

AN ASSESSMENT OF THE IMPLEMENTATION OF DIFFERENTIATED INSTRUCTION IN PRIMARY SCHOOLS, KABWE DISTRICT, ZAMBIA

Awoniyi Samuel Adebayo, PhD, Associate Prof.

Director Quality Assurance Solusi University, Zimbabwe

Mrs. Christine Banda Shumba, M.Ed

Bwacha Secondary School, Kabwe, Zambia

Abstract

The purpose of the study was to determine the degree to which the implementation of differentiated instruction was carried out in Primary schools. The research design was descriptive. The population for the study consisted of all the 43 Primary schools of Kabwe District with a total population of 1817 teachers. The sample for study was made up of 15 randomly selected schools and 241 teachers selected using the simple random sampling technique. The instrument for the study was a self-constructed questionnaire of the five point Likert scale. The questionnaire was face and content validated and the reliability of the instrument determined using the Cronbach's alpha reliability method following a pilot study using 30 respondents from two schools that were not part of the main study. An alpha reliability coefficient of 0.740 was obtained. The data collected were coded and analysed using the Statistical Packages for Social Sciences (SPSS). The descriptive statistics and regression analysis were employed. The study revealed that differentiated instruction was implemented in schools. Findings from the study revealed that teachers frequently adapted the curriculum to pupils' needs and were sensitive to learners needs. Teachers frequently used classroom strategies in the implementation of differentiated instruction, they enjoy administrative support however teaching materials were not available in all subjects. Regression analysis revealed that administrative support and learners' background accounted for 37% and variance in the implementation of differentiated instructions. Administrative support accounted for 27.2% while learners' background accounted for 9.8%. Administrative support therefore is a major factor in the implementation of differentiated instruction. The more there is administrative support, the more the implementation of

differentiated instruction. It was recommended that school administrators needed to give more support in the area of resources for the successful implementation of the programme.

Keywords: Assessment, Implementation, Differentiated Instruction

Introduction

Pupils come to classes in various permutations in terms of preferences, interests, background knowledge, language, communication skills and readiness to learn. This diversity had increased the need to shape the curriculum and instruction to maximize learning for all. Educators, in their search for methods that would accommodate the learning needs of all pupils had identified differentiated instruction, learning and teaching as an appropriate strategy in many parts of the world. This strategy incorporated many effective traditional approaches. It also merged critical thinking, brain research and interdisciplinary instructions. Its roots were in gifted and special education but it was a means of accommodating various readiness levels, learning styles and interests of a heterogeneous classroom.

Tomlinson (2009), stated that differentiated instruction and assessment (also known as differentiated learning or, in education, simply, differentiation) was a framework or philosophy for effective teaching that involved providing students with different avenues to acquiring content; to processing, constructing, or making sense of; and to developing teaching materials and assessment measures. Students vary in culture, socioeconomic status, language, gender, motivation, ability/disability, personal interests and more, and teachers need to be aware of those varieties as they planned their curriculum. By considering varied learning needs, teachers could develop personalized instruction so that all children in the classroom could learn effectively. Differentiated classrooms had also been described as ones that were responsive. It was a classroom where all students were included and could be successful. To do this, a teacher set different expectations for task completion for students based upon their individual needs, (Lawrence, 2010).

Another reason for differentiating instruction was related to teacher professionalism. Teachers planned extended periods of instruction so that all students worked with a variety of peers over a period of days. Sometimes students work with like-readiness peers, sometimes with mixed-readiness groups, sometimes with students who had similar interests, sometimes with students who had different interests, sometimes with peers who learnt as they did, sometimes randomly, and often with the class as a whole. In addition, teachers could assign students to work groups, and sometimes students would select their own work groups. Flexible grouping allowed students to see themselves in a variety of contexts and aids the teacher in "auditioning"

students in different settings and with different kinds of work (Tomlinson, 1999).

Differentiation was a way of teaching; it was not a program or package of worksheets. It asked teachers to know their students well so they could provide each one with experiences and tasks that would improve learning. As Tomlinson (1999) said, differentiation meant giving students multiple options for taking in information. Differentiating instruction meant that you observed and understood the differences and similarities among students and uses this information to plan instruction. There was ample evidence that students were more successful in school and find it more satisfying if they were taught in ways that were responsive to their readiness levels (Vygotsky, 1986), interests (Csikszentmihalyi, 1997) and learning profiles (Sternberg, Torff, & Grigorenko, 1998).

