



TEACHERS' UNDERSTANDING OF CURRICULUM ADAPTATION FOR LEARNERS WITH MODERATE INTELLECTUAL DISABILITY IN ZAMBIA

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Abstract:

In recent years, curriculum adaptation in education has received consideration attention, as reflected in the viewpoints and guidelines in policies and practice in education. It is believed to have the potential of providing opportunities to learners to access quality education. Curriculum adaptation itself, involves differentiation in learning content and instructions, aimed at aiding learners learning. The study explored teachers' understanding of curriculum adaptation involving learners with moderate intellectual disabilities in Zambian primary schools. An interpretive phenomenological design supported by qualitative approaches was used. The sample size involved 15 special education teachers. An expert purposive sampling technique was used in to select participants. Data was collected using an in-depth interview guide. Qualitative data were analyzed thematically. The study revealed mixed views on teachers' knowledge on curriculum adaptation. While some teachers limited understanding to just modifying content, others saw adaptation beyond adapting subject content. They believed adaptation to include; adjusting instructional strategies, learning resources, and learning environment as well as collaboration with other stakeholders such as parents and relevant professionals to make learners learn. The study also, revealed that although some teachers did not quite comprehend it, those who did so, showed understanding through the ability to: modify instructional strategies; adjust learning materials; simplify learning content and adjusted the learning environment and provision of extra time for learning and assessment time learners learn. Teachers' understanding, however, was punctuated by several gaps: ill-preparedness of teachers, long periods of class preparation, limited base resources for adaptation and unwillingness of stakeholders to

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participate. The study recommends, upgrading teachers' understanding and skills on curriculum adaptation practices through in-house training.

Keywords: intellectual disability, special education, curriculum adaptation, teachers' understanding

1. Introduction

The purpose of the study was to gain a deeper understanding of the teachers' knowledge on curriculum adaptation in relation to the learning of learners with Intellectual Disabilities (IDs). Intellectual Disability itself, is a condition characterised by significant limitations in cognitive and adaptive behaviour functioning (American Association on Intellectual and Development Disabilities- AAID (2019); WHO (2017). It is a disorder with onset during the developmental period (ie: below the age of 18 years). The limitations in cognitive functioning include inadequacies in; reasoning, problem-solving, planning, abstract thinking, judgement, academic learning as well as social experience (AAID, 2019). The limitations in adaptive behaviour involve a wide range of activities of daily living such as language and communication, social participation, cognitive abilities, and independent living across multiple environments such as home, neighbourhood, community, school and work. Because of inadequacies in cognitive functioning and adaptive behavior, adjustments in the curriculum in areas such as; learning content, strategies and resources become necessary for learners with IDs to learn. The adaptation in the delivery of a curriculum for learners with IDs allows them to benefit from their presence in the school system (APA, 2013).

Igbokwe et al. (2014) define curriculum as the sum total of all experiences learners undergo during school life. Taneja (2012: 292) adds that "*curriculum is the totality of experiences that a pupil receives through the manifold activities that go on in the school, classroom, library, laboratory, workshop, playgrounds and in numerous informal contacts among pupils, peer, teachers, parents, family members as well community members*". Generally, the curriculum is regarded as all learning experiences a learner has under the guidance of a teacher. Sarva (2016) however, sees curriculum adaptation as an ongoing dynamic process that modifies and adapts the subject, content or methodology to meet specific learning requirements of children. Adaptation of curriculum takes into account, the use of a combined adjusted set of teaching strategies, flexible scheduling of learning, individualised instruction and tutorials. Additionally, it involves task analysis and applies cooperative learning approaches to make learners, learn (Pierangelo and Giuliani, 2008). Baine (2011) notes that curriculum adaptation includes differentiation in instructions, and assessment in order to make the curriculum more accessible to all learners.

Globally, studies on the provision of education in Hong Kong - China and Norway, show that curriculum adaptation provides increased access to learning content among learners with IDs (Zhang et al., 2014; Buli-Holmberg et al., 2014). Zhang, Wong,

Chan, & Chiu (2014) report that curriculum adaptation helps learners with IDs to develop potential at their own level. This is achieved through project learning activities and teachers adjusting content, resources and assessment approaches. In Norway, Buli-Holmberg, Nilsen, and Skjen (2014) indicate that education should be adapted to the abilities and aptitudes of individual learners. This principle is applied in an inclusive context in that adjustment in the curriculum delivery allows learners with diverse learning needs to access the content. In this regard, special education calls for a more extensive adaptation of the curriculum normally provided to ordinary learners in order to make those with learning needs access it. It involves differentiation in the curriculum implementation.

The curriculum framework in the Zambian education system before 2013 was not career-oriented, was too bookish and theoretical, with too little alienation to practical and useful skills, used a foreign language as the medium of instruction, and had a fragmentation of subjects with similar content (MESVTEE, 2013). Most educational institutions were non-productive because many children were ejected without the necessary skills because of rigidity in the delivery of the curriculum (MoE, 1996; MESVTEE, 2013). Arising from this background, Zambia being part of the global village saw the need to revise its curriculum in 2013 with a desire to localise it based on the abilities of the learners. Through the revised curriculum framework benchmarks to allow for adaptation in curriculum implementation were provided (MoE, 2013). In this regard, the curriculum framework in Zambia provided guidance on curriculum adaptation and more so for learners who cannot benefit from a general approach to curriculum delivery in schools. Among learners who were to benefit were those with IDs. The revised curriculum framework encouraged teachers to adapt the curriculum to suit learners with IDs. It is against this background the present study sought to explore the teachers' understanding of curriculum adaptation with a focus on learners with IDs in the Zambian school system.

