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EDUCATIONAL PROVISIONS FOR LEARNERS WITH DOWN SYNDROME IN EFFIDUASE-ASHANTI

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EDUCATIONAL PROVISIONS FOR LEARNERS WITH DOWN SYNDROME IN EFFIDUASE-ASHANTI

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A thesis submitted to the School of Graduate Studies in partial fulfilment of the requirements for the award of the degree of Master of Philosophy (Special Education)

Department of Special Education
Faculty of Applied Behavioural Sciences in Education

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DECLARATION

Student's Declaration

I, Eric Adjei, declare that this thesis, with the exception of quotations and references contained in published works which have all been identified and duly acknowledge, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

Signature: ……

Date: ……

Supervisor's Declaration

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of thesis as laid down by the University of Education, Winneba.

Dr. Mrs. Florence Akua Mensah (Supervisor)

Signature: ……

Date: ……

DEDICATION

To my nephews and nieces: may this work inspire you to pursue and achieve your own greatness.

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ABSTRACT

This study examined the educational provisions provided by behavioural specialists (special educators) for learners with Down syndrome at the unit school in Effiduase-Ashanti, Ghana. Despite inclusive education policies, a critical gap exists in understanding how specialists navigate resource scarcities and the limitations of multidisciplinary collaboration in peri-urban settings. This study was necessitated by the need to identify these provision gaps to inform more effective local educational interventions. Adopting a qualitative paradigm with a multi-method research design while using phenomenological approach, data were collected from three specialist facilitators using semi-structured interviews and analyzed interpretively. Findings revealed that, facilitators relied on rigorous improvisation due to severe inadequacies in both human and material resources. Furthermore, the Individualised Educational Programme (IEP), which ideally requires a multidisciplinary team, was limited to facilitators and parents, excluding key professionals. Such gaps hampered the progression of learners toward eventual self-actualization. This study concluded that, educational provisions for learners with Down syndrome at the Methodist Basic Unit School are currently inadequate due to a significant gap between policy and classroom practice. The evidence showed that, these provisions are hindered by a lack of multidisciplinary collaboration in IEP development and a severe shortage of specialized material and human resources. To bridge this gap, the study advocates for mandated multidisciplinary IEPs, the provision of multi-sensory resources, and regular in-service training. Ensuring these specific provisions are in place is essential for the functional independence and equitable educational outcomes of these learners.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Down syndrome is a genetic condition caused by the presence of an extra copy chromosome 21, which affects cognitive development, learning, and social interaction (Centers for Disease Control and Prevention, 2023: World Health Organization, 2023). Limited access to appropriate educational support further constrains learners' ability to acquire functional and independent living skills (Westwood, 2018). Neurologically, individuals with Down syndrome exhibit structural brain differences, including a significant smaller cerebellum, which has been associated with challenges in motor coordination and cognitive processing (Printer et al., 2001).

Globally, the incidence of Down syndrome is estimated to range between 1 in 1,000 and 1 in 1,100 live births, with approximately 3,000 to 5,000 children born with the condition each year (World Health Organization, 2023). In addition to cognitive delays, individuals with Down syndrome presents with concomitant disorders or conditions such as hearing impairment, visual disorders, congenital heart defects, gastrointestinal anomalies, and thyroid dysfunctions (Bull, 2020: National Institutes of Health, 2022). These medical and developmental challenges highlight the need for comprehensive educational and multidisciplinary support system to enhance learning outcomes and overall quality of life. The right quality education for all learners, regardless of their developmental challenges, is a cornerstone of global and national educational framework. According to the United Nations Convention on the Rights of Persons with Disabilities (UNCRP, 2006) and the Sustainable Development Goal 4 (SDG 4), education system must be inclusive and equitable (United Nations, 2015). In Ghana, the Inclusive Education Policy (Ministry of Education Ghana, 2015)

reinforces this mandate, asserting that every learner, including those with Down syndrome, deserves an enabling environment tailored to their unique cognitive and social needs. However, a significant gap remains between these policy aspirations and the classroom realities faced by learners with Down syndrome in Ghana's unit schools (Ametepee & Anastasiou, 2015; Anthony, 2011).

Quality educational provision for learners with down syndrome requires a specialized pedagogical approach that addresses their unique learning profiles, such as slower processing speeds and specific speech and language delays (Fidler, Most, & Philofsky, 2009; Chapman & Hesketh, 2000). Previous studies have highlighted that, while physical access to schools has improved, the quality of instructional support often remains inadequate (Florian & Black-Hawkins, 2011). In many African context, learners with intellectual disabilities face systemic barriers, including a lack of standardized curricula and inadequate specialized training for facilitators (Wanjiku et al., 2022; UNESCO, 2020). In nations such as Zambia and Nigeria, the absence of robust educational structures has often led to special schools functioning as transitional spaces rather than centers of active learning (Philanthropic Circuit, 2017; World Bank, 2018).

In the Ghanaian context, although there is growing awareness of the need to support learners with down syndrome (Benin, 2023), there remains a dearth of empirical research focusing on specific instructional gaps in rural and peri-urban districts such as Effiduase (Ametepee & Anastasiou, 2015). The problem is not the condition of down syndrome itself but rather deficiencies in the educational ecosystem specifically the lack of multi-sensory instructional resources, inconsistent implementation of

Individualised Educational Programmes (IEPs), and the absence of a multidisciplinary approach to learner support (Mitchell, 2014; Westwood, 2018).

Preliminary observations at the Methodist Basic Unit School revealed that formulation of IEPs was often a fragmented process. Instead of a multidisciplinary team involving medical practitioners, psychologist, and behavioral specialist, the responsibility frequently falls solely on facilitators and parents. Research indicates that effective IEP implementation requires collaborative input from multidisciplinary professionals to adequately support learners with developmental disabilities (Friend & Cook, 2017; Mitchell, 2014). This exclusion of professional expertise limits the holistic development of the learners. Furthermore, the scarcity of material resources forces behavioral specialist into rigorous improvisation, which, while commendable, cannot replace the need for standardized, multi-sensory teaching aids essential for cognitive development (Westwood, 2018).

The inadequacy of these provisions creates barriers to learners' progression toward self-actualization and vocational independence. Studies on inclusive education emphasize that access to support services, adaptive resources, and skilled facilitators is critical for improving the life outcomes of learners with intellectual disability (Florian & Black-Hawkins, 2011; UNESCO, 2020). There was, therefore, an urgent need to investigate the specific educational provisions available and the challenges facilitators face in delivering quality instruction. This study was necessitated by the need to bridge the gap between the theoretical promises of Ghana's Inclusive Education Policy and the practical instructional needs of learners with Down syndrome. Driven by these systemic challenges, the research sought to examine the educational provisions in Effiduase-Ashanti, focusing on how improved resource

allocation and multidisciplinary collaboration can maximize cognitive outcomes and functional living skills from these learners.

1.2 Statement of the Problem

Despite the robust frameworks established by the Inclusive Education Policy (2015) and Sustainable Development Goal 4 (SDG 4), which mandate equitable and quality educational provisions for all, a significant gap exists between these policy aspirations and the classroom reality in Effiduase-Ashanti. While international guidelines, such as those by SCoTENS (2008), advocate for a comprehensive, multidisciplinary approach to supporting learners with intellectual disabilities, the actual educational provisions for learners with Down syndrome in this school remained profoundly inadequate and fragmented.

The problem was three-fold, reflecting the core objectives of this study. First, there were severe scarcity of material and human resources. Research had suggested that without specialized teaching and learning materials (TLMs), such as multi-sensory tools and tactile aids, the cognitive development of learners with Down syndrome was significantly hindered (Westwood, 2009). At the Methodist Basic Unit School, the absence of these resources forced special educators into unsustainable, ad-hoc improvisations that failed to meet the complex developmental needs of the learners.

Second, the implementation of Individualised Educational Programmes (IEPs) was found to be technically flawed and non-inclusive. Instead of the multidisciplinary collaboration required by professional standards, IEPs in this school were developed in isolation by facilitators and parents, excluding critical expertise from medical practitioners and therapists. This narrowed approach ignored the concomitant health

and behavioural conditions associated with Down syndrome, thereby undermining the learners' potential for gradual progression.

Third, there was a lack of current specialized instructional strategies and regular professional development for facilitators. Without targeted training of national and international standard, educators were unable to effectively adapt curricula or manage the unique social-interactional challenges these learners faced. Consequently, the education provided was often custodial rather than transformative, failing to equip learners with the functional and vocational skills necessary for future self-reliance.

Since these multidimensional gaps in educational provision spanning resource allocation, IEP implementation, and professional collaboration remained unaddressed, learners with Down syndrome in Effiduase-Ashanti continued to face educational stagnation. This study was therefore necessitated by the urgent need to identify these deficiencies and provide empirical evidence for more effective, life-oriented educational interventions.

1.3 Purpose of the Study

The purpose of the study was to examine educational provisions made for learners with Down syndrome in the form of an Individualised Educational Programme (IEP), human resource as well as material resource at the Methodist Basic Unit School, Effiduase-Ashanti.

1.4 Objectives of the Study

The objectives of the study were to:

1. examine how an Individualised Educational Programme (IEP) is implemented to support learners with Down syndrome in the school.

2. ascertain the support offered by Facilitators to learners with Down syndrome during instructions.
3. explore the specific material resources provided to learners with Down syndrome.

1.5 Research Questions

The researcher used the following questions to guide the study:

1. How is an Individualised Educational Programme (IEP) implemented to support learners with Down syndrome in the school?
2. What are the supports offered by Facilitators to learners with Down syndrome during instructions?
3. What are the specific material resources provided learners with Down syndrome?

1.6 Significance of the Study

The study unveiled how an Individualised Educational Programme (IEP) is implemented to support learners with Down syndrome, unearthed the supports offered by facilitators during instructional hours to learners with Down syndrome, and explored the specific material resources provided learners with Down syndrome.

Nonetheless, the research work will enormously help maximise the cognitive function of learners with Down syndrome to a threshold and minimised significantly their inappropriate behavioural patterns if all recommendations are holistically practiced. This unequivocally, will reduce the burden their parents as well as persons within their immediate and wider environment had been going through.

Undoubtedly, the role of the researcher, contributed to knowledge with the various gabs addressed on, on the related literature and brought to light the efficient and effective approaches on current studies as stated with the intuition that, learners with Down syndrome nationwide will eventually lead independent lives and contribute their quota to national development. It is the believe of the researcher that, this research would create more awareness among professionals to undertake further research work on "most current educational provisions" with the suggestions for future recommendations made concerning the learners with Down syndrome.

1.7 Limitation of the study

Some factors constrained the scope and findings of this study. First, the small sample size of three (3) special educators, while providing deep and rich data, meant the findings were specific to the Methodist Basic Unit School and could not be statistically generalized to all unit schools in Ghana. The insights gained reflected the unique socio-economic and instructional realities of the Effiduase-Ashanti district.