Differentiation was a way of thinking about teaching and learning that values the individual and could be translated into classroom practice in many ways. A recent emphasis in the Ministry of Education in Zambia on classroom practices had been pupil-centered teaching and learning as cited by Gachubi, Mboya and Kireru (2006). The National in- Service Teachers' college in Zambia produced training modules to train teachers in differentiated instruction which was revised in 2006. In line with the National Policy on Education, "Educating Our Future" of May 1996, the Ministry of Education had the important task of sustaining the quality of individual teachers through Continuing Professional Development. Improved quality of education could be attained through highly qualified and motivated teachers.

The Primary Teachers' Diploma by Distance Learning was developed as a landmark for achieving quality not only of the individual teacher but of education provision and delivery as a whole through the implementation of differentiated instruction. Professional Development of teachers should be a lifelong process: extended throughout and individual teacher's year of actual teaching. The foundation laid in pre-service education marked the start of this process. Ideally, every teacher should be learned and be an active learner. The Primary Teachers' Diploma by Distance Learning gave the teachers an opportunity for professional and personal development.

Provincial Education officers had also conducted a number of Continuing Professional Development workshops for serving teachers on differentiated Instruction. Teachers were expected to be aware of different roles of learning and to consider when the class as a whole could or couldn't, move on to the next part of the lesson content on topic. Where necessary teachers were also expected to provide extra help through individualized education programme or provide tutorial assistance. Teachers should also employ group work and use pupils who had mastered the content as a model

to others. This therefore seeks to assess the extent to which teachers were implementing differentiated instruction in classroom practice in Primary Schools in Kabwe District of Zambia.

Statement of the problem

It was not clear whether the teachers were using differentiated instruction approaches in their classroom practice to meet individual needs of pupils for improved performance. This study therefore assessed the implementation of differentiated instruction in Primary Schools in Kabwe District, Zambia.

Research questions

The researchers sought answers to the following research questions.

1. To what extent do teachers implement differentiated instruction in terms of adaptation to curriculum, sensitivity to levels of learners, institutional strategies and learners' background?
2. To what extent do teachers use teaching materials in the implementation of differentiated instruction?
3. To what degree do teachers enjoy administrative support?
4. To what extent is the implementation of differentiated instruction affected by the teaching based on learners' background, use of teaching materials, and administrative support.

Research Methodology

The purpose of the study was to determine the degree to which the implementation of differentiated instruction was carried out in Primary schools. The research design was descriptive. The population for the study consisted of all the 43 Primary schools of Kabwe District with a total population of 1817 teachers. The sample for study was made up of 15 randomly selected schools and 241 teachers selected using the simple random sampling technique. The instrument for the study was a self-constructed questionnaire of the five point Likert scale. The questionnaire was face and content validated and the reliability of the instrument determined using the Cronbach's alpha reliability method following a pilot study using 30 respondents from two schools that were not part of the main study. An alpha reliability coefficient of 0.740 was obtained. The data collected were coded and analysed using the Statistical Packages for Social Sciences (SPSS). The descriptive statistics and regression analysis were employed.

Results and Discussions

The results of the analysis are presented in line with the research questions.

Research question one: To what extent do teachers implement differentiated instruction in terms of adaptation of curriculum, sensitivity levels of learners, classroom strategies and learners' background?

Table 1 below shows the extent to which teachers implement differentiated instruction in terms of adaptation of the curriculum to pupils needs.