2. Problem of the Study

One of the benchmarks of curriculum adaptation in the 2013 Curriculum Framework states that learners with IDs as well as others with severe disabilities who cannot benefit from the inclusive curriculum be provided with an adapted curriculum based on their capacities. In addition, MoGE (2016) provides inclusive guidelines with an emphasis on teachers adapting the curriculum to allow all learners regardless of disablement to access it. The Ministry of Education indicated that modifications to the national curriculum would be done by Curriculum Development Centre (CDC) in collaboration with other educational institutions such as schools, Examinations Council of Zambia (ECZ) with inputs from Civil Society Partners. The localization of curriculum at the school/classroom level is seen as the responsibility of teachers including those practicing special education (MoGE, 2016). Since 2013, studies related to curriculum delivery have been conducted in Zambia, though not quite in the context of learning of learners with IDs. A study by

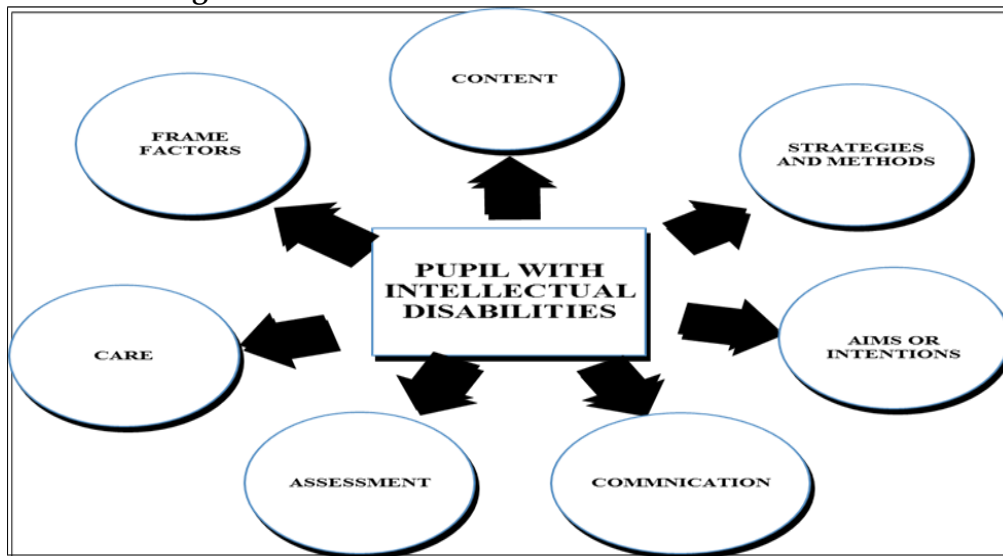
Muzata & Mahlo (2019) found that teachers used strategies such as giving extra time, giving different assessment tasks, reducing the amount of material and individualising teaching as aspects of curriculum adaptation. The study, however, was too generalized in the context of disabilities. The findings, however, were not specific to a disability group. The study did not bring out, for example, teachers' understanding of curriculum adaptation in the context of teaching learners with intellectual disabilities. Hence, the existence of a knowledge gap in teachers' understanding of curriculum adaptation in relation to the learning of learners with IDs in selected primary schools in Luanshya district, Zambia. Below are the objectives which guided the study:

- 1) Describe teachers' understanding of curriculum adaptation in study schools;
- 2) Explore teachers' understanding of the nature of curriculum adaptation done their schools;
- 3) Identify challenges (if any) in teachers' understanding of curriculum adaptation practices.

3. Theoretical Framework

In order to guide the study a Curriculum Relation Model by Johnsen (2012) was used. The model is centred on elements on which teachers base their classroom curriculum adjustments to the learning process to enable learners to access curriculum content. These elements range from; educational intentions or aims, curriculum content, instructional strategies, assessment procedures, communication styles, care during learning and contextual or frame-related factors. These elements drive the adaptation process with a view of allowing access to curriculum content by learners with diverse learning needs (Johnsen, 2012). Such elements, enable learners with disabilities to maximize access to learning content and benefit from the curriculum being exposed to them as indicated in figure 1 below. In the context of the present study, the model was seen to be relevant to provide the required guidance in that, it centres on the need to provide interventions aimed at adapting the curriculum. The theory stresses on adapting subject content, strategies and assessment processes to ease access to learning content among learners with IDs. It provides a frame of factors that have the potential of aiding learning. These elements acted as a framework on which to base an exploration of teachers' understanding of curriculum adaptations in classes for learning of learners with IDs in Zambia.

Figure 1: Elements of the Curriculum Relation Model



Source: Johnsen (2012).

4. Geographical Location of Study Site

Luanshya district is one of the ten districts in the Copperbelt Province in Zambia. The district is 35 kilometres South-West of Ndola district, the provincial capital of the Copperbelt Province. It is one of the urbanized districts in Zambia because of the copper mining activities. It boasts an area of 1, 007.6087 km², most of it being land reserves and farmland in the peripheries of the district (CSO, 2015).

The district has an estimated total population of 153,117 with an average annual population growth rate of 0.3 % (CSO, 2010). Out of this, 69% is of young people below the age of 35 with a considerable number living with intellectual disabilities. The high rate of persons with intellectual disabilities in the area has been attributed to several factors including the high copper and trace minerals such as lead in water resulting in long-term poisoning and negatively delayed or underdeveloped cognitive abilities in young children (UN Human Rights, 2016; Bwalya, 2020). In the district, the population is segregated as 75, 703 males being 49.4% of the population and 77,414 females being 50.6% of the Population (CSO, 2015). As of 2019, the population of Luanshya district had risen to approximately to 176, 798 from that of 2010 with the majority being youths. Luanshya has a high proportion of young people and a low proportion of older people. The demographic data shows that more people die in the higher age band and fewer in the low age band (Bwalya, 2020). This means that there is a high demand for school places and a considerable number seek places in classes for learners with IDs in the district. Luanshya's key economic activities are mining and agriculture. The district is endowed with Copper Ore deposits hence making mining a major economic activity. However, the district is currently working on reducing the dependency on mining as the major economic activity and as such, it is promoting diversification into other sectors especially the agriculture sector thereby making it possible for parents to support the learning of children (CSO, 2010).