Second, the study relied heavily on self-reported data from interviews. Although the researcher used observation to triangulate the findings, there was a possibility of participant bias, where facilitators might describe their instructional "improvisations" or IEP challenges in a way that aligns with social desirability.

Lastly, the lack of a full multidisciplinary team at the research site meant that the researcher could not interview medical specialists and other allied health professionals (like neurologists, audiologists, cardiologists, and speech therapists or psychologists respectively) who are theoretically part of the IEP process. Consequently, the study was limited to the perspectives of facilitators and parents, which did not, capture the full clinical dimension of educational provision for learners with Down syndrome.

1.8 Delimitations of the Study

This study was delimited to the educational provisions for learners with Down syndrome within the Methodist Basic Unit School in Effiduase-Ashanti. Geographically, the scope was confined to this specific unit school to allow for an in-depth, qualitative exploration of instructional realities in a peri-urban setting in the Ashanti Region.

Thematically, the study focused on three primary areas of educational provision: the implementation of Individualised Educational Programmes (IEPs) on the collaborative involvement of multidisciplinary teams, and the adequacy of specialized human and material resources. It does not extend to other forms of intellectual disabilities or mainstream inclusive schools, as the intent was to highlight the unique challenges faced by behavioural specialists in a specialized unit environment.

In terms of participants, the study was delimited to three (3) purposefully selected special educators. These individuals were chosen because of their direct, daily experience in providing instructions to learners with Down syndrome, which ensured the generation of rich, representative data relevant to the study's objectives. While focusing on a single institution may limit the generalisability of the findings to all schools in Ghana, this boundary was necessary to provide the detailed, context-specific insights required to understand and improve local educational interventions for these learners.

1.9 Operational Definition of Terms

The following terms were operationally defined based on their specific application within the context of this study:

- **Down Syndrome:** In this study, it refers to the specific group of learners at the Methodist Basic Unit School who present with delayed cognitive development and unique social-interactional needs requiring specialized educational interventions.
- **Educational Provisions:** This refers to the full range of support systems including human resources (specialists), material resources (multi-sensory tools), and instructional frameworks available to facilitate the learning of students with Down syndrome.
- **Individualized Educational Programme (IEP):** This is the written, tailored instructional plan developed for each learner with Down syndrome to outline specific learning goals, required accommodations, and the progress of the learner over a school year.
- **Behavioural Specialists:** These are the trained special educators or facilitators responsible for partaking to designing, and implementing instructional and behavioural strategies to manage the unique developmental challenges of learners in the unit school.
- **Multidisciplinary Team:** In the context of this research, it refers to a collaborative group ideally comprising teachers, parents, medical practitioners, and therapists who work together to design and review a learner's educational and health goals.
- **Multi-sensory Resources:** These are teaching and learning materials (TLMs) that engage more than one sense at a time (visual, tactile, auditory), such as

real objects, pictorial cards, and textured materials, used to enhance comprehension for learners with Down syndrome.

- **Human Resources:** This refers to the in-service training, with reference to specialized personnel's including speech therapists, medical professionals, and behavioural facilitators, whose expertise are required to design and implement effective educational interventions for learners with Down syndrome
- **Unit School:** This refers to the specialized educational setting (specifically the Methodist Basic Unit School) designed to provide focused support for learners with intellectual disabilities within a larger basic school environment.

1.10 Organization of the Study

The researchers study had five chapters of which the first chapter (chapter one) dealt with the introduction, statement of the research problem, purpose of the research, research objectives, research questions, significance of the study, delimitation, limitations as well as definition of terms of the study. In chapter two, the researcher reviewed related literature, and theoretical and conceptual framework in focus. In chapter three, the researcher looked at the various methodologies and techniques which included the rational and assumption for qualitative paradigm as an Interpretivist with phenomenology (philosophical position and research approach), multi-method research design, population and sample, sampling and sampling procedure: purposive sampling, instruments for data collection (naturalistic observation, observation with audio-visual materials, documentary analysis/records and interview), data collection procedures, trustworthiness (credibility, transferability, dependability and confirmability), and ethical issues. The researcher's chapter four presented the analysis and discussion of the data collected from participants through

the semi-structured format which was used to collect data for the research work. The last of the research chapters dealt with summary, conclusions and recommendations.

CHAPTER TWO

REVIEW OF LITERATURE

2.0 Introduction

This chapter presented a review of literature related to the educational provisions for learners with Down syndrome. It established the theoretical and conceptual foundations of the study while synthesizing empirical evidence to contextualize the instructional realities at the Methodist Basic Unit School. The review was organized into four thematic areas: the theoretical framework anchoring the study, the conceptualization of educational provisions, a critical reviewed of Individualised Educational Programme (IEP) implementation, and an analysis of human and material resource supports. Ultimately, this chapter identified the gaps in current scholarship that this research aimed to address.

2.1 Theoretical Review

The researcher related the topic**:** Educational Provisions for Learners with Down syndrome in Effiduase-Ashanti to the theory from around the World, Africa to Ghana, on;

2.1.1 Theory of Teaching Strategies on Learners with Down syndrome:

Theoretical Review

The above was supported below with the related theory specifically for learners with Down syndrome on captions of fifteen (15) teaching strategies specifically from The Positive Action which included; Develop an Individualised Educational Programme (IEP) to manage the specific needs of each learner with exceptionality, Recognise their strength so far as level of cognition is concerned, Use clear and simple language to aid learners understand what is taught them, Break task into smaller steps for easy understanding and accomplishment through task analysis, and leverage visual support

for the learners to be able to discriminate and relate what is taught them in realism, Incorporate multisensory learning for the learners to manipulate the objects where concrete/real objects are used**,** Reinforce positive behaviour to enthuse the learners, Establish classroom routines to help learners to adjust to the system, Encourage positive peer interactions to learn from each other, Impact practical life skills to adjust to societal activities, Modify learning materials to suite instructions, Use adaptive technology to aid instruction through manipulations, Involve parents and guardians since there is the need collaboration and continuum of provision, Collaborate with specialist and Integrate Social and Emotional Learning (SEL) into the curriculum to help review IEPs to enhance learners level of cognition. A few are briefly explained with other authors' aligned theories expressed below as:

Teaching children with Down syndrome can be fulfilling, according to Positive Action (2023), if educators employ strategies that suit their unique learning preferences hence, it is critical to keep in mind that every student with the illness is unique, and that the issues they face may vary greatly based on how you address them. An individualized approach to each student's education is called an Individualized Educational Program (IEP). Learners with Down syndrome can receive specialized assistance from facilitators to reach their maximum potential (Brittany & Cal, 2024).

Finding and utilizing the strengths of children with Down syndrome is crucial for their educational achievement, according to Positive Action (2023). Pupils with Down syndrome struggle to grasp complex concepts and pick up new terminology (Action Sen, 2022). The Positive Action (2023) study stated that as speech and language development is one of the main issues that learners with Down syndrome face,

teachers should speak to them in plain, uncomplicated English. According to Hookways (2024), in order to help learners with Down syndrome learn, innovative approaches that make use of visual aids like charts, drawings, and symbols are needed. According to Positive Action (2023), teachers should divide tasks into smaller, more manageable portions to help learners with Down syndrome learn. Teachers can assist students in completing their assignments by providing them with material in digestible chunks (Westerman, 2023).

2.1.2 Conceptual Framework

The conceptual framework of this study (Figure 1) was grounded in the premise that the quality of education for learners with Down syndrome was a product of systemic synergy. At the core of this synergy was the Individualised Educational Programme (IEP), which served as the blueprint for instruction. However, as illustrated in the framework, the IEP could not function in a vacuum; its effectiveness was contingent upon the availability of Material and Human Resources. These resources provided the multi-sensory engagement necessary for cognitive development in learners with Down syndrome. Furthermore, the framework highlighted Multidisciplinary Collaboration as a critical success factor, bridging the gap between home-based support and school-based interventions. When these components IEP, Resources, and Collaboration aligned, they facilitate a transformative learning environment that moves the learners toward the ultimate outcome of Self-Reliance and Social Competence.

The figure below depicted The Conceptual framework: The Theory of Teaching Strategies “captured” for the learners with Down syndrome.

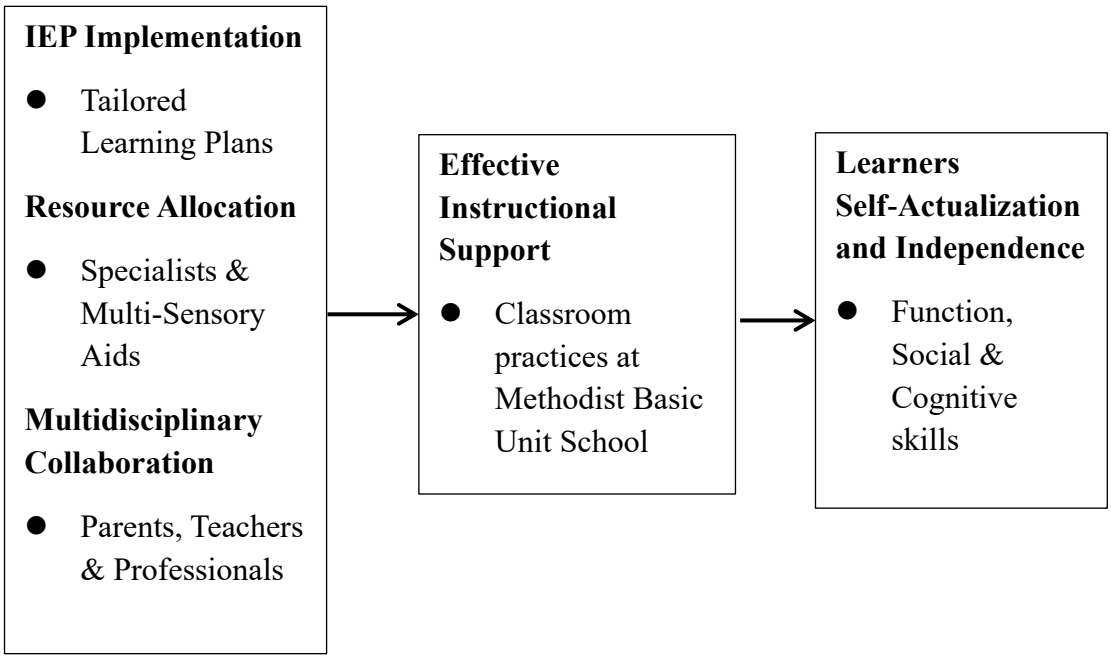

Figure 1: Conceptual Framework

Source: Author's Own Construct (2025)

2.2 Approaches to Some of the Findings from the Current Studies on the Provisions Employed on;

2.2.1 Conceptual and Empirical Review: How an Individualised Educational Programme (IEP) is Implemented to Support Learners with Down Syndrome in the School.

