (2012) elucidated that the lack of stimulating learning environment for students is one factor affecting the execution of DI.

Also for other researchers, one of the unfavorable conditions for the practice of DI in reality was shortage of resources/accessible materials. Even though it is believed that the availability of material resource is an enabler for effective DI (Smit & Humpert, 2012), the lack of resources in schools still results in low differentiation of instruction for teachers (Al-Natour, 2016; Goddard et al., 2010; Good, 2006; Nicolae, 2014; Roberts & Inman, 2013; Rodriguez, 2012; Santangelo & Tomlinson, 2012; Smit & Humpert, 2012; Watts-Taffe et al., 2012). These authors noted that lack of sufficient resources or instructional materials is a major impending factor for the execution of DI in classroom teaching.

Moreover, as illustrated in Table 2, the presence of rigid/inflexible curriculum (88%), lack of teachers' motivation and commitment (86%), traditional thoughts of 'one-size-fits-all' approach (86%), large number of student diversity in the classroom (84%), teachers' workload as a result of engagement on different classes with different subjects (84%), time shortage for teachers (82%), lack of good school leadership (82%), and time consuming nature of DI for successive planning and teaching (76%), were the other successively ranked factors affecting the practice of DI. The FGD and interview results of teachers and school principals also disclosed that the inflexible and fixed curriculum structure throughout the year created teachers an obstacle for their practice of DI according to students' interests. One of the teacher respondents depicted the following,

As our curriculum delivery is fixed, to make it flexible in terms of time and activity and make adaptable into local contexts, the support and encouragement from the school principals and *woreda* education officers is negligible. Even they do not have the room to do. As a result, [we] teachers are always enforced to teach the curriculum based on the regionally or nationally established fixed plans, and the assessment strategies we are using are all the same for diverse students which also results in low differentiation. As a result, our commitment and motivation to teach effectively is affected.

But, as many international experiences reveal, school principals are imperative in the process of implementing DI and in creating conducive learning environment in schools. According to the respondents, school principals have to provide teachers with sufficient support and praise in the overall implementation process of DI. For this, good instructional leadership is crucial. Nevertheless, classroom observations made at different schools affirmed that teachers are tied by the strict procedures of lesson plan and annual plan alignment. The main roles of the school

principals are only monitoring and controlling whether teachers are strictly accomplishing their teaching as per their plans. Besides, as it is observed in different classes, there are more than 60 and 70 students in one classroom. This huge diversity affects teachers' effective practice of DI and how they plan their lessons accordingly. Consequently, teachers were seen overloaded in such diverse classrooms with their shortage of time to cover subjects and prepare wider lesson plans. As the FGD reports from teachers affirmed,

...many school principals were not well qualified and committed to lead their staff. Due to this, many teachers do not have trust and respect for the school principals as they are not qualified and not assigned on merit bases. They were also not in a position to deliver professional capacity building trainings periodically to teachers. Consequently, most teachers are still following the traditional lecture method founded on the belief of 'one size-fits-all' approach.

In tune with this finding, Santangelo and Tomlinson (2012) disclosed that the inflexible standardized schedules and use of class time, a strong focus on covering the prescribed curriculum, and inflexible routines and management strategies which demand administrative decisions result in low differentiation for teachers. This finding is also similar to many other scholars who found that shortage of time to implement given learning goals in the curricula (Nicolae, 2014; Siam & Al-Natour, 2016; Smit & Humpert, 2012; Rodriguez, 2012), shortage of time for lesson preparation (Good, 2006; Roberts & Inman, 2013; Rodriguez, 2012; Watts-Taffe et al., 2012), large class size, lack of preparation time, and teachers' heavy workload (Nicolae, 2014), lack of classroom management skills, weak administrative support, and lack of better partnership between the school principal and teachers with mutual trust and respect (Goddard et al., 2010; Smit & Humpert, 2012), lack of commitment and motivation of teachers (Tomlinson, 2010); lack of teachers' confidence to differentiate instruction (Dee, 2010; Gettinger & Stoiber, 2012; Goodnough, 2010), teachers' failure to recognize the necessity for DI and the belief that there is no need to differentiate (George, 2005; Santangelo & Tomlinson, 2012) are also main challenges faced by teachers in practicing DI in today's schools. Weber and associates (2013, in Lang, 2017) also investigated reasons why teachers did not differentiate as lack of professional development to support practice, lack of administrative support, time constraints, concerns about equity grading practices, teachers' resistance to change, and requirements associated with standards-based instruction discourage practices and delusions continued by a lack of knowledge of strategies related to approaches of DI.

Similar studies and policy documents in Ethiopia also revealed that the quality of school administration and human resource management is a critical factor for effective teaching and teacher motivation (MoE, 2015, 2017; Solomon, 2008). Quality school management will produce large impacts for student learning performance through innovation, knowledge sharing and the identification and reproduction of best practice (MoE, 2015, 2017). However, as Erickson (2008) reported, traditional school structures, pressures of content coverage for standardized tests and limited budgets for staff development all serve as obstacles to true differentiation for students.