Table 1: Adaptation of the curriculum to pupils needs

Item	Mean	Std. Deviation
The curriculum plays an important role in differentiated instruction.	4.1909	.90650
I adapt the curriculum to meet the individual needs of all pupils regardless of their performance	4.0083	.93538
I adapt the evaluation of individual pupils in order for differentiated teaching to take place	4.0954	.82362
I adapt the curriculum to the needs of slow learners by serving them through remedial work after regular classes.	3.7884	.96654
I adapt the teaching materials to accommodate learners at all levels	4.1535	.85955
Adaptation of the Curriculum to Learners' needs Average	4.0473	.52844

The table revealed that teachers agreed that the curriculum played a very important role in differentiated instruction, that they frequently adapted the curriculum to meet individual needs of all pupils regardless of their performance, adapted the evaluation of individual pupils, adapted the curriculum to the needs of slow learners by serving them through remedial work after regular classes and adapted the teaching materials to accommodate learners at all levels with means of 4.1909, 4.0083, 4.0954, 3.7884, and 4.1535 respectively.

The low standard deviations for the above items showed that the teachers were homogeneous in their responses. The overall mean of 4.0473 showed that teachers frequently adapted the curriculum to pupils needs. According to Tomlinson (2001), three key elements guided differentiation: Content, Process and Product. Content in the school curriculum comprised several elements, these included, educational acts, concepts, generalization or principles, attitudes and skills. When teachers differentiate content, they adapt what they wanted the students to learn or how the students would gain access to the knowledge, understanding, and skills (Anderson, 2007).

Table 2 below shows the assessment of teachers on their sensitivity to levels of learners.

Table 2: Teachers' sensitivity to levels of learners

Item	Mean	Std. Deviation
The individuals' attention required by slow learners' wastes time for other pupils in class.	3.0166	1.30053
I am part of the community of learners in class.	4.4357	.91116
I provide useful authentic learning opportunities to all learners.	4.3237	.74374
I provide learners a lot of chance to ask and explore.	4.5062	.72526
I encourage learners to set goals for their learning.	4.3444	.85248
Sensitivity to levels of learners average	4.1253	.49538

The table revealed that teachers occasionally were of the view that the attention required by slow learners' wasted time of other pupils with a mean of 3.0166 and they were heterogeneous in their responses. The teachers frequently formed part of community of learners the classroom, provided useful authentic learning opportunities to all learners, provided learners chance to ask and explore and encouraged learners to set goals for their learning with means of 4.4357, 4.3237, 4.5062 and 4.3444 respectively. The low standard deviations showed that they were homogeneous in their responses to these items. The overall mean of 4.1253 showed that teachers were frequently sensitive to the levels of learners. Differentiation is a responsive teaching rather than one size fits all teaching (Tomlinson, 2005). Put in another way, it meant that teachers proactively planned varied approaches to what student need to learn, how they learnt it and /or how they would show that they had learnt in order to increase the likelihood that each student would learn as much as he or she could, as effectively as possible (Tomlinson, 2003).

Table 3 below shows how differentiated instruction has helped teachers to use some classroom strategies. The table revealed that the teachers had sufficient training and they rewarded learners for the correct answers to encourage them as shown by the means 4.000 and 4.2375 respectively. The high standard deviation of 1.10680 and 1.02574 for the above items showed that teachers were heterogeneous in their responses.

Table 4.4: Teachers' classroom strategies/mode of Instruction

Item	Mean	Std. Deviation
I have sufficient training in differentiated instruction.	4.0000	1.10680
I use a variety of activities, word searches, matching, games and language exercise such as close, word study.	4.1577	.87084
I reward the learners for correct answers to encourage them.	4.2375	1.02574
I provide learners with direct instruction in group process and they also provide interaction opportunities.	4.3029	.78763
I use multiple tests and supplementary materials in my lessons.	4.0788	.85025
Differentiated instruction helping to use classroom average	4.1558	.58450

Table 3 also revealed that teachers frequently used a variety of activities, word searches, marching, games and language excise such as close and word study, they provide learners with direct instruction in group process and they provide interaction opportunities and they used multiple tests and supplementary materials in their lessons with means of 4.1577, 4.30294 and 4.0788 respectively

The low standard deviation for these items showed that they were homogeneous in their responses. The overall mean of 4.1558 showed that teachers frequently used classroom strategies in implementing differentiated instruction. Bulloch (2010) stated that Differentiated Instruction required one to use different techniques in order to meet the needs of every child. An investigation of differentiated instruction strategies utilized by teachers in a study conducted concluded that teachers who used these strategies more intensively showed improved individual perception and adopted greater responsibility for student growth. In addition, this study revealed that teachers employing higher levels of differentiated techniques experienced increased feelings of self-efficacy and demonstrated greater willingness to try new instructional approaches (Affholder, 2003).