According to scholarly works (Srivastava 2024; & SCoTENS, 2008), individualised educational programs can significantly improve the academic performance of learners with Down syndrome if they are properly implemented, given adequate resources, and subject to on-going review and modification. The collaborative nature of these programmes ensures a comprehensive approach to education that is responsive to and adaptive to individual needs, involving parents, specialised facilitators, medical specialists, and students with Down syndrome themselves. Facilitators should also be patient while working with children with Down syndrome because their condition

makes it difficult for them to learn and remember new things. Facilitators must concentrate on their strengths, which may include creativity, robust interpersonal skills, or perseverance, as they possess unique challenges and distinguishing attributes (Action Sen, 2022 & Positive Action, 2023). Facilitators should talk to learners in simple, clear English when they add hands-on learning to visual instruction. They shouldn't utilize extended phrases or hard words. They should also use gestures, pictures, and repetition to help learners learn new speech and language skills and understand them. These strategies for visual learning also include using visual aids and combining visuals with spoken and written words to assist learners understand. For example, using visual timetables or visual aids to show learners how to complete tasks every day (Westerman, 2023; Positive Action, 2023). Several authorities (Westerman, 2023; The Positive Action, 2023; & Hookway, 2024) have also said that breaking down complicated instructions into smaller, repeatable steps is good for learners with Down syndrome because it helps them understand and remember better. This is because these learners may find complicated tasks scary, and individualized accommodations make the learning environment fit each learner's needs. It's also vital to be explicit about each stage, applaud their success, and support them when they need it since positive reinforcement is a fantastic method to keep kids in the classroom and get them to participate. Hookways (2024) also suggested that teachers should assist learners celebrate little triumphs, like “Did they finish a task?” because every win is important. You're doing great! Signifies you're making progress. Giving them positive feedback on a regular basis and celebrating their triumphs might make them feel better about themselves and want to learn more. Because of this, facilitators should be clear in their praise of the learners, pointing out what they did well and how they made a difference (Positive Action, 2023).

Multi-sensory learning experiences, however, are often beneficial for learners with Down syndrome because using multiple senses can improve comprehension and memory. When feasible, incorporate interactive lessons, manipulatives, and hands-on activities. For instance, when teaching Functional Arithmetic, facilitators must use tangible objects like blocks or beads to make counting tangible so that learners can understand numerical concepts through sight and touch (Positive Action, 2023 & Hookways, 2024). However, Hookways (2024) asserts that because adaptive technology devices like tablets facilitate learning, they can save lives. Accordingly, integrating adaptive technology into the classroom can raise engagement levels among leaners with Down syndrome. In a similar vein, applications and customized software can assist learners with Down syndrome with many learning tasks, including reading and work organization. Speech-to-text software, interactive learning applications, and communication devices can assist learners better express themselves and obtain knowledge, according to Positive Action (2023).

Classroom stereotypes may cause students with Down syndrome who are struggling emotionally to be neglected while integrating Social and Emotional Learning into the curriculum. Accordingly, Positive Action and other Social and Emotional Learning (SEL) programs can be a beneficial supplement to the curriculum for learners with Down syndrome. These programmes emphasize the development of interpersonal skills, empathy, and self-awareness, among other qualities. By including SEL exercises into the curriculum, facilitators can support learners in developing healthy relationships, controlling their emotions, and interacting with others. Learners who participate in these activities not only perform better academically but also feel better overall and interact with others more positively. Furthermore, facilitators must set

aside these preconceptions and regard every learner as a unique person with feelings and a unique personality (Active Sen, 2022 & Positive Action, 2023).

Many academics (Positive Action, 2023; Hookways, 2024; Westerman, 2023) concur that visual aids improve comprehension for learners with Down syndrome. However, opinions vary on whether multimodal or pictorial approaches are more successful. Furthermore, the "SCoTENS" (2008) found that learners with Down syndrome have academic characteristics such as strong visual awareness and visual learning skills, a desire and ability to learn from peers, delayed gross and fine motor skills (which can lead to difficulties with writing and using scissors, for example), visual and hearing impairment, speech and language delay that affects comprehension and expression, poor short-term auditory memory, and a short attention span. A home/school diary system is used by many special schools, allowing parents and instructors to record information and provide daily progress reports. This implies that in order to support the learning of learners with Down syndrome, parents and educators must collaborate. This is because it enables parents to communicate with one another and participate in the process of establishing plans and goals for education. facilitators can better adapt their classes to meet the needs of each learner by using the valuable information that parents can provide about their learner's likes, dislikes, and skills and weaknesses (Positive Action, 2023 & "SCoTENS," 2008). Specialists including behaviour analysers, occupational therapists, and speech therapists can often be helpful to learners with Down syndrome. In order to create a comprehensive support plan that addresses each learner's needs, it is crucial to collaborate with these experts (SCoTENS, 2008). Maintaining regular contact with experts can also assist in monitoring progress and modifying instructional strategies (Positive Action, 2023).

Given that language development has a significant impact on practical skills and motor development, it is evident that learners with Down syndrome will often struggle in this area. For this reason, facilitators should position the student close to the front of the classroom, speak to them directly and clearly, and use simplified language with visual reinforcement whenever possible. Learners with Down syndrome will likely enjoy reading but struggle with writing because of their weak fine motor skills and low muscle tone; therefore, including these skills in the curriculum will help learners become more independent as they grow into adulthood ("SCoTENS," 2008 & Positive Action, 2023).

It's crucial to encourage excellent behaviour since learners with Down syndrome often act out to attract attention. But they could also get mad because they can't handle all the work they have to accomplish in class. Facilitators should only pay attention when learners are doing the correct thing and the material is good for them. So, specialists can use the following strategies in relational play and building: putting one object on top of another to motivate the learner; introducing objects of different shapes to gradually make things harder; developing the concept and language of "above," "below," "under," and "on top of"; generalising by shapes and sizes; using floor play, such as building with shoe (or larger) boxes, cushions, and pillows; and taking into account audio versions of text (Positive Action, 2023; Nock, 2018 & "SCoTENS", 2008). Students with Down syndrome can improve their memory, attention, and focus by doing things like making dens inside and outside, rolling and sliding things like balls, cars, and marbles of different sizes down slopes through tubes and tunnels, and changing the slope angle to change the speed of the object (Nock, 2018). The Down Syndrome Association (2022) says that gestures and signals are less permanent than

pictures and objects, but they are highly significant for helping learners with Down syndrome learn to talk because they are also helpful.

Giving learners a variety of experiences with toys and objects that have different effects and ensuring that they react well to light touch, as well as providing them with books that have lift-up flaps or windows for peeking through, toys that pop up, and toys with push or slide buttons that light up and make interesting sounds, are all excellent instructional strategies. Since there is frequently a degree of social immaturity, teachers should set high behavioural expectations for learners with Down syndrome (just as they should for other students) and provide them with opportunities to socialize and form friendships with other learners. They should also educate them to share and take turns. Basic norms should be reinforced by facilitators (managers), particularly at the start of the year when habits are created (Nock, 2018 & "SCoTENS," 2008).

Facilitators should use large letters, straightforward language, and unambiguous images in printed materials, according to Positive Action (2023). This is because meeting the needs of learners with Down syndrome necessitates altering their learning style. The use of bubbles, water pistols, and other water-based activities, as well as simple wind-up toys, is all enjoyable and motivating implementational strategies that allow learners with Down syndrome to compare the sound and reaction effects of dropping and throwing different objects, such as dropping a feather and dropping a ball (Nock, 2018). Personalized adjustments can also make learning easier and more enjoyable for these learners, according to Positive Action (2023). Learners with Down syndrome frequently struggle to understand fundamental math concepts, categorization, cardinal/ordinal, and conservation, according to the 2008 "SCoTENS"

report. Facilitators should keep their courses brief and engaging, emphasize arithmetic in real-world contexts (such as spending money), review and reinforce previously taught material, emphasizing fundamental abilities and comprehension of basic functional math terminology. In order to effectively use the IEP to help learners with Down syndrome, the Touch-Type Read and Spell (TTRS) (2025) states that, the specialist facilitators must: make learning enjoyable and give learners opportunities to succeed to keep them motivated; keep in mind that instruction will likely be given to visual learners who struggle with executive function skills; encourage learners to repeat materials outside of class to help them remember; create a safe and judgment-free classroom environment and facilitate peer interactions through group work; ensure that there are no distractions and break down instructions and tasks into steps; teach organizational skills and maintain communication with parents and family support teams; and, finally, accommodate physical impairments, motor skills difficulties, and learning difficulties. Additionally, because it helps them remember things, repetition is a fantastic learning strategy for learners with Down syndrome. Asking learners to repeat things back to you also helps them learn new words and improve their speech (Action Sen, 2022).

Nock (2018) asserts that visual-spatial short-term memory surpasses verbal memory in the context of working memory. This suggests that the learning profile has strong points in visual processing and learning. Facilitators should always include tasks that involve all three senses, as well as gross and fine motor skills, in any intervention programme. This is because learners with Down syndrome require as many three-dimensional and multisensory activities as they can obtain. To help learners understand numbers, special educators need to use real things when they teach functional arithmetic. Most learners with Down syndrome have to put in more effort

than their peers to achieve similar outcomes in class. They require a lot of support, praise, and encouragement to stay on track. They may also need extra aid to succeed if they are given unique tasks just for them (TTRS, 2025). School administrators can be the most significant aspect of a learner's education by making the school a good place to study, directing, supervising, and organizing staff (including learning and specialty staff) (Faragher et al., 2020). Because of this, all learners with Down syndrome should be able to do well in school if they have the correct help (Down Syndrome International, 2024). It is important to understand that a one-size-fits-all strategy does not work for learners with Down syndrome because each learner has their own strengths and weaknesses. As a result, facilitators need to be flexible in their teaching style and make small changes and personalized concessions to meet the needs of each learner. Some learners may do better with a peer buddy or a facilitator's helper to help them, while others may do better with different assignments or tests. A flexible and personalized approach, as proposed, ensures that every learner can progress at their own pace and realize their complete potential (Westerman, 2023).

Empirical studies across diverse educational contexts have demonstrated that effective implementation of Individualised Educational Programmes (IEPs) plays a critical role in enhancing the learning outcomes of learners with Down syndrome. For example, Alfaraj and Kuyini (2014) studied how technology is used to support learners with Down syndrome in Saudi Arabia. They found that facilitators believed technology improved communication and literacy, but poor training and a lack of suitable resources made it difficult to use effectively. This shows that facilitators need both the right skills and enough resources for IEPs to work well. In Kuwait, Almoghyrah (2021) studied how facilitators understand and use IEPs for learners with Down syndrome. The study revealed that facilitators valued IEPs but often struggled to

apply them in classroom teaching. Regular training and teamwork among facilitators and specialists were recommended to improve implementation. Similarly, Devenish et al. (2023) in the United Kingdom surveyed facilitators and facilitating assistants about their experiences of supporting learners with Down syndrome. Although they supported inclusion, they faced challenges such as limited planning time, unclear job roles, and little support from school leaders, which affected how well IEPs were carried out. Ceylan et al. (2014) tested a parent-involved teaching approach for learners with Down syndrome in Turkey. Their findings showed that when parents actively participated in IEP activities, learners improved more in communication and social skills. This indicates that parents play a key role in the success of IEPs. In another study, Al-Qahtani (2015) explored Saudi mothers' views and found that many parents were not fully included in educational planning. This made it difficult for them to understand their learner's learning progress. The study suggested that involving parents more closely in IEP planning and review can lead to better outcomes. Turner and Alborz (2003) studied teachers in England and found that while they supported including learners with Down syndrome in mainstream classrooms, they needed clearer guidelines and better teaching materials. Boundy et al. (2025) also found that learners with Down syndrome learned and remembered new words better when teaching followed structured, repetitive methods similar to those used in IEPs. This shows that consistent and personalized teaching helps learners achieve more.