On the other hand, in order to enhance the confidence and preparedness of teachers for DI, teachers' professional development should be supported by school principals. According to the FGD results with teachers and school principals and student interview results, the presence of diverse students in terms of number, interest, readiness and learning profiles in one classroom is becoming a challenge for teachers to effectively implement DI. As class sizes and the diversity among students increase and resources diminish, many barriers to differentiation have surfaced. In this case, if teachers are not professionally equipped, they simply prefer to employ the traditional lecture method which they know. Consistent with the finding, as Goddard et al. (2010) as well as Dee (2011) purported, if teachers are ill-prepared and lack the support for their instruction and professional development schools, they will lose their confidence and ultimately fail to implement DI. Similar studies in Hong Kong by Wang (2015) also designated that primary school teachers make few adaptations to accommodate differences among their students due to teachers' lack of confidence and preparedness for differentiated teaching practice.

Finally, the finding in Table 4.1 also realized that the lack of incentives for effective teachers (80%), poor background knowledge of students (64%), teachers' engagement in routine tasks (62%), lack of parental support for students' learning (60%) and weak collaboration or experience sharing with other teaching staff (56%) were lastly recognized additional encumbering factors for the implementation of DI. Moreover, regarding teachers' motivation and students' background knowledge, the interview result of one teacher has the following excerpts:

In our schools, effective teachers who are devoting much of their time to their students' learning are not seen praised and encouraged. As a result, they are becoming discouraged. Not only the lack of incentives affects teachers' motivation to teach, but also students' academic background matters. In most cases, if there are clever and students in classrooms, teachers will prepare ahead to satisfy the needs and requirements of these students. But, currently, the quality of students is declining and parental involvement in their students' learning is low due to various factors. As a result, many teachers pass their golden time in different routine tasks.

Consistent with the above responses, student and school principal interviewees as well as teacher FGD discussants have shared that schools do not have the motivation system for effective teachers. There is a weak collaboration between parents and teachers and this time, the academic achievement of many students is declining. Many teachers, instead of preparing and professionally updating themselves, are engaged in additional routines that help them obtain additional income. Their reports also disclosed that staff collaboration and experience sharing is not encouraging. For instance, the two school principals' responses on the existing status of staff collaboration expounded the following,

There is a wider gap between novice and experienced teachers. Novice and experienced teachers' experience sharing (collaborative work) and mentoring and supervision in the classrooms are not effectively implemented. Many teachers are not open to supervise others or being supervised by others. Even though teachers with more experience are

expected to adapt the educational activity by considering the needs of all students and support other novice teachers, this is not effectively realized in the ground.

Hence, the lack of incentives for effective teachers, poor background knowledge of students, teachers' engagement in routine tasks, lack of parental support for students' learning and weak collaboration or experience sharing with other teaching staff were identified factors affecting the practice of DI. Congruent with this finding, many previous researches (e.g., Goddard et al., 2010; McTighe & Brown, 2005; Smit & Humpert, 2012; Rodriguez, 2012; Santangelo & Tomlinson, 2012, Tadesse, 2018, 2020) also scrutinized similar factors affecting the practice of DI. For instance, the findings of many authors showed that weak administrative support to incentivize teachers, low parental support, and low motivation of teachers to differentiate instruction (Corley, 2005; Nicolae, 2014; Siam & Al-Natour, 2016) and lack of teacher incentives (Tadesse, 2018, 2020) were other challenges faced by teachers in implementing DI. Besides, the lack of awareness on the importance of instructional strategies of DI (Nicolae, 2014) and the limited budgets for staff development (Erickson, 2008) all serve as obstacles to true differentiation for students.

Limitations of the Study

This study focuses only on investigating factors affecting the implementation of DI. But, the fact that a large number of samples were not drawn from the population may affect the generalizability of the findings in this study.

Conclusions and Implications

The main purpose of this study was to examine the major deterring factors affecting the implementation of DI in classrooms of the sample primary schools. Based on the findings, various encumbering factors were investigated and put in their order of influencing power. Accordingly, lack of knowledge and experience of DI, lack of continuous professional development/pre-service and in-service training on how to apply DI, and lack of teacher motivation and commitment to implement DI were the forefront factors affecting the execution of DI. Moreover, shortage of school resources/ instructional materials (textbooks, reference books, instructional aids, and school furniture), inflexible curriculum structure, the overload work of teachers (teaching different subjects in different grade levels), the traditional beliefs of 'one-size-fits-all approach' and lack of interest to implement DI and the time demanding nature of DI for excessive planning and teaching were other consecutively rated factors affecting the practice of DI. Additionally, lack of strong school leadership support, shortage of time, teachers' regular engagement on routine tasks, lack of incentives for effective teachers, low parental support for the students' learning, weak staff collaboration or experience sharing and large number of students' diversity in the classroom were additional encumbering factors for the implementation of DI. As a result, there is minimal or no differentiation in primary schools during their student teaching experience.

Finally, in order to address the diverse interests, readiness and learning profiles of students, thereby tackling the identified challenges so as to the following implications are set. To augment teachers' and school principals' knowledge and skills of DI, intensive capacity building professional development (training) should be designed for in-service teachers and school principals. Curriculum flexibility and context-based practices need to be improved. Creating conducive school environment and fulfilling instructional resources as well as motivating teachers for their good performance should be a timely task for the concerned officials. Furthermore, reducing workloads of teachers, strengthening quality instructional leadership skills, and improving staff cooperation as well as strengthening working with parents and the surrounding community could improve teachers' execution of DI and ultimately increase the students' learning achievement.

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