5. Review of Related Literature

The review of the literature was based on set objectives. These were: teachers' knowledge on curriculum adaptation, teachers' views on the nature of curriculum adaptation and existing gaps in teachers' knowledge and curriculum adaptation practices classes for learners with IDs.

5.1 Nature of Curriculum Adaptation

According to the present study, the nature of curriculum adaptation means the type of curriculum modifications or changes teachers make to make learners benefit from classroom interaction. arising from the results, adapting a curriculum involves differentiating instruction, modifying resources, adjusting the learning environment and differentiating assessment as learners with IDs learn and make progress.

These results agree with a study by Kaur (2013) on curriculum adaptation involving learners with disabilities in India which revealed that adapting a curriculum meant modifying the content, instructional strategies, and different ways of assessing what has been learnt as well as modifying the physical and social learning environment. Al-Zboon (2022) states that teachers understand adapting instructional strategies as adjusting what should be taught, and modifying methodologies to allow whole-class learning. Manley (2018) notes adaptation as changes in the existing instructional process, for instance, adjustment to demonstration or role play, and modifying lesson presentation cues such as gestural, visual, or verbal, to stimulate learning. Further, it means diversifying the selection of groupings for instruction that is, whether, large group or whole-class instruction or one-to-one learning. It also means including a variety of small group and cooperative learning activities in the learning process. Further results indicated that curriculum modification allows pupils with IDs to experience functional academics in areas such as; reading, writing and basic mathematics.

In Africa, Wanjiku (2014) conducted a study on teaching approaches used by teachers educating learners with multiple disabilities in Kenya. The study revealed that teachers used teaching strategies such as task analysis, adjusted learning on daily living, and frequently used real objects to ensure learning. Wanjiku (2014) observes that teachers use a teaching strategy known as task analysis to break down larger tasks into specific component parts to aid learning. Through task analysis learners were taught using a variety of instructional supports, from physical and verbal prompting to observational learning to strengthen the learning process. Teachers used one step at a time approach to help support memorization, and sequencing and taught learners in small groups, or one-on-one, a situation which might not be the same in Zambian schools.

In South Africa, Adewumi et al. (2017) conducted a study on the adaptation of the curriculum for the inclusion of learners with special education needs in selected primary schools in the Fort Beaufort District. The study established that teachers used different teaching approaches, and dedicated their time to curriculum adaptation within a multi-grade teaching environment. Further, teachers applied individual work, group work,

extra work and coming down to the learners' level to accommodate or include LSEs in lessons. What was more positive about the results of their study was the ability to adapt the curriculum. Oluwale (2017) investigated the influence of teachers' insights on curriculum content and the effectiveness of inclusive education for children with IDs in public secondary schools in Oyo State, Nigeria. The results showed that effective curriculum content adaptation produces signified an effective implementation of the curriculum. Adapting curricular content involved applications such as reducing vocabulary words assigned to an individual child. Nevertheless, the study by Oluwale (2017) was pitched with a Nigeria context in mind thus, leaving a knowledge gap on the same in the context of teachers in Zambia.

In Zambia, Muzata and Mahlo (2019) conducted a study to establish teachers' knowledge on curriculum accommodation and adaptation in the context of learners with special educational needs and the strategies they used to adapt the curriculum. The study revealed that teachers used strategies such as giving extra time, giving different assessment tasks, reducing the amount of material and individualised teaching to adapt the curriculum. The study revealed that the majority of teachers who were teaching learners with special educational needs could not distinguish clearly curriculum accommodation from curriculum adaptation. The study, however, was not specific to a disability hence needs within curriculum adaptation and accommodation may differ from one disability to another.

The MoE (2017) through National Learning Assessment Framework (NLAF) reports that curriculum adaptation is seen and extended to adapting assessment practices. Adapting assessment practices refers to alterations in the way teachers evaluate the learning achievement of learners in classrooms. MoE (2017) states that school leaders and teachers ensure that all learners participate in assessments by giving everyone equal opportunities to demonstrate a level of learning progression. The Framework opined that one-size-fits-all approaches to assessment did not always provide learning achievement for learners. Some methods of assessment put learners with special needs at a disadvantage. This results in failure to recognize the abilities and inabilities of learners with special needs. Thus, special provisions within curriculum delivery like in content, strategies and resources become necessary in the learning of learners with IDs learn.

5.2 Teachers' Knowledge of Curriculum Adaptation

Al-Zboon (2022) describes the principles of curriculum adaptation. These include guidance from the general curriculum framework; familiarization with the content of prescribed textbooks; knowledge of learners and associated learning resources. Al-Zboon (2021) however reports of teachers teaching learners with IDs in Jordan exhibiting confusion in the understanding of curriculum adaptation. Firstly, teachers see adaptation as simply adjusting content in textbooks in response to learners' learning needs. Secondly, it was found that teacher participation in the adaptation of content was quite limited. They did not have the right skills to expand on the provided curriculum. Thirdly, there was a random knowledge of curriculum content changes that teachers needed to

make as well as modifications to resources, learning activities and worksheets to match the capacity of learners. Fourthly, there were no general framework documents, reference books or teacher guidebooks to help teachers understand, design, and deliver an adapted curriculum. Bright Hub Education (2016) also identified areas, where teachers showed low levels of competence in how to adapt a curriculum. This situation may be similar to teachers' understanding based on curriculum adaptation in Zambia, hence the need for the study.