Moreover, Boundy et al. (2025) investigated how retrieval practice aided in the acquisition of new words by learners with Down syndrome. 11 learners with the disease, ages 8–13, and 11 usually developing youngsters, ages 4–6, made up the sample. They both had similar receptive vocabulary abilities. Additionally, using retrieval or restudy strategies, participants were taught a series of new words and their

explanations (Boundy et al., 2025). After five minutes and then a week later, learning was evaluated. The impact of learning circumstances on recognition and recall was examined using mixed effects models. The results showed that, in both participant groups, the retrieval condition significantly improved recall accuracy for novel terms compared to the restudy condition, and this effect persisted after a week. According to Boundy et al. (2025), learners with Down syndrome preserved a significantly higher number of meanings for these phrases than those in the review; this effect was not significant for learners who were typically developing. In three studies, Mosse et al. (2011) matched persons with Down syndrome aged 11–17 with those with usual development ages 15–24 for receptive vocabulary. The studies focused on the acquisition of new words, some of which required phonological production. Participants in the three trials were given paired association word and non-word learning tasks that required them to remember new character names. There was no indication of a word learning deficit linked to Down syndrome, even with the required level of phonological representation (η(2)(p) for the main impact of group at 0.03, 0.11, and 0.03, respectively). Learners with Down syndrome learnt more new words than their verbal short-term memory would have indicated, according to research by Mosse et al. (2011).

Overall, these studies show that successful IEP implementation depends on several factors: teacher training, school support, family involvement, and enough teaching resources (Devenish et al., 2023; Faragher et al., 2020). When facilitators are trained, parents are involved, and schools provide needed support, IEPs can help learners with Down syndrome develop academically, socially, and emotionally.

2.2.2 Conceptual and Empirical Review: Supports Offered by Facilitators to Learners with Down Syndrome During Instructions

According to the Down Syndrome Association (2022), some strategies to help learners with Down syndrome succeed in school include: creating and supporting environments where they can learn by imitation; incorporating daily practice of specific skills into enjoyable classroom activities; organizing activities that become ingrained in the child's routine; promoting positive behaviour and friendships; and making adjustments that capitalize on the learner's strengths while also addressing their weaknesses. In 2024, Hookway Peers are terrific allies if they obtain aid. Group activities and buddy systems might assist kids in forming these bonds. They will learn how to be patient, collaborate with others, and support one another through these exercises. For learners with Down syndrome, the term “developmentally delayed” is inaccurate since they learn differently. According to Down Syndrome Ireland (2025), understanding the advantages and disadvantages of this learning style will help learners advance and facilitators create activities that are appropriate, relevant, and helpful for the learners. Facilitators can create alternate programs that encompass the entire curriculum as a result (Down Syndrome Association, 2022).

Since bold, bright colours are preferable to pastels, even if the learner does not require glasses or is wearing the appropriate ones, learners with Down syndrome can benefit from assistance with their vision and other health issues by using large print with good contrast (18–20 pt) font size, black on white, and clear, colourful pictures (Down Syndrome Ireland, n.d. & Down Syndrome Association, 2022). For this reason, facilitators must also be aware of the health issues associated with Down syndrome. Since many behaviours observed in the classroom may be related to health or medical difficulties, it is beneficial to use shorter sentences to clarify lessons and to

provide ample opportunities for learners with Down syndrome to practice and reinforce what they have learned (Westerman, 2023 & Faragher, 2022).

Additionally, the Down Syndrome Association (2022) discussed how visual and hearing loss affects the majority of learners with Down syndrome. Learners with Down syndrome are more likely to experience visual and auditory issues, according to Westerman (2023). As a result, facilitators can assist these learners by placing them at the front of the class for better vision and hearing, supplementing spoken instructions with visual aids and simple, clear visuals, using larger fonts on the board and in hand-outs, and ensuring that learners have access to any assistive technology that may be required, such as glasses or hearing aids.

Notwithstanding, facilitators should call learners by name when giving instructions or asking questions, encourage them to wear their hearing aids if necessary, give them the benefit of the doubt if they don't appear to be listening, use visual aids to help with spoken language, such as visual timetables and pictures of the subject, teach new material in a quiet environment, and use a buddy system to ensure that learners with Down syndrome do not fall behind simply because they missed an instruction. Similar to this, it can be simpler to spot hearing issues in noisy classrooms than at home. If instructed to do so, listen to the facilitators for the hearing impaired and utilize a radio aid or sound-field system (Down Syndrome Ireland, 2020). According to the information above, this is primarily conductive loss from glue ear, or otitis media with effusion, but sensorineural loss may also be present (Down Syndrome Association, 2022). As a result, search your classroom for areas that can produce noise, like tiles, and use carpet, mats, and other materials that absorb sound to make it quieter (Nationally Consistent Collection of Data, n.d.).

In contrast to learners without Down syndrome, we now know that conductive hearing loss during the early years has a greater impact on speech and language development later on. Meeting the hearing and associated learning requirements of learners with Down syndrome is therefore much more crucial (Down Syndrome Association, 2022). It is evident that learners with Down syndrome may have thyroid, heart, and hearing issues that should be considered. By being aware of these health-related concerns, educators may make informed decisions and offer the required adjustments. By addressing these concerns in advance, educators may create a more inclusive and accessible learning environment (Westerman, 2023).

Due to issues like low muscle tone, difficulty moving their mouths, and difficulty coordinating their actions, learners with Down syndrome may struggle with speech and communication. Thus, it is imperative that learners with Down syndrome who continue to struggle with coherent speech receive on-going, high-quality literacy instruction (Westerman, 2023 & Down Syndrome Ireland, 2025). In order to help learners understand, facilitators should also give them more time to think about what they want to say, use simple, clear language, encourage nonverbal communication, such as gestures or visual aids, work with speech therapists to develop targeted interventions, and provide each learner with strategies tailored to their individual speech needs (Westerman, 2023). However, facilitators should allow learners with Down syndrome to think about word order, utilize short, basic sentences, and avoid giving directions in several sentences as a proactive approach to creating graded speaking exercises (Down Syndrome Ireland, 2025). The Down Syndrome Association (2022) suggests that this can help with awareness and production of sounds, words, and syllables. Positive Action (2023) believed that promoting friendly interactions between all learners, including those with Down syndrome, would aid in

their social development and also help to prevent bullying and discrimination, creating a safe learning environment.

Learner's excellent receptive vocabulary, in spite of the aforementioned, raises the possibility that there are relatively high expectations for learning topics across the curriculum. This is because, on average, learner's vocabulary is greater than their mastery of grammar (Down Syndrome Association, 2022). Regular feedback is necessary for learners with Down syndrome to understand their performance. They can continue if you give them thumbs up or provide a brief comment (Hookways, 2024). Thus, improving verbal scenarios that teach syntax and semantics aids in improving speaking skills (Down Syndrome Association, 2022). Selective attention is crucial for young learner or when learners may become distracted, and visual support helps to preserve and enhance it (Down Syndrome Association, 2022). This is because it helps learners improve their processing and memory abilities. Utilizing a lot of charts and vibrant wall displays is also a fantastic idea, as is making sure that hand-outs and movies with captions always have images and diagrams (Action Sen, 2022).

Facilitators should use both verbal and visual cues to assist learners retain and comprehend key concepts and lessons, according to the Nationally Consistent Collection of Data (n.d.). Working memory function is connected to mental math issues, according to the Down Syndrome Association (2022), although other aspects are also involved. Due to their difficulty reading and interpreting lengthy text passages, learners with Down syndrome benefit more from visual aids. Images and films can assist them memorize material for improved comprehension (Action Sen, 2022). It is advised that learner's learning prospects be expanded with the ability to get beyond obstacles, including utilizing a calculator or visual aids, in addition to

continuing to teach numerical skills. Learners with Down syndrome often require mental rest periods during the school day to manage cognitive fatigue (Down Syndrome Association, 2022; Nationally Consistent Collection of Data, 2022). Facilitators should anticipate presenting materials visually when working on memory, according to Down Syndrome Ireland (2019). To promote oral engagement in oral language work, facilitators will provide learners with a written question and allow them some time to consider it. Additionally, they ought to utilize lists and assist learners in creating lists or reminders, labelling books with colour coding for particular days, and promptly noting assignments-all of which are crucial.

Delays in motor development, according to Down Syndrome Ireland (2013), would restrict the learner's experiences, which would subsequently impact the development of cognitive abilities. This is because fine and gross motor skill development frequently have a direct impact on one another. The learner's ability to write (fine motor) is strongly impacted by their gross motor skills, such as sitting correctly. Therefore, before addressing issues regarding a proper pencil grip, the facilitator must ensure that the learner is sat comfortably in a solid position with their feet on the floor and their arm situated properly on the desktop. Instructors can help learners with muscle hypotonia by giving them more time to finish assignments, increasing practice opportunities, and working with physical therapists to pinpoint and meet their unique muscle development needs (Westerman, 2023). Given that learners with Down syndrome frequently struggle with muscle tone and sensory processing, it is critical for facilitators to recognize these difficulties and employ suitable interventions (Westerman, 2023). Meanwhile, according to the Down Syndrome Association (2022), young learner exhibit a particular delay in the development of gross motor skills.

Additionally, Westerman (2023) claimed that tasks that improve fine motor skills, including exercises that strengthen the wrists and fingers, are beneficial; therefore, facilitators should also provide opportunities for learners to practice self-help abilities, like button and zipper manipulation, in order to foster liberty. Thus, physical education is a vital educational goal that will support excellent health and critical life skills, and facilitators encourage active movement and participation in it. (Down Syndrome Association, 2022). This will help the learners improve their fine motor skills for writing and drawing, even though the majority will still support recording their work. Muscle hypotonia, or low muscle tone, is a typical characteristic of Down syndrome that can lead to issues with breathing, reflexes, and movement and posture, according to Westerman (2023). This is why it's critical to understand how physical characteristics and health conditions may impact academic performance. Lego and other multi-link blocks, plasticine, squeaky squeeze toys, play dough, pop-together breads, a stress ball, a bull-dog clip and pegs, a small squashy ball, and cutting practice can all be used to help learners with Down syndrome hold their pencils correctly (Down Syndrome Ireland, 2025).