Table 4 below shows how the background of learners affects teaching. The table revealed that teachers frequently believed that the background of learners affected their learning with the mean of 4.0083 and the high standard deviation of 1.16545 showed that they were heterogeneous in their responses. Teachers also frequently believed that learners' perception of education was different depending on individuals; teachers varied the products to reflect learners' best ways to learn depending on the background of learners, pupils are taught from concrete to abstract and differentiated instruction permitted academic progression of all pupils regardless of individual differences with means of 4.2116, 3.9253, 4.3237 and 4.1250

respectively. The low standard deviations for these items showed that they were homogeneous in their responses.

Table 4: Teaching based on Learners' background

Item	Mean	Std. Deviation
The cultural background of learners affects their learning	4.0083	1.16545
Learners' perception of education is different depending on individuals	4.2116	.94032
Depending on the background of learners, I vary the products to reflect learners' best ways to learn	3.9253	.91437
I teach my children from concrete to abstract	4.3237	.99740
Differentiated instruction permits academic progression of all pupils regardless of individual differences	4.1250	.91077
Learners background affecting teaching average	4.1217	.58534

The overall mean of 4.1217 showed that teachers frequently believed that learners' background affected their learning. The teachers were expected to know their children's' background well in order to know how to handle them. Teachers were required to know their students, their backgrounds and their cultural links. Knowing students well allowed teachers to figure out their strengths, thereby helping them to move forward (MacGillivray and Rueda, 2001).

Research question two: To what extent do teachers use teaching materials in the implementation of differentiated instruction?

Table 5 below showed the extent to which teachers use teaching materials in the implementation of differentiated instruction. The table revealed that teachers frequently used Universal Design for learning to increase flexibility in teaching and decrease the barriers that limit access. Teachers also assessed learners by measuring their knowledge and skills through tests, they used different materials to improve learners reading skills and they used charts to identify what learners know, what to know and what they learnt about with means of 3.8921, 4.4523, 4.564 and 4.2033 respectively. The low standard deviations for the items above showed that the teachers were homogeneous in their responses. The mean of 3.0207 showed that materials were occasionally available in all subjects and they were heterogeneous in their responses with the standard deviation of 1.1918.

Table 5: Teaching based on use of teaching materials available

Item	Mean	Std. Deviation
I use Universal Design for learning to increase flexibility in teaching and decrease the barriers that limit access	3.8921	.91103
I assess my learners by measuring their knowledge and skills through tests.	4.4523	.85074

I use different materials to improve learners reading skills	4.4564	.77940
I use charts to identify what learners know, what to know and what they learnt about.	4.2033	.83426
Learning materials are available for learner in all subjects	3.0207	1.19181
Assessment of learners using teaching material average	4.0050	.54770

The overall mean of 4.0050 revealed that teachers were frequently base their teaching on use of teaching materials Rose& Meyer (2002) revealed that the research behind differentiated instruction and then intersection with Universal Design for Learning (UDL), a curriculum designed approach was to increase flexibility in teaching and decrease the barriers that frequently limit access to materials and learning in classrooms.

Research question three: To what extent do teachers enjoy administrative support?

Table 6 below showed the head teachers' efforts in supporting differentiated instruction in the school. The table revealed that head teachers frequently and strongly supported differentiated instruction, provided sufficient resources, clearly and constantly communicated with teachers on Continuous Professional development and the need to upgrade their qualifications, and helped to create a positive classroom atmosphere that was qualitative for teachers and pupils with means of 4.3734, 3.5685, 4.4149 and 4.3444 respectively. The low standard deviations showed that the teachers were homogeneous in their responses. The head teachers very frequently encouraged teachers to extend their knowledge with the mean of 4.6375.