In a study by Akaase (2020) on the assessment of regular teachers' comprehension of curriculum adaptation for learners with mild IDs in Nigeria, it was found that teachers had a fair knowledge about the learning of learners with IDs, but were not sure of what to adapt in the curriculum. Teachers had scanty knowledge of what curriculum adaptation meant and how it was done in practice. In a similar study Switlick (2007), it was found that teachers had low knowledge of learning environment adaptation. The study, however, acknowledged the existence of several factors that directly or indirectly affected adaptation in teaching and learning. These ranged from values, and beliefs held by teachers on adapting curriculum. Thus teachers did not seem to possess sufficient knowledge and skills to modify the curriculum to help learners with IDs develop cognitively, socially, emotionally and physically.

In Zambia, Muzata (2017) conducted a study on curriculum implementation for LSEs in inclusive and special schools. This study established a gap in the teachers' knowledge to implement the curriculum. It was found that the lack of involvement of teachers in the curriculum development process negatively affected curriculum implementation. This was in line with Akaase (2020) who indicated that teachers were key stakeholders in the whole process of curriculum development, and failure to involve them in the initial stage of curriculum development affected the implementation process. This resulted in teachers not having a sense of ownership, and making curriculum adaptation difficult. Additionally, Kaur (2013) asserts that some teachers did not have the skills in handling severe disabilities. Baine (2011) reports that teachers had difficulties in creating lessons based on individual abilities and in adhering to each child's learning needs. Teachers, therefore, faced challenges in adapting the curriculum. They were unable to deal with behavioral issues such as; restlessness, moodiness, and problems like shortness in the attention span of learners since did not have sufficient skills to make the curriculum more learner-friendly. Baine's (2011) study, however, was at the national level, it did not necessarily bring out teachers' understanding of curriculum adaptation at the school or practice level, a focus of the present study.

5.3 Challenges in Curriculum Adaptation

Faiz et al. (2019) conducted a quantitative study on teachers' insights on curriculum adaptation involving learners with a developmental disability at the primary school level in Lahore, Pakistan. The study found that lack of teacher training on how to adapt curriculum, for example, adjusting teaching materials, methodologies and handling large class sizes made learning of learners with a developmental disability rather difficult.

Some teachers blamed the government for not making proper policies on issues of curriculum adaptation. Very few special education teachers, however, were seen to give extra time and attention as an aspect of curriculum adaptation. This clearly shows that there is a gap between the expectations of curriculum adaptation and teachers' capacity to adapt the curriculum.

In Africa, Chesaro (2020) conducted a study on challenges experienced by teachers in modifying learning among intellectually disabled learners. The study saw communication deficiency in learners which created more work for teachers in adapting the curriculum. The study called for adequate teacher support, parental support and enabling physical and financial resources to make learners with communication deficient experience school success. Udoba (2014) conducted a study on challenges faced by teachers when teaching learners with developmental disabilities in Tanzania. The study observed that local teachers in most primary schools lacked training on how to adapt a curriculum and make it more accommodating to learners with a developmental disability. The study showed that teachers were inadequately prepared for curriculum adaptation. This entails that colleges were not doing much in preparing teachers for curriculum adaptation. Despite the Primary Education Development Plan (PEDP), that ensured Education for All, the overall quality of primary education in Tanzania for learners with developmental disabilities, remained generally poor. Udoba adds that the shortages of trained teachers in Special Education and the lack of teaching facilities negatively impacted learners with a developmental disability access to curriculum provisions.

Studies by Mudenda and Nakamba (2017), and Kafata (2016) highlighted some gaps in Zambian teachers' attempt to localize a curriculum based on the guidance of the 2013 curriculum framework (MoE, 2013). The studies found that some of the gaps in the localization of curriculum were a result of: congestion in content, limited physical facilities, shortage of qualified teachers and constant changes in the language of instruction. Similarly, Ndhlovu (2008) conducted a study on the challenges faced by learners with hearing impairment in accessing education in inclusive schools in Zambia. The study reported that some classes in Zambian school system were overcrowded making curriculum adaptation quite a challenge. The study maintained the position that providing the right training in the adaptation of curriculum to teachers was paramount to creating a more responsive and adaptive curriculum. The problem of overcrowded classes and challenges of inclusion was equally cited by Mandyata (2011). He saw overcrowded classes as a barrier to successive curriculum adaptation, a basis for inclusive school practices in primary schools in Kasama district of Zambia. It was hoped that adjusting class sizes to a minimal size or acceptable standards would help to ease problems of adaptation in the curriculum to meet the learning needs of learners with disabilities such as those with intellectual disabilities in the Zambian school system.

6. Material and Methods

The study employed a social constructivism research paradigm (Denzin & Lincoln, 2011; Mertens, 2015). This paradigm was used because of its descriptive nature, focusing on the collection of in-depth data, the non-use of numbers, and its ability to ease the interpretation of data from the field or study sites. In social constructivism, researchers seek an understanding of the world in which participants live and work. Subjective meanings of the research were developed through interaction with participants in the field they live and work in order to understand the reality of curriculum adaptation. This study was informed by Post-positivism because it believes in multiple perspectives from participants rather than a single reality on phenomena such as adaptation in the curriculum (Creswell, 2014). This study employed an interpretive phenomenology research design which was supported by qualitative approaches. This research design was used because of its emphasis on the ability to construct and interpret the unspoken, unconscious, and hidden meaning that exists in the phenomenon under study (Holloway & Wheeler, 2013). It also allows a provision of a full description of data based on the views, feelings and opinions of participants.

The target population comprised special education teachers teaching learners with IDs. These were believed to have had sufficient experience in curriculum adaptation to make a meaningful contribution to the study. The sample size was 15 (4 males and 11 females) teachers of learners with IDs. There were more female teacher participants than males due to the high concentration of female teachers in urbanized areas of Zambia like the study district. This sample size was determined through the saturation point which is the cut-off point reached when responses from participants became more repetitive (Creswell, 2014). The study used expert purposive sampling techniques to select participants. This was based on the premise that participants were all experts in the teaching of learners with intellectual disabilities and were familiar with issues of curriculum adaptation.