On social inclusion, facilitators must create the condition in class of inclusions and also helps learners to develop their social skills since it is crucial when fostering a welcoming environment because, it is about smile, greetings, and open arms: Imagine learners walking in and seeing their names on the chalkboard, it is like saying, “You are part of this, you are welcome here”, a simple “good morning “can set the tone for the day which builds trust and connection (Hookways, 2024 & Down Syndrome Association, 2022). It is essential to maintain a good relationship with parents/carers such that everyone can work together to support learners learning as this is one of the mandates of the facilitators (Down Syndrome Association, 2022), as a result, when it

comes to pre-teach vocabulary ahead of new topics, families can support by remembering to reinforce the target words in the home environment therefore, taking time for preparation of vocabulary of new topics is one of the important ways of supporting a learner with Down syndrome to succeed (Down Syndrome Ireland, 2025). With support, building a network of parents, specialist educators and medical specialists can offer tons of support for the learners with Down syndrome most especially (Hookways, 2024).

Undoubtedly, physical health and wellness directly impact a learner's ability to succeed in the classroom hence, facilitators should be aware of any health conditions and work collaboratively with parents to provide appropriate support, additionally be attentive to changes in health or sleep patterns, as these can influence a learner's cognitive function since some learners think better on a bean bag or standing up hence, flexible seating lets them choose where they are most comfy and focused (Westerman, 2023; Hookways, 2024 & Westerman, 2023). According to Positive Action (2023), learners with Down syndrome need consistency and predictability, so creating a structured classroom routine helps them feel safe and know what to expect each day. Make a visual schedule that shows the daily activities, transitions, and breaks, and stick to it because routines help learners with Down syndrome feel more in control of their surroundings, which lowers anxiety and fosters learning. Establishing a communication book system is also an excellent idea since it gives the facilitator insight into what has transpired at home and gives parents a sense of what has happened at school (Down Syndrome Ireland, 2019). Westerman (2023) exclaimed that scheduling the most challenging academic classes or tasks in the morning is helpful because fatigue at the end of the school day can hinder information processing and recognize that non-routine activities, such as field trips or special

events, can be physically and emotionally taxing for learners with Down syndrome. Meanwhile, learners need brain breaks throughout the day, so facilitators should ensure that they schedule these into your routine as the planning and adjusting schedules accordingly can help minimize potential challenges (Westerman, 2023 & Faragher, 2022).

According to the idea that learners with Down syndrome plateau in their learning or decline is usually due to an educational programme that does not meet their individual needs since learning is a lifelong journey for them therefore, using diagrammes, images and other visual supports such as written test, to explain the lesson in a graphic manner will help a learner commit new information to memory (Westerman, 2023 & Faragher, 2022), can continue to progress and develop their skills over time, given the appropriate support and resources facilitators provide them (Westerman, 2023). Research shows that the kind of support facilitators give during lessons plays an important role in helping learners with Down syndrome succeed in school. Effective support usually includes help with communication, active parent involvement, use of visual aids, and attention to learners' health needs such as hearing and vision problems. Real-world examples of the types of assistance that facilitators provide during lessons, how they apply these supports in everyday situations, and the challenges they encounter when addressing the various learning requirements of learners with Down syndrome are included in the following section. For instance, nine of the therapies resulted in significant improvements in speech, language, and communication outcomes, according to a research by Seager et al. (2022) that examined eleven studies including learners with Down syndrome ages zero to six (0-6). Parents and therapists working together, frequently, and in natural environments were the most effective.

This demonstrates the significance of continued collaboration between educators, speech therapists, and families. However, the analysis also cautioned that further testing is necessary because the total body of evidence has a moderate to high risk of bias. In a related review, Barbosa et al. (2018) stated that this is a systematic review of published articles in PubMed, Web of Science, PsycInfo, and BVS that use the terms "assistive technology and syndrome," "assistive technology and Down syndrome," and "Down syndrome augmentative and alternative communication." The following inclusion criteria were used to select English-language publications: (1) a study of learners diagnosed with Down syndrome, and (2) an examination of augmentative and alternative communication methods and/or assistive technology in this population. Thirteen of the 1087 items that were discovered satisfied the requirements for inclusion. Speech-generating devices (SGDs) and the Picture Exchange Communication System (PECS) were the most often utilized technologies in the trials. To sum up, twelve tools that greatly improved the socialization and communication of learners with Down syndrome were found. These tools improve interactions between members of this population and their peers, which raises their self-esteem and quality of life (Barbosa et al., 2018).

Since one key area of support is communication, Romski et al. (2010) found that when parents were trained to use speech-generating devices at home with their learners, the learners developed larger vocabularies and communicated more effectively than those who only received spoken instruction. In a later study, Romski et al. (2023) discovered that parent-guided use of these devices helped learners with Down syndrome use more meaningful words without reducing their spoken language skills. These findings show that when parents and facilitators work together to support communication, learners make better progress. A review by Smith et al. (2020) also

confirmed that language and communication programs, especially those involving parents, lead to noticeable improvements in speech and understanding among learners with Down syndrome. Similarly, Moraleda-Sepúlveda et al. (2022) found that language training that encourages parent participation and repetition supports long-term learning gains. Facilitators in schools also help learners by using visual and step-by-step instructional supports. Boundy et al. (2025) discovered that learners with Down syndrome remembered new words better when teachers used repetition and allowed learners to recall what they had learned often. Byrne et al. (2002) also found that improving memory through repeated language activities helped learners build stronger reading and language skills over time. Jarrold et al. (2002) further explained that short, clear instructions, combined with pictures and hands-on examples, reduce confusion and help learners complete tasks successfully. These studies suggest that visual aids, simple instructions, and repeated practice make lessons easier to understand and remember.

Health support is another important part of helping learners with Down syndrome. Hearing and vision problems are common and can make it difficult for learners to follow lessons. Lau et al. (2015) found that many learners with Down syndrome in Hong Kong had hearing loss, yet some parents were unaware of it. They recommended regular hearing checks to ensure learners can hear instructions clearly. Fong et al. (2013) also reported that many adults with Down syndrome had vision problems such as short-sightedness and cataracts, which can start early in life. Haseeb (2022) confirmed that visual difficulties can affect learning and daily activities if not managed properly. These studies show that facilitators should consider learners' hearing and vision health when planning and delivering lessons.

In 2023, Carbone et al. investigated the dynamics of the facilitator-learner interaction with Down syndrome and how these dynamics affected socializing and learning in the classroom. 15 special education instructors from Italian primary schools who were or had been in charge of a learner with DS were included in the study (M age = 40.4; SD = 9.3). The facilitators were interviewed in semi-structured interviews there, and the data was analysed using the grounded theory method utilizing the ATLAS.ti program. Furthermore, 20 (n = 20) categories were generated by data analysis, and these were further divided into 6 (n = 6) macro-categories: (1) psychophysical traits; (2) education; (3) interpersonal factors; (4) partnerships; (5) extracurricular activities; and (6) teacher preparation. Although there are still some significant issues, the evidence indicates that learners with DS get along well with their peers. For instance, facilitators are not receiving adequate instruction on specific topics or on how to employ relationship-supporting and collaborative techniques. Additionally, there are not enough specialists on hand to assist when needed, and curricular and support instructors don't work together sufficiently. Fourteen studies, six including adults and eight involving leraners and teenagers, included the pertinent empirical evidence on physical activities, according to Merve (2025). Ten were qualitative, and four were quantitative. Transportation, people's attitudes and habits, and the availability of programs and specialized personnel were the most frequent facilitators and barriers. Only a small number of the studies (n = 9) looked at involvement in everyday activities (n = 2), leisure activities (n = 1), and community/social activities (n = 3). The majority of the research (n = 9) concentrated on physical activity participation. Although facilities and their own physical and mental characteristics were frequently cited as obstacles by learners with Down syndrome, the most frequently cited reasons

for their desire to continue being active and their interest in the activity were (Merve, 2025).

McDermott et.al., (2008) review indicated, a total of 15 learners were fitted with a Bone Anchored Hearing Aid (BAHA) between February 1992 and February 2007 with the age range from 2-15 years where a postal questionnaire was sent to each family where the Glasgow learner's Benefit Inventory (GCBI) was used in this study of which the implantation resulted in skin reactions and although other complications were recorded, quality of life after receiving a Baha was assessed with the GCBI where all 15 patients are using their Baha 7 days a week for more than 8h a day after a follow-up of 14 months with continuing audiological benefit as no fixtures were lost, and skin problems were encountered in 3 (20%), and as regarding quality of life, all 15 patients had improved social and physical functioning as a result of better hearing although, more consideration should be given to bilateral bone anchored hearing aids in this group as this study has shown a 20% rate of soft tissue reaction as maintained though, there were no fixture losses in this group. In a related study by McDermott et al. (2009), a total of 182 learners younger than 16 years old were fitted with a BAHA. Of these learners, 107 had a significant medical history, so surgery was done as a two-stage procedure in 174 learners, and the healing time was between 3 and 4 months in 112 (64%) cases. Single-stage surgery was done in 8 cases, and overgrowth of skin around the abutment caused 14% of the 230 loaded fixtures to fail, resulting in 32 fixtures being lost. Seven patients had adverse skin reactions, and after 15 years, revision surgery was needed in 14 (8%) cases to fix the problem. Five of these cases needed multiple skin reductions. According to the study, The Birmingham Program has a lot of patients with multiple medical problems. The fixture failure rate was 14%, which included learners younger than 3 years old who had multiple failures. There

was one serious complication, but overall, the BAHA is a reliable and effective treatment for some patients. Currently, 97% of learners wear their BAHA every day, which is continuing to help their hearing.

According to Roman et al. (2011), this paper examines the usage of bone-anchored hearing aids in learners. Additionally, they stated that the learner must be at least 5 years old and/or have a cortical bone thickness of at least 3 mm in order to be eligible for implantation. It is observed that, at the same rate as in people, 40% of learners under the age of five experience fixture loss, 8% of learners aged five to ten, and 1% of learners aged ten and up. Skin issues are comparable to those that affect adults and can be mitigated by educating parents and routinely monitoring the youngster. Surgery is typically performed in two steps or all at once for fixtures 4 mm or bigger. For medium-and long-term use of BAHA(®), the functional success rate was approximately 96%. After a few weeks of trial using a BAHA(®) headband with the child's active participation, BAHA(®) is suitable for youngsters with severe unilateral hearing loss. Sequential bilateral implantation appears to improve hearing in noisy environments, but it requires additional testing. Learners who have bilateral conductive and/or mixed hearing loss have shown that this hearing aid improves their quality of life and new developments in technology should lead to even greater gains.