Table 6: Administrative support by head teachers

Item	Mean	Std. Deviation
My head teacher strongly supports differentiated learning.	4.3734	.92284
My head teacher encourages teachers to extend their Knowledge.	4.6375	.70700
My head teacher provides sufficient resources.	3.5685	1.04307
My head teacher clearly and constantly communicates with teachers on Continuous Professional Development and the need to upgrade their qualifications.	4.4149	.94540
My head teacher helps to create a positive classroom atmosphere that is qualitative for teachers and pupils.	4.3444	.92740
Administrative support by head teachers average	4.0050	.54770

The item on provision of sufficient materials indicated high standard deviation of 1.04307 which showed that teachers were heterogeneous in their responses. The overall mean of 4.0050 showed that teachers frequently enjoyed administrative support by head teachers in implementation of

differentiated instruction. According to Tomlinson (1999), to successfully implement differentiated instruction in our schools, two events must occur. First, universities must develop pre-service programs that provide prospective teachers a meaningful understanding of the elements of differentiated instruction. Second, school leaders must provide all teachers encouragement, support, and nurturing—all delivered through effective professional development that was founded on competent training and effective mentoring and that was conducted by experienced, skilled professionals.

Research question four: To what extent is the implementation of differentiated instruction affected by the teaching based on learners' background, use of teaching materials, and administrative support.

The regression tables below showed the extent to which the implementation of differentiated instruction is affected by the teaching based on learners' background, use of teaching materials, and administrative support. The model summary, Table 7a showed the regression analysis on the extent to which the implementation of differentiated instruction was affected by demographic characteristics.

Table 7a: Model summary

Model	R	R Square	Adjusted R Square					
				R Square Change	F	df1	df2	Sig.
1	.525 ^a	.275	.272	.275	88.092	1	232	.000
2	.613 ^b	.376	.370	.101	37.227	1	231	.000

a. Predictors: (Constant), administrative support

b. Predictors: (learner backgrc

From ANOVA table

a. F = 88.092, Sig = 0.000

c. F = 37.227, Sig. = 0.000

The table above revealed that administrative support and teaching based on learners' background accounted for 37% variance in the implementation of differentiated instruction. Administrative support accounted for 27.2% while learners' background accounted for 9.8%. The F values were found to be significant and regression analysis is true and not by chance. From the above explanation, it could be concluded that administrative support is very important in the implementation of differentiated instruction.

Table 7b Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
2 (Constant)	1.965	.183		10.710	.000
Administrative support average	.292	.040	.402	7.210	.000
Teaching based on learners background average	.237	.039	.340	6.101	.000

a. Dependent Variable: Implementation average

Table 7b shows that the Beta values of 0.292 and 0.237 were found to be positive an indication that the more there is administrative support and the more adequate the learners' background the better is the implementation of differentiated instruction.

According to McGraw-Hill (2005), no two students enter a classroom with identical abilities, experiences, and needs. Learning style, language proficiency, background knowledge, readiness to learn, and other factors can vary widely within a single class group. Ainslie's work (1994) discussed instruction for student groups of mixed abilities; she examined factors that determine mixed ability which included students' motivations, interests and needs; linguistic ability; general educational background; learning styles; age; external pressures and time available to study; and student anxiety. She believed that teachers needed to differentiate student instruction. Teachers who attended to those needs might first create different instruction goals for their students. To do this, one key was to know the students.

Findings

Following are the major findings from the study:

1. Teachers frequently adapted the curriculum to pupils' needs and were sensitive to learners needs. They frequently used classroom strategies in the implementation of differentiated instruction, frequently enjoyed administrative support and frequently used teaching materials although they were not available in all subjects.
2. Administrative support and learners' background accounted for 37% of variance in the implementation of differentiated instructions. Administrative support accounted for 27.2% while learners' background accounted for 9.8%. Administrative support therefore is a major factor in the implementation of differentiated

instruction. The more there was administrative support, the more the implementation of differentiated instruction.

Conclusion

It is evident from the findings of this research that differentiated instruction was implemented in most primary schools in Kabwe District. Differentiated instruction could be successful if head teachers were supportive in terms of teaching and learning materials as well as in Curriculum Professional Development Programmes. Regression analysis revealed that the more there is administrative support and the more teaching is based on learners' background, the better the implementation of differentiated instruction. It was recommended that school administrators needed to give more support in the area of resources for the successful implementation of the programme.

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