With regard to instrumentation, an interview guide was used to generate the required data from the participants. The use of interview guides helps to explain, better understand and explore subjects' opinions, behaviour, and experiences as well as the phenomenon itself (Patton, 2013). Interview questions in particular were open-ended so that in-depth information can be collected and provide room for probing further responses of the participants (Cohen & Manion, 2005).

Data was analysed using thematic and content analysis. Data was reduced to themes or categories through the coding process (Martens, 2015). Data from interviews were coded and eventually arrived at the emerging themes. This process helped to understand and interpret teachers' insights on curriculum adaptation in relation to the learning of learners with intellectual disabilities. The qualitative raw data from interviews and field notes were subjected to a constant comparative analysis technique help to reach the most significant categories and themes of the topic under study. Creswell (2014) indicates that other considerations during thematic and content analysis

are those which relate to consistency and specificity in responses. This was achieved through probes as data was being analysed in the present study.

7. Results

7.1 Teachers' understanding of Curriculum Adaptation

The first objective is presented. Regarding teachers' understanding of curriculum adaptation in the learning of learners with intellectual disabilities (IDs), it was found that class teachers had mixed views on their understanding of the adaptation of curriculum as reflected in the verbatim below. While nine out of fifteen participants believed curriculum adaptation to be simply making changes to learning content, six out of fifteen felt, it was well beyond adjustments in the curriculum content. Those who believed in adaptation being beyond adjusting content felt, it was not just about making changes to curriculum content. They reported that it also involved adjusting instructional materials, approaches, learning environment, and assessment approaches as well as involving other stakeholders such as parents, relevant professionals like; occupational therapists, speech trainers, and educational psychologists beyond classroom practice. It was clear from the results that teacher-participants had a limited understanding of what curriculum adaptation meant in the learning of learners with IDs. It called for more than making changes to content. It implied teachers also making changes to; instructional materials, strategies, and learning environment and tapping knowledge from others in order to make learners with intellectual disabilities (IDs) learn. The study revealed that teachers felt had limited knowledge of what curriculum adaptation. Nine out of fifteen teachers indicated that it was about modifying subject-content and not necessarily about how to individualize the lesson content. Further, teachers had trouble in understanding the role of Individualized Educational programmes (IEP) in the curriculum adaptation process.

Teachers observed that designing and implementing IEP was not necessarily an act of adaptation as indicated by one female teacher participant <SCH 2 T5F> who observed:

Excerpt 1:

"Although I know how to individualize the lesson content for learners with IDs, I don't feel it is something I should always do but only when and if feel I should do".

Contributing on the same, another female teacher participant <SCH 2 T6F> had this say:

Excerpt 2:

"The only thing I also know is how to modify the lesson content to meet their learning needs, but it appears more is supposed to be done."

Arising from the results above, the study shows that nine of fifteen teachers had a limited understanding of curriculum adaptation and how it was done in classrooms. They saw it as simply changes made to lesson content. Teachers did not see for example, individualization in lesson preparation and delivery as adaptation, changes in approaches, resources, learning environment and collaboration with other stakeholders as aspects that did not amount to adaptation in the curriculum in the learning of learners with intellectual disabilities (IDs).

7.1.1 Learning Environment Adaptation

Concerning the teachers' knowledge of learning environment adaptation, the study found that teachers understood adaptation as making changes to the learning environment based on the identified learning needs. For instance, teachers re-organizing sitting arrangements to support cooperative learning, create talking walls to promote incidental learning, ensuring the safety of all learners. Further, teachers believed adapting a learning environment meant providing an enhanced learning environment that motivate learning and led to enhanced self-expression and assertiveness among learners. Supporting this view, one male teacher participant <SCH T1 M> reported that:

Excerpt 3:

"Honestly speaking I know how to organize the class for ability grouping of cooperating learning although does not see it as an aspect of adaptation but just routine. I also engage learners in one to one learning after making changes to classroom arrangement to occupy other learners. Lastly, I also intrinsically motivate all my learners in class by creating a more responsive learning environment."

Another female participant <SCH 2 T7F> reported that:

Excerpt 4:

"I know how to engage the learners' parents in providing an enhancing home-school learning environment and even ask the questions that motivate self-expression of learners with IDs. Through these changes to class practices, I make them effectively participate in learning."

Based on these results, teachers had some knowledge of what was required in the adaptation of the learning environment but not sufficient to guide effective adaptation of the environment. Teachers organized learning environments based on identified learning needs and desire to promote cooperating learning. This intrinsically helps to motivate learners. As part of learning environment enrichment, teachers modify the learning environment and choose to engage the learner's parents through home-school learning interactions.

7.1.2 Instructional Materials Adaptation

The study revealed that teachers had limited knowledge of what adaptation of learning materials was and how to modify such materials to address learning needs in classrooms. Teachers believed that they were not competent in making changes to existing instructional materials to make them relevant to the needs of learners with IDs. In support of these results, one female-participant, <SCH 1 T2F> shared that:

Excerpt 5:

"The greatest challenge is that I don't even know how best to make changes to learning materials which were intended for ordinary learners and I am required to make them useful to those with IDs. We don't have the required skills to adjust learning materials for our classes."

Additionally, another female-teacher participant <SCHT 7F> noted that:

Excerpt 6:

"At least I understand some of the changes I am required to make to instructional materials although I may not have the required competence."

It was evident from these results that, although teachers, had know-how on what was expected to be done to instructional materials to support learning in classrooms, they did not have the competence to make meaningful adaptations. Their capacity to adapt learning materials, was quite limited in that learners with IDs did not benefit much from teachers' efforts to adapt learning items.