Lastly, a real-world evidence-based study repeatedly emphasized the significance of visual and other health interventions, like treating hearing loss, for learners with Down syndrome. The study examined by Pejovic et al. (2021) comprised three infants with Down syndrome (DS) (mean age = 6 months; age range = 5 months and 3 days to 7 months and 20 days; 3 males) and twenty-four typically developing (TD) infants (mean age = 5.25 months; age range = 5 months and 2 days to 6 months and 28 days;

16 males). The Centre for Child Development Differences in Lisbon, Portugal, is where the DS babies originated. According to clinical screening, all subjects were born at term, had normal hearing or little hearing impairment, and had normal or corrected-to-normal eyesight. Six of the seven infants in the DS group completed all ten trials (M = 9.28; range = 5–10). 16 of the 24 infants in the TD group provided data for every trial (M = 8.95; range = 5–10). According to the study, new-borns with Down syndrome may have difficulties with early visual attention and audio-visual speech processing, which could impede the development of their communication skills. These results provide this clinical cohort new chances for early interventions (Pejovic et al., 2021).

The effect of visual assistance in clinical appointments was examined by Harris et al. in 2025. 308 parents or guardians of learners with Down syndrome were given a survey. With a standard deviation of 4.9 years, the learner's average age was 9.1 years. The usage of visual aids during the clinical session was also examined in relation to demographics and current circumstances, such as the predominant language spoken at home, autism spectrum disorder, and hearing problems. The findings demonstrated that the use of visual aids improved the clinical experience for both caregivers (96.7%) and children with Down syndrome (89.4%).

The reviewed studies show that learners with Down syndrome benefit when facilitators combine different kinds of support communication aids, visual materials, repetition, and family involvement while also addressing health challenges. When these supports are included in classroom teaching and individual learning plans, learners can participate better, develop stronger language and memory skills, and improve their overall learning outcomes. It is critically intuitive to decipher that,

while many studies focus on supports, few assess how resource constraints in Ghana shape implementation.

In a nutshell:

> "*Tell me and I'll forget;*
> *Show me and I may remember;*
> *Involve me and I'll understand."*
> Chinese Proverb cited in The Office of Special Services (n.d)

2.2.3 Conceptual and Empirical Review: Specific Material Resources Provided Learners with Down Syndrome

A poster-sized timetable, an attendance board, a ruler, weather, unit materials, and task analysis charts that outline each step of performing self-care activities like hand washing and tooth brushing are actual educational resources for learners with Down syndrome. Books, flashcards, and other instructional resources designed for various learner types are excellent because they simplify complex concepts (Saut Socity, 2019 & Hookways, 2024). A ward bank for every reader, picture flash cards for teaching reading, workbooks and activities for functional math, such as counting money, telling time, and gathering data, and individualized reading books are also available (Saut Socity, 2019). For those with Down syndrome, smartboards are an excellent assistive device, according to the Down Syndrome Association of Greater St. Louis (n.d.). They can be configured to allow students to manipulate objects with their fingers, draw lines to link sounds or visuals to corresponding words, and utilize a mouse to hone their fine motor proficiency. A three-ring binder flipped sideways or a sloping desk can be helpful for a kid with Down syndrome who struggles with writing. According to the Down Syndrome Association of Greater St. Louis (n.d.), they can also utilize pencils that are shorter or triangular in shape to help them grip writing instruments properly.

In the encouragement on the use of technology, the use of tablets or computers vital as a result or the fact that if handwriting can be difficult from both a physical skills and executive function perspective, learners with Down syndrome should be encourage to record material so they can replay class discussions and listen to them at home, use the visual devices to take electronic notes, and employ a smartphone dictionary to provide entries that include audio and visual information (TTRS, 2025).

Learners with Down syndrome benefit from multisensory materials because they may find it easier to comprehend information presented through other senses, such as hearing, seeing, and touching. Facilitators can educate learners with Down syndrome to trace letters in the air with their hands while repeating a word aloud and gazing at a picture that illustrates its meaning, for example, rather than simply reading a word from the board. The next degree of visual assistance is provided by photographs of actual objects. Despite being two-dimensional, they accurately depict the topic of the conversation. In contrast, symbols, pictures, and line drawings made with a pencil or marker are becoming increasingly abstract. As a result, it is recommended to begin with pictures, then proceed to line drawings, and lastly to symbols (Touch-Type Read and Spell [TTRS], 2025; Down Syndrome Association, n.d.). Multisensory games can also be successful. In one exercise, a learner with Down syndrome might be asked to respond to a question, then repeat what a classmate said before moving an object, such as placing a bean in a box (TTRS, 2025).

According to Atanasova (2021), one useful skill for learners with Down syndrome is the ability to attach and remove Velcro strips from different objects or laminated images. This skill can then be used for self-care with regard to dressing and shoeing, educational picture games, visual timetables, and picture dictionaries for alternative or

supplemental communication. Since learners with Down syndrome are visual learners, the Touch-Type Read and Spell (TTRS) (2025) stated that many images are essential. Some useful options include diagramming difficult descriptions, adding more graphics to hand-outs, breaking up lengthy text passages, purchasing vibrant charts to display in the classroom, and assigning students to play video games with close subtitles to reinforce material. Additionally, it is not possible to rule out fabrics and containers that hold various materials, such as liquids, powders, sand, or colourful beads (Nock, 2018).

Enhancing textual input can be especially helpful for visual learners, and tools with large nibs and bright colours can be used for bolding, underlining, highlighting, and other formatting strategies to draw attention to important details and make it easier to recognize and absorb new information (Touch-Type Read and Spell (TTRS), 2025).

According to Atanasova (2021), learners with Down syndrome can benefit much from kitchen equipment, empty or full plates and raw veggies as long as an adult is present to supervise them and prevent them from getting into their mouths, noses, or ears. For example, flour, mashed potatoes, maize, and semolina that the learners can handle, dig into with their hands, and transfer with a spoon from one container to another. Additionally, learners with Down syndrome may benefit from the use of well-sealed drums formed from pots and pans, wooden spoons, balls, coins, sequins, and bottles that are a quarter full with rice, lentils, beans, salt, and sugar (Atanasova, 2021). Despite this, tangible items like counters and beads aid in the tactile and visual understanding of numbers for learners with Down syndrome. Percussion devices constructed or purchased from transparent, opaque containers that hold a variety of materials, such dry peas and marbles, are excellent for teaching functional arithmetic.

For learners with Down syndrome, small world toys in categories like cars (airport, garage, emergency services); and animals (polar, zoo, rain forest) are also excellent resources (Positive Action, 2023 & Nock, 2018).

Furthermore, using regular paper for taking detailed notes is beneficial because, learners with Down syndrome may struggle with executive control of working memory, which makes it difficult for them to follow directions and comprehend complex text without breaking it down into smaller parts (TTRS, 2025 & Nock, 2018).

It is unequivocal to suggest that the material resources offered to learners with Down syndrome include a wide range of toys and objects with different textures, shapes, colours, and sounds hence, the reason why Rigby (2025) exclaimed top twenty (20) sensory toys for learners with Down syndrome indicated below and appendix as;

Textured Balls:

Texture balls such as bumps, ridges or soft spikes are excellent for tactile stimulation and improving hand-eye coordination. These balls can improve sensory input through touch and help strengthen the learners grip, making them the perfect sensory toys for learners with Down syndrome.

Vibrating Pillow:

Vibrating pillow offer gentle vibrations that can be calming and soothing for learners with Down syndrome. These pillows provide tactile stimulation and proprioceptive feedback, promoting relaxation and sensory regulation. This unique sensory cushion offers a wide range of benefits, making it perfect for learners with Down syndrome.

Sensory Boards:

Sensory boards make the best Down syndrome toys because they are interactive with different textures, colours, and shapes. They encourage exploration and sensory discovery, stimulating various senses including touch, sight, and hearing. Sensory boards can help improve sensory processing skills and cognitive development-perfect for young learners with Down syndrome.

Sensory Tubes:

Down syndrome development toys, such as the sensory tubes filled with colourful beads, glitter, or sensory materials provide visual and auditory stimulation. As learners manipulate the tubes, they experience different sights and sounds, enhancing their sensory awareness and fine motor skills.

Bubble Tubes:

Bubble tubes are quite simply mesmerising, so will captivate the learner for hours! This sensory tool will create a calming visual experience with flowing bubbles and change colours. Watching the bubbles rise and fall can promote relaxation, visual tracking, and sensory integration for learners with Down syndrome.

Playdough:

Playdough is sensory-rich material that provides tactile stimulation and encourages imaginative play. Learners can squeeze, shape, and mold the playdough, enhancing their fine motor skills, creativity and sensory exploration.

Weighted Blankets:

Weighted Blankets provide deep pressure stimulation, which can be comforting and calming for learners with Down syndrome. The gentle pressure from the blanket can

help promote relaxation, reduce anxiety, and improve sleep quality, catering to the special needs of the learner with Down syndrome.

Light-Up Toys:

Light-up toys with bright colours and flashing lights can capture learner's attention and provide visual stimulation. These toys promote visual tracking, hand-eye coordination, and sensory engagement, making them enjoyable for all children, especially for those with *Down syndrome*.

Fidget Toys:

Fidget toys offer *tactile stimulation* and helps to channel restless energy or fidgeting behaviours. Items like squishy stress balls, textured fidget rings, or sensory fidget cubes provide sensory input and can aid in self-regulation for all kids, including learners with *Down syndrome* and those who experience anxiety or who have difficulties focussing.

Musical Instruments:

Looking for *educational toys* for *Down syndrome babies*? Learners with Down syndrome really love music, so incorporating music into their play time will encourage positive interactions and create a calming and happy experience for them. *Musical instruments* such as drums, xylophones, or shakers provide auditory stimulation and encourage exploration of sound. Playing musical instruments promotes sensory integration, coordination, and creative expression... not to mention the obvious-having fun!!

Trampolines:

Stimulating young learners and *toddlers with Down syndrome* by introducing a *trampoline* into their playtime routine can be hugely beneficial for their physical

development. Not only will it encourage them to be more active, but it will also improve their *gross motor skills* –plus, they will have a blast bouncing and bouncing away! *Trampolines* can offer several benefits for learners with Down syndrome.

Projectors:

This one is to be operated by adults but can be enjoyed by all! Introducing a *projector* to your learner with *Down syndrome* can be extremely rewarding, for both them and you. If you're trying to encourage less screen time but are looking for ways to keep your child stimulated and engaged, a projector is the way to go.

Wiggle Seats:

Do you have a wiggle bum on your hands? I know and understand the challenges that are faced when trying to educate *Down syndrome learner* that just won't sit still for two minutes. Have you tried the *Wiggle Seat*? The Wiggle Seat allows learners to quietly move while working, enabling them to focus, stay on track and be more productive.

Cocoon Swing:

The single *Cocoon* is perfect for those wanting to escape for some alone time whilst still being in touch with their surroundings. This makes the perfect addition to your garden for your learner *with Down syndrome* to use whilst outdoors.

Rockers:

Rockers, such as this Indoor *Large Wooden Tube Rocker* is a fantastic way to introduce movement and gentle activity to your Down syndrome learner's playtime. This specific rocker can be used as a rocking boat or a balancing beam-a versatile *sensory toy* for all young learners and *those with Down syndrome*.