7.2 Nature of Curriculum Adaptation

On the second objective of the study which was on teachers' understanding of the nature of curriculum adaptation done in support of learning of learners with IDs, teachers cited a variety of examples of adaptation practices. The study indicated that they adapted pedagogical approaches, curriculum content, and assessment practices and modified.

7.2.1 Adapting Pedagogical Approaches

Participants were asked to describe some of the pedagogical approaches they adapted to support the learning of learners with IDs. Teachers cited; adapted teaching methods such as demonstration, question and answer and exposition to suit the abilities of learners. Teachers also adapted teaching strategies such as: discussion, task analysis, cooperative learning, individualized learning, one-to-one learning, field trips, role-play as well as study pictures to ease learning. With regards to teaching techniques, they adapted: repetitions, pair work, storytelling, coaching, hands-on and prompts as approaches which helped to ease learning as evidenced by one female teacher- participant <SCH 2 T5F> who observed that:

Excerpt 7:

"Some of the curriculum adaptations I make in my class include making changes in teaching methods. For example, I use a variety of simplified methods such as demonstration and question and answer to help learners understand the concepts."

Contributing on the same, another female teacher participant <SCH 2 T6F> acknowledged that:

Excerpt 8:

"In my class, I make changes to teaching strategies such as discussion, task analysis, cooperative learning, individualized learning, one-to-one learning, field trips, pair work, storytelling, role-play and using pictures just to make it easier for learners to grasp the concepts I may be teaching."

Adding to the same discussion, another female teacher-participant <SCH T 5 F:> reported that:

Excerpt 8:

"There is no one teaching technique which fits all the learners with IDs, so among teaching techniques I adapt in the classroom include repetitions, coaching, hands-on and prompts. When I do these adaptations, learners are usually motivated and find it easy to learn."

Arising from these results, it was clear teachers were familiar with the nature of the curriculum expected of them in the classrooms. Teachers adapted pedagogical approaches ranging from: adapted teaching methods such as demonstration, question and answer and exposition. On strategies, teachers modified: discussion, task analysis, cooperative learning and individualization of learning. With regards to techniques, adaptation was extended to the use of: repetitions, pair work, storytelling, coaching, hands-on and prompts to aid access to the classroom curriculum.

7.2.2 Adapting Content

It was imperative to establish how subject content was being adapted by teachers. The results indicated that teachers often simplified content in ordinary books, used task analysis, set easy learning activities and ensured working with less bulky learning content as evidenced by one female participant <SCH 2 T7F> who observed that:

Excerpt 9:

"As you know there are no adapted books for learners with IDs. Therefore, we simplify the content in ordinary books to the level of the learners. We make sure that work is simplified for learners to benefit from their class experiences."

Adding to the discussion on the same, another female teacher-participant, <SCH 1 T1F> said that:

Excerpt 10:

“One example of content adaptations I make when am teaching learners with intellectual disabilities includes task analysis of the content in the subject. I do this by breaking down the content into small manageable tasks that are easily understood step by step by learners without having difficulties.”

Contributing on the same, one male teacher-participant, <SCH T6 1 M> noted that:

Excerpt 11:

“Some of the things I do in content adaptation in the class when am teaching are setting easy tasks, simplifying activities in the subject and reducing content bulkiness in the topic.”

Based on these results, it was clear that teachers make adjustments to the content when teaching learners with IDs. This included simplifying content, task analysis of the content being taught, setting easy learning activities and reducing content bulkiness in topics taught.

7.2.3 Adjusting Assessment Approaches

It was imperative to establish the assessment approaches teachers used to determine learning progress. It was evident, teachers made several provisions such as: giving extra time during exercise, tests examination, and allowing rest or break time amidst assessment. Teachers further indicated the provision of tomb stars for learners who lose concentration easily during the examination, allowing the use of calculators to aid in learning number-work and the use of human readers to read questions, and writing responses of learners during the assessment. Additionally, allowed the use of counters such as: stones, sticks, bottle top lids and tables to ease learners' work during the assessment. In her contribution, one female teacher participant <SCH3 T1F > observed that:

Excerpt 12:

“When learners with IDs are assessed in schools, teachers provide access arrangements such as the extra time during the exercise, tests and rest or break time amidst working time. This allows for compensation of any lost time.”

Adding to the same discussion, one male teacher participant, <SCH 2 T2M> observed that:

Excerpt 13:

"As a teacher I allow the use stopwatches during test or activity where learners who want to change activities are allowed to go outside the room to loiter around, take a drink and come back to continue writing the test or activity. Further, I provide what we call tomb stars for learners who loose concentration during test or activity to help them regain concentration."

A similar sentiment came from another female-teacher-participant <SCH 3 T9F> who said:

Excerpt 14:

"With permission from ECZ, we allow Human Readers to read questions and write learners' responses during examination. We also allow learners to use counters such stones, sticks, bottle top lids and tables during examination as we assess them."

Notably, teachers do adapt assessment approaches to enable an assessment to become more informative to learners. Teachers, for example, give extra time during exercise and tests, provide rest or break time amidst working time, provide tomb stars to aid concentration and where necessary employ human readers and use counters to aid assessment.

7.2.4 Increasing Learning Time

With regards to adaptation of learning time, teachers provided additional time during the assessment to make up for time lost due to disability. Learners are given additional time, learning is paced and remedial work is given as an aspect adaptation in the curriculum as evidenced by one female-participant's contribution <SCH3T1F> who said:

Excerpt 20:

"We increase the time for teaching and learning because they take long to understand the concepts. We do this by pacing learning according to the learners' abilities."

Adding to the discussion, one female teacher-participant <SCH 1 T1> reported:

Excerpt 21:

"One way we have adapted the learning time for learners with IDs is that we have allocated more time for teaching so that we may complete the work coverage in the syllabus. For example, one period is one hour instead of thirty minutes."

In support of this view, male-teacher-participants <SCH 2 T4M> noted,

Excerpt 22:

"We also create special time for remedial work to slow learners so that they move at the same pace with other learners."

In line with the above results, it was clear that teachers provide additional time in support of learning. Teachers often paced learning, allocate additional time and assisted learners through remedial sessions.

7.3 Challenges in Teachers' Curriculum Adaptation Practice

The teacher-participants were asked what they perceived as challenges in their efforts to adapt the curriculum for learners with IDs. Teachers cited several challenges: ranging from inadequate time for preparation; overcrowded curriculum; unsuitable learning environment, insufficient resources, and unsupported school administration, to the teacher competences in curriculum adaptation. These challenges were seen to have negatively affected teachers' ability to adapt curriculum more to support the learning of learners with IDs.

7.3.1 Inadequate Time for Teaching Preparation

Regarding time for teacher preparation, it was evident time was inadequate for teachers to prepare to adapt lessons and resource teaching. For instance, due to work overloads, teachers had limited time to offer remedial work. In line with results, one male teacher-participant <SCH 2 T4M> said that:

Excerpt 23:

"One of the challenges we face is limited time for me to prepare adapted lessons. Surely, we spend a lot of time to just get ready for teaching and less time to teaching and provide remedial work in my view."

Similar sentiments were expressed by one male teacher-participant <SCH 3 T8M> noted:

Excerpt 24:

"You know Sir; more time is spent on adapting instructional approaches, simplifying learning content and modifying the learning environment, leaving us with no time for remedial work."

Based on the results above, the gap arising from time negatively affected efforts to adapt lessons. Teachers spent more time preparing for class thereby remaining with less time for other supportive tasks such as remedial work.

7.3.2 Unsuitable Learning Environment

The results unveiled another gap encountered in teachers' efforts to deliver an adapted curriculum. Teachers felt that the learning environment did not support meaningful adaptation of the curriculum. Classrooms had inadequate lighting and ventilation provisions to allow meaningful delivery of the curriculum as viewed by one female teacher-participant <SCH 3 T8F> observed:

Excerpt 25:

"Most of the classroom environments were not appropriate for learners with IDs because the classrooms had inadequate lighting and ventilation that promoted learning which affected efforts to adapt a curriculum."

These results were also supported by one female-teacher participant <SCHT1F> who noted:

Excerpt 26:

"There were no talking walls in the classrooms to support international nor incidental learning as a part of the delivery of curriculum for learners with IDs."

The study showed that there were environmental-related challenges which affected teachers' ability to curriculum adaptation. These included: overcrowded classrooms, limited materials and insufficient working space to support the adaptation process.

7.3.3 Insufficient Instructional Resources

It was found that there were insufficient resources to support curriculum adaptation. Teachers were unable to secure the required instructional resources to support the curriculum adaptation process. It was reported that teachers resorted to using of unmodified resources, due to a lack of support as indicated by one female teacher participant <SCH3T9F > who asserted that:

Excerpt 27:

"Curriculum adaptation cannot be done without resources and funding. For example, we need funding to purchase materials, to improvise aids. we need learning materials such as adapted books that support the adaptation of the curriculum. However, there is no funding to do support such things."

In support of this view, one female teacher participant <SCH 1 T3F> noted that:

Excerpt 28:

"Because there is no funding to support an adapted curriculum, there are poor learning resources, inadequate books from which adaptation has to be done aid learning."

It was evident that insufficient resources led to yet another challenge in teachers' attempts to adapt the curriculum. This was a result of not having sufficient finances to aid the adaptation curriculum process. Teachers resorted to using unmodified resources to support learning.

7.3.4 Teacher Ability to Adapt Curriculum

Teachers did not seem to possess sufficient skills to adapt a curriculum. They were not quite able to modify curriculum to sufficiently support learning among learners with IDs. Teachers were not able to sufficiently adapt content, and strategies nor modify assessment practices as observed by one female teacher participant <SCH 2 T7F> who said:

Excerpt 29:

"Honestly speaking, teacher failure to adapt curriculum leads to untargeted learning for learners with IDs because teachers may not really know the specific learning needs of learners. This results in poor academic performance because teachers fail to ease access to the curriculum by adapting it."

Similarly, another female teacher participant <SCH 2 T6F> reported:

Excerpt 30:

"Let me give an example, if a teacher is not well prepared for curriculum adaptation, it increases pressure on such one when it came to adapting materials and strategies for learners."

It was evident from the results, teacher ill-preparedness affected the adaptation of the curriculum in learning of learners with IDs. Because of this, untargeted learning was quite common in the learning of children.

8. Discussion

Teachers' understanding of curriculum adaptation, results indicated that teachers had a mixed view of curriculum adaptation. While some felt it was just about adjusting curriculum content, others believed it was far beyond content adjustment. It also involved making changes to instructional strategies, and the learning environment and working with stakeholders like parents and relevant professionals. The majority of teachers acknowledged had limited knowledge of what curriculum adaptation was about and how to carry it out. Teachers interpreted it as only content adaptation, the process included: individualization of learning, adjusting instructional strategies and creating a responsive learning environment. These results were in line with Akaase (2020), who saw teachers have a fair knowledge of adapting curriculum content. However, not quite informed on how to adapt learning environment and instructional materials needed to

be done. Similarly, Manley (2018) reported that, in many local school settings in Jordan, teachers were not familiar with the localization of the curriculum. In line with the results, Caengolosi (2015) adds that teachers ought to possess adequate knowledge and skills to meaningfully adapt in relation to the cognitive, social, emotional and physical development of children.

With regard to teachers' understanding of learning environment adaptation, the study found that most teachers had good knowledge about learning environment adaptation. They were able to organize classrooms, use cooperating learning, and engage learners in one-to-one learning. Further, some teachers knew how to enhance home-school learning by engaging parents of learners with IDs. These results were in conformity with Switlick (2007), who reported several factors influence teachers' ability to adjust children's learning. The study saw: values attached to learning, beliefs on learners' ability and learners' ability to socially interact with others people.