Didicar:

Riding a *Didicar* helps improve both *gross and fine motor skills*. The motion of steering and propelling the car forward requires coordination, balance, and muscle control, which can be particularly beneficial for learners with *Down syndrome* who may face challenges in these areas. Learning to operate and manoeuvre a *Didicar* can boost a child's independence and self-confidence. Achieving this milestone, like mastering any new skill, can be particularly empowering for learners with *Down syndrome.*

Spinning Toys:

This visually stimulating toy will keep your little ones enthralled as they practice their hand-eye coordination and early engineering skills! Smaller intricate toys that require finer movements such as *spinning toys* like this one will aid in developing fine motor skills – which is essential for all learners, as well as those with *Down syndrome*.

Peg Puzzles:

Adding a *Peg Puzzle* to your child's play routine will not only improve hand–eye coordination but it will also promote *fine motor skills*. As the learners with Down syndrome learn to grip and grasp onto the peg pieces and fit them neatly into their shapes with their small hands, they will gain a sense of accomplishment which in turn boosts self confidence in certain abilities and tasks.

Liquid Tiles:

A wonderful *visual and tactile* experience that really will encourage your learner to move around and explore the surfaces. The bright colours and ever changing shapes within the liquid will encourage visual stimulation as well as movement and touch for *Down syndrome learner.*

Tummy Time Play Mats:

Tummy Time Play Mats are a great place to engage your baby or toddler in tummy time activities for *gross motor* development. *Play mats* also have visually engaging items, such as mirrors as well as some activities requiring *fine motor* skills such as grasp and release. *Tummy Time Play Mats* for babies with Down syndrome will help to promote exploration, *cause and effect* and body awareness in your baby.

Incorporating *sensory products and toys*, such as these mentioned into *learners with Down syndrome* which require daily routine, can enhance their sensory experiences, promote development, and provide opportunities for fun and exploration, no matter their abilities or needs because, *learners with Down syndrome* require the playful tools and toys essential for any child's growth (Rigbe, 2025).

Empirical research has shown that providing the right material resources helps learners with Down syndrome participate better and learn more effectively in school. These materials include instructional aids, assistive technologies, visual and tactile materials, and health-related supports. Studies agree that when facilitators and families use these resources appropriately, learners with Down syndrome can develop stronger language, memory, and communication skills. One key area of support is the use of instructional aids that match the learning needs of learners with Down syndrome. Byrne et al. (2002) found that using concrete teaching materials such as pictures, charts, and flashcards, together with repeated practice, helped improve reading and language skills. Similarly, Conners et al. (2008) discovered that using simple materials like word cards and short memory games improved the learner's ability to recall information. These studies suggest that instructional materials do not have to be complex or expensive; what matters is how facilitators use them to support the learner's memory and understanding.

Another group of studies focused on assistive and technological resources that help learners with Down syndrome communicate and learn more independently. Krasniqi et al. (2022) reviewed different technologies used in special education and found that, devices such as tablets, educational applications, and speech-generating devices improved learners' concentration and learning outcomes. However, the study emphasized that teachers and parents need training to use these tools effectively.

The use of visual and tactile materials also plays a key role in learning for learners with Down syndrome, who often face difficulties with verbal memory. Wellington (2011) found that visual supports such as picture symbols, large-print materials, and visual schedules made it easier for learners to understand and remember instructions. Karaaslan and Mahoney (2013) added that when caregivers used everyday objects and picture cards during teaching, learners improved in communication and social-emotional development. This means that when lessons include materials that learners can see, touch, and manipulate, understanding and engagement are improved.

In addition to teaching materials, researchers have highlighted the importance of health-related supports for learning. Learners with Down syndrome are more likely to experience hearing and vision problems, which can affect how they use classroom materials. Lau, Ko, and Cheng (2015) found that about one-third of children with Down syndrome in Hong Kong had hearing difficulties, but many parents did not know about it. They recommended regular hearing checks and the use of hearing aids where necessary. Similarly, Fong et al. (2013) discovered that adults with Down syndrome often had eye problems such as short-sightedness and cataracts, while Haseeb (2022) confirmed that these visual issues can interfere with reading and classroom learning if not corrected. These findings suggest that schools should make

sure learners have their vision and hearing checked regularly so they can benefit fully from classroom resources.

In summary, studies show that learners with Down syndrome perform better when they are provided with appropriate material resources that match their needs. Instructional aids like flashcards and charts help improve memory and reading; assistive and technological devices promote independence and communication; visual and tactile materials support understanding; and health-related aids such as hearing and vision tools ensure access to learning. Facilitators and parents therefore need to work together to use these materials effectively to support both the academic and social development of learners with Down syndrome.

Intuitively:

> *"know the person, not the disability. In fact look past the disability and you will see a person, a person who has the same thoughts and feeling as anyone else".*
> Author Unknown cited in The Office of Special Services (n.d)

2.3 Summary of Literature Review

It was revealed that, individualised Educational Programme (IEP) is a personalised roadmap which is blue-printedly towards each learner's unique needs which helps the learners with Down syndrome attains their full potentials. Additionally, scholarly works from authors maintained the IEP can improve upon the learners with Down syndromes' academic performance effectively and efficiently and formulated by the multidisciplinary team when it is continually reviewed with the needed modification it deserves.

Notwithstanding, setting up scaffolding situations through imitation, planning differentiated programmes across the curriculum, giving learners with down syndrome ample opportunities for consideration and practice, offering extra

provisions for learners with concomitant problem, and the use of visual support, helps to increase as well as sustain their selective attention. The use of plasticine, squeaky squeeze toys as well as stress balls were a few methods amongst the lot facilitators could use as practice to help their learners be able to have a firm grip of their scribbling materials while employing hands-on techniques for those with writing difficulties as part of a way of human resourcefulness. It is truism to note that, smart projectors, lumina giant bubble tubes, spinning toys, tactile balls, liquid floor tiles, wiggle seats, and spikey light-up double baton, are a few of the numerous toys on which research scholars particularly spoke about which could eminently help learners with Down syndrome in their tactile stimuli as well as their hand-eye coordination if critical provisions are made by the Ghana Education Service just as learners are using these educational materials in other countries. Despite, real/concrete materials such as vehicles-airport, garage, zoo and rain forest all in their miniature, helps learners in their relational cognition so far as the use of material resource is concerned.

In support of the above, the use of effective chalkboard illustration as well as the use of pictorials in highlighted (bright) or attractive colours which facilitators employed, appealed to the senses of the learners with Down syndrome to put-up their best during each learning process.

Similarly, the special educators' use of real and or concrete objects helps the learning process to be of great prominence to a standard. Unequivocally, since individual learners with Down syndrome are known to have great interest so far as the usage of real and or concrete objects in each learning process are concerned, this method will give the learners with Down syndrome indefatigable opportunities to dismantle and mantle the small concrete materials while with most of the real objects, they will able

to use the first sense (the sense of touch) according to empirical research, the sense of sight, the sense of smell, the sense of hearing, and the sense of taste; where they could touch objects to identify and discriminated one from the other on the roughness or smoothness of such objects, looked at the similarities and or differentials in terms of sizes and colours, get use their noses to smell the odourless or the sweet scentedness of the objects for instance; ripped orange and mango to identify differences, used their ears to listen to sounds if only the objects made sounds or noise, and used their tongues to taste edibles that will be used during the learning process after a lesson came to a close respectively. The learning processes will help aroused the learners with Down syndromes' interest to perform their best during the learning process, and help the learners acquired knowledge to their wider environment. It is imperative to identify theoretically that, teaching learners with Down syndrome is a rewarding tasks when specialists use just one of the most important roadmaps thus, the formulated IEP through implementation to each learner with such exceptionality and gain independence in this dynamic society.

Unfortunately, few studies in Ghana explore how limited resources constrain IEP implementation in rural unit schools. Conceptually and empirically, the use of the IEP, regular in-service training and multisensory material approaches would go a long way to help the learners with Down syndrome achieve their self-desire in the future. It was revealed from the research that, IEP was lacking and additionally, human resources in the form of periodic in-service training as well as highlighted multisensory materials were inadequate.

These learning provisions will unequivocally increase a bit, the learners with Down syndromes' cognition to an appreciable level and minimised their inappropriate

behavioural tendencies or brought about a “reductive in their maladjustment for adjustment”, leveragely.

Lastly, through the application of the cognitive performance tasks, learners with Down syndrome cognitive functions will increase at an appreciable level to reducing their inappropriate behavioural patterns, where in the future they will get into the world of work, contribute their quota towards the development of the nation. In summation, all the above educational provisions behavioural specialists should employ on the learners with Down syndrome, which served as “litmus papers”, and if there is a multidisciplinary team to formulate the IEP for each learner, facilitators getting in-service training and provided with adequate multisensory materials transparently in lieu with the literature, would help in the acquisition of an effective and efficient adoptational and adaptational results which when maximised to a threshold, will increase the level of cognition, minimise the inappropriate behavioural patterns and improve astronomically the social interactional abilities of the learners with Down syndrome, which will eventually help them lead independent lives in the future. Insightfully, as the research was aligned to current studies and for that matter the gabs stipulated by the researcher, there is the need for other professionals to come out with the most current provisions in the near future.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter outlined the methodological framework employed to investigate the educational provisions for learners with Down syndrome at the Methodist Basic Unit School. It described the qualitative research paradigm and the specific multi-method design used to capture the lived experiences of the participants. Furthermore, this chapter detailed the purposive sampling techniques, the phenomenological approach to data collection including interviews and observations and the interpretive procedures used for data analysis. The chapter concluded by addressing the strategies for ensuring the trustworthiness and ethical integrity of the study.

3.1 Philosophical Position

The philosophical position truly revealed the researcher's axiological declaration as a Interpretivist where realism existed and as an insider in the research where throughout the context, and for the fact that naturalistic observation involved watching facilitators and learners during lessons without interference, the researcher immersed himself in the research, critically observed his clients (facilitators) naturalistically and because audio-visual observation involved using recordings, the researcher used the audio-video recorder to record them, during facilitations where demonstrations of lessons and answering of questions, performance of group and or individual tasks, learners interactions with peers and during exhibition of behaviours all in their natural settings took place.

Notwithstanding, the researcher used the learners documentary analysis/records, critically scrutinised each one, got the needed baseline data to enhance the learners

level of cognition to reducing their inappropriate behavioural patterns efficiently and effectively to achieve the threshold as desired in the near future, when all the recommendations are fully implemented. The researcher also undertook interviews in a semi-structured format on his clients (facilitators) as prompted at the Methodist Basic Unit School, Effiduase-Ashanti.