On teachers' insights about instructional materials adaptation, the study found that some teachers had limited knowledge on how to make materials relevant to the learning of learners with IDs. The majority of teachers did not have sufficient competence to rightfully adapt instructional materials. These results were in line with Al-Zboon (2021), who noted teachers exhibiting confusion on the adaptation of the curriculum. Teachers consider curriculum content adjustment as the only component of curriculum adaptation. Additionally, Mutugi (2018) found that there were inadequate and ordinary instructional materials. Teachers did not know how to adjust them to suit the learning needs of learners with IDs. Mandyata, & Kamukwamba (2018) on the use of sign language as a language of instruction in learning of learners with hearing impairment, reported a lack of competence in how to modify essential instructional materials and communicate information to support the learning of children to support their cognitive, emotional and social development.

The results of the second objective revealed that curriculum adaptation took many forms. Teachers reported being involved in adapting content, instructional approaches, learning materials, simplifying learning environment and assessment although not quite competent. These results were not quite different from those of Brunsting, et al. (2014), who indicated that teachers did not have enough knowledge and skills to adjust instructional strategies or make necessary changes to support learning.

With regard to pedagogical approaches teachers adapted in classrooms, the study revealed that teachers to a certain extent adapted teaching methods such as demonstration methods, question and answer and exposition to suit learners. Teaching strategies such as discussion, task analysis, cooperative learning, individualized learning, one-to-one learning, and field trips were somehow modified. Teaching techniques like pair work, storytelling, role-play and picture study were employed to ease learning. Additionally, teachers adjusted teaching techniques such as repetitions, coaching, and hands-on and instructional prompts to make them suitable for learners with IDs. These results did not agree with Bohning (2009) who found that teachers had sufficient skill to adapt instructional approaches. They had skills to effectively adapt curriculum, use

cooperative learning, and peer tutoring to allow smooth learning to occur in classrooms, unlike in the present study where teachers were found not to have such skills. In the current study, teachers were not exposed to how to adapt pedagogical approaches during initial training.

Concerning the nature of adaptation made to assessment practices, the study reported that teachers gave additional time during assessment, provided rest or break time amidst assessment and simplified test items. Additionally, teachers allowed the use of human readers to read questions and write for learners unable to do so during tests. Teachers allowed learners to use counters such as stones, sticks, bottle top lids, tables and basic calculators to aid assessment. These results were not quite different from Dettmer et al. (2009) in Mzizi (2014), who reported that assessment practices were adapted to match with abilities of learners. For instance, instead of writing down answers, a learner was encouraged to respond verbally and progress determined in the process. This was in agreement with the results of the present study.

On the nature of instructional material adaptations teachers made to support learning, the study found that teachers often used real or concrete objects, adapted contents in books, improvised instructional materials and created talking walls to ease learning. These results were consistent with Wanjiku (2014), who found that teachers used a variety of learning aid in adapted formats to support learning. Based on these findings, it was clear, use of real or concrete objects, adapted book content and local materials from the environment helped to motivate learners with IDs in classrooms. These findings are in line with Janney & Snell (2013)'s work which saw curriculum adaptation as a means to make curriculum flexible in the classroom. This incorporated making class layout, furniture and sitting arrangements, lighting, and ventilation supportive of learning.

With regard to research objective three, it was found that there were gaps in the manner teachers adapted the curriculum for learners with IDs arising from several challenges. Teachers did not seem to have enough time to complete syllabus content, ill-prepared teachers, had less time preparing for class, the learning environment was learner-unfriendly, instructional resources were inadequate and supervisors and parents were not actively involved in teachers' attempts to adapt the curriculum. As a result, teachers were not able to make the curriculum more accessible to learners with IDs as equally reported by Asaju (2015), who said, teachers were not competent to adequately adapt the curriculum hence learners hardly accessed the curriculum.

Inadequate teacher competence in adapting the curriculum was one of the identified gaps in the adaptation of the curriculum. The study found that teachers had limited skills in localizing a curriculum. Teachers were not able to modify the curriculum. The ill-prepared teachers could not effectively simplify strategies and assessment practices to aid learning resulting in untargeted learning. This was in line with Faiz, et al. (2019) who noted the lack of teacher competence in the adaptation of curriculum as a drawback to making children learn.

9. Conclusion and Recommendations

Considering the results of the study presented, although may not be generalizable, it is fair to argue that results represent a significant portion of understanding of teachers' knowledge on curriculum adaptation in the context of learning of learners with IDs in Zambia. It is evident teachers have mixed views on their knowledge of curriculum adaptation practices. While few teachers believed curriculum adaptation was just about simplifying curriculum content, most of the teacher-participants felt the practice was far beyond simplifying curriculum content. They felt it calls for competence and skills in adapting instructional methods, strategies and techniques to make curriculum accessible to learners with IDs. Teachers' understanding of curriculum adaptation however, has been met with several gaps created by; insufficient resources, ill-preparedness of teachers, the presence of unsupportive school administration, and inadequate collaboration with parents and relevant professionals to make learners with IDs learn in the Zambian school system.

Based on the results of teachers' understanding of curriculum adaptation presented, the study recommendations:

- 1) Schools provide capacity-building programmes on curriculum adaptation to teachers.
- 2) Teachers form, 'teacher-to-teacher support groups' to share information and learn from each other how to adapt the curriculum to support the learning of learners with IDs.
- 3) Ministry of Education should facilitate a regular supply of resources to support adaptation of curriculum in schools.
- 4) It is equally important to sensitize school administration, parents and relevant stakeholders on the value of an adapted curriculum for learners with IDs.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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