The qualitative paradigm was in support of the assertion made by Denzin and Lincoln (2018) indicated as Denzin and Lincoln (2018) considered the philosophical assumptions (ontology, epistemology, axiology, and methodology) as key premises that are folded into the interpretive framework used in qualitative research. Similar to this, the philosophical presuppositions that underpin qualitative research include axiology, which is where qualitative researchers express their values within the study; epistemology, which reflects the researchers' attempt to become as close as possible to the participants being studied; and ontology, which deals with the nature of reality and its characteristics. According to Sarah and George (SAGE Publications, 2018), the methodological premise of qualitative research is generally described as inductive, emergent, and influenced by the researchers' experiences in data collection and analysis. Along with theories or theoretical orientations that direct research practice, these assumptions may also represent paradigms or belief systems that researchers bring to the study (Denzin & Lincoln, 2018).

3.2 Research Approach

After reviewing the literature, it became evidential that, there were some gaps which the researcher addressed to make further contribution to knowledge. From the tabular representation of the researcher’s research questions and data instruments below, all

his research questions; one (1), two (2), and three (3) attracted observations and audio-visual aids, documentary analysis/records and interviews.

Table 1: Tabular representation of my research questions and data instruments

Number	Research Questions	Data Instruments
1.	How an Individual Educational Programme (IEP) is implemented to Support learners with Down syndrome in the school.	Observation and Audio-visual aids, Documentary analysis/records and Interview
2.	Supports offered by Facilitators to learners with Down syndrome during instructions.	Observation and Audio-visual aids, Documentary analysis/records and Interview
3.	Specific material resources provided learners with of Down syndrome.	Observation and Audio-visual aids, Documentary analysis/records and Interview

Based on the tabular representation just above, it was not surprising the researcher ended up using phenomenological as the approach which was the most appropriate to his research he conducted, where solutions were found and credible findings emerging eventually.

The researcher critically and naturalistically observed his clients and used audio and video recorders to record the way they undertook facilitations and their interactions with the learners with down syndrome all in the natural settings, and also got the documentary analysis/record, critically scrutinised each one to get the needed baseline

data for the near future usage as a benchmark for the effective an efficient facilitating approaches on the learner with Down syndrome to maximise to a threshold, their cognition to minimise their inappropriate behaviours as espoused or adopted early-on, to help them achieve the ultimate goal of leading independent lives eventually in the near future when recommendations are implemented. The researcher also undertook interviews in a semi-structured way on his clients as he had already expressed above. Therefore, the researcher used the three major above mentioned qualitative data techniques, to come out with a valid and reliable data which significantly reflected in the analysis to bear positively on the overall research work.

According to The Isotope (2021), the following discussion of qualitative research is consistent with the above: In order to better comprehend their environment and interpret the findings in terms of the qualitative technique, the researcher can develop meaningful relationships with everyday people through qualitative research, according to The Isotope (2021).

Qualitative research involves gathering and analysing non-numerical data, like text, audio, or video, in order to understand ideas, viewpoints, or experiences. This helps researchers gain a deeper understanding of a problem or generate new research ideas (Bhandari 2025; Kritika, 2024). According to Kritika (2024), it encapsulates the experimental, subjective, and contextual aspects of human behaviour and perception. Flexible and reliable data gathering is a major factor in the decision to use a qualitative approach for research (Isotope, 2021).

Qualitative research, on the other hand, collects data organically occurring within its original context because it does not use any methodology or action to change the environment under study. This aids researchers in determining the meaning of various

items (Physiopedia, 2025). Thus, qualitative research captures circumstances and subtleties that are frequently lost in quantitative analysis, thereby examining the complexity of human experience and perspective. It is not only a methodological decision; it is also a dedication to examining social issues in depth, which helps researchers relate to the subjective experiences of their subjects (Lim, 2024).

Because it gives the researcher many of possibilities for gathering data using different instruments and makes it easier to confirm the authenticity of the data with other researchers, the qualitative approach is very dependable (Isotope, 2021).

By using many methods to obtain the same data, the triangulation strategy further increases the research's reliability (Isotope, 2021, cited Glesne, 2015b). A variety of data gathering techniques are provided by the qualitative approach, which greatly reduces the possibility of errors and error rates. According to Isotope (2021), it also enhances the comprehension and processing of qualitative data.

Qualitative research, according to Tenny et al. (2022), collects participant experiences, perceptions, and actions to investigate the how and why questions rather than the how many or which amount. The Isotope (2021) states that document collection, interviews, and observation are the three primary methods for obtaining qualitative data. There are numerous ways to do qualitative research, depending on the study's scope and the researcher's expertise. For instance, photographs or audio or video recordings can be used for observation or interviews.

3.3 Research Design

This study adopted a multi-method research design, specifically employing a concurrent triangulation strategy. This design was selected because it allowed the

researcher to integrate qualitative insights into the “lived experiences” of facilitators with a descriptive evaluation of instructional resources and documentary records.

The choice of this design was driven by the researcher’s immersion into the core of the instructional environment at the Methodist Basic Unit School. This immersion enabled a deep understanding of the learners' worlds, which was essential for identifying the threshold of cognitive functioning and behavioural management needed to minimize hyperactivity and improve daily functioning. By using this design, the researcher could collect diverse data points ranging from personal interviews to classroom observations and the evaluation of material resources to find practical solutions for the instructional gaps faced by learners with Down syndrome.

In alignment with the qualitative component of this research, the researcher utilized phenomenology to explore the subjective experiences of participants. As noted by Avoke (2005) and Bhandari (2025), phenomenology essentially explores “lived experiences” to comprehend the motives and modes of action from the participants' own perspectives. To achieve this, semi-structured interviews were conducted to assist participants in discussing their everyday professional lives and challenges in their own words.

Simultaneously, the researcher conducted classroom observations and document analysis to evaluate the specific educational provisions and resources available. These multiple data sources provided the “excellent answers to difficult questions” regarding how cognitive and behavioural impactation is managed in a real-world setting. This triangulation of interviews, observations, and record analysis ensured that the findings were robust and reflected the true instructional reality at the Methodist Basic Unit School.

3.4 Population and Sample

A total population of five (5) participants from the Methodist Basic Unit School, Effiduase-Ashanti were involved. The researcher's accessible group were the five (5) participants out of whom he sampled from the accessible group, three (3) participants.

3.4.1 Sample and Sampling Procedure

The sample for this study consisted of three (3) special education facilitators currently stationed at the Methodist Basic Unit School in Effiduase-Ashanti. These participants were selected because they are the primary individuals responsible for the daily educational provision, Individualised Educational Programme (IEP) development, and behavioural management of learners with Down syndrome at the research site.

The sampling procedure employed was purposive sampling. According to Creswell and Creswell (2018), purposive sampling is a non-probability sampling technique used in qualitative research to select participants who are information-rich regarding the phenomenon under study. This procedure allowed the researcher to intentionally select facilitators with specific expertise and direct experience in handling the unique cognitive and instructional needs of learners with Down syndrome. By focusing on these three key facilitators, the researcher was able to obtain the depth of data required to understand the systemic challenges and resource gaps present in the unit school.

3.5 Instruments for Data Collection

The phenomenological research, which is a qualitative method, was based on the researcher's observation, documentary analysis/records, and an interview guide, respectively:

3.5.1 Researcher's Observation

The type of observation the researcher chose was naturalistic, where naturalistic observation was made on both learners, and clients (the specialist facilitators). The researcher used audio and video recorders to record them during their lesson, as the facilitators used improvisations and limited material resource, where their learners answered questions, undertook group and personal assignments, had conversations with colleagues, and how they behaved on sport-on (naturalistic posture) in other to ascertain the degree and or intensity with which they interacted entirely, realistically. This was used as basis to bring out the real research facts. Through the researcher's observations, he was able to put himself in the shoes of his participants. This is in support of Avoke (2005) which he had maintained below as: Researcher's observation is a specific form of observation and demands first hand involvement on the medium to be used for the experiment. According to Avoke (2005), immersion in this setting allows the researcher to hear, see, and begin to explore reality as the medium behaves.

In view of the above, the researcher's observation supported research question three (RQ) indicating: What are the specific material resources provided learners with Down syndrome.

3.5.2 Documentary Analysis/Records

The half way formulated IEP, the educational/health files and exercise record books which were scrutinized to bring out valuable information to getting the baseline data on the learners with Down syndrome, to bear on the research's research work of which the focus was on the learners with Down syndrome although, their facilitators were the main clients. Documents or records of learners with Down syndrome were taken into consideration and analysed to enable the researcher understand the degree

with which they behaved. This afforded the researcher the opportunity to identify the method which he used on his clients to correspond efficiently and effectively to the right educational provisions needed. Additionally, The above was in line with what Avoke (2005,p.96) posited as documentary analysis/records include, school records, folders, registers, archival records, correspondence or official government records.

3.5.3 Interview

The researcher used semi-structured format to elicit the needed information from his clients. The interview guide was based on issues pertaining to the condition; Down syndrome, statement of the research problem, purpose of the research, research objectives and research questions. The interview was to exact the educational provisions administered to the learner with Down syndrome.

In all, three (3) as participants, went through the interview. The participants the researcher interviewed went through the one-on-one and focus group method of interviewing. The researcher's participants were three facilitators (manager) who were involved at the Methodist Basic Unit School, Effiduase-Ashanti.

Before the granting of the interview, the researcher visited the institution-the Methodist Basic Unit School, Effiduase-Ashanti, one after the other on different dates, sought permission from the authorities' concerned from the behavioural specialist: unit headteacher (supervisor), and other pre-participants who became participants where the researcher explained the purpose of the study to them and assure them of anonymity and confidentiality after which negotiation for time for the granting of the interview was reached. To ensure data integrity, the audio recordings were transcribed verbatim, and the resulting transcripts were cross-checked against

field notes for accuracy. All digital and written data were subsequently stored in password-protected folders to uphold participant confidentiality.

With the above in view, researcher's interviews to participants, answered research questions one (RQ): How an Individualised Educational Programme (IEP) is implemented to support learners with Down syndrome in the school, and research question two (RQ) thus: What are the support offered by facilitators to learners with Down syndrome during instructions respectively.

3.6 Data Collection Procedures

Data analyses refer to an enduring course carried on during the collection of data and strengthen/deepens after full data (Amjad & Muhammad, 2019). The researcher used question by question analysis. The question by question analysis was the main analytical procedure the researcher used to interpretively analyse the data for the research work. In view of this, the researcher followed a phenomenological process by typing out all interviews, word for word before reading them several times to find out key statements that showed the main ideas of the participants' experiences. Similar views were grouped into themes that explained how facilitators supported learners with Down syndrome. Comparing the differences in the responses of research participants, codes and themes were developed (Amjad & Muhammad, 2019), with similarities inclusive.

Data were collected over a period of four weeks during the second school term, where Semi-structured interviews were conducted with each facilitator in a quiet office within the school to ensure privacy and comfort. Each interview lasted between 30 and 45 minutes. Classroom observations were also carried out to capture how facilitators interacted with learners and used instructional materials. In addition,

relevant school documents such as learners' file, exercise record books, lesson plans and improvised Individualised Educational Programmes (IEPs) were reviewed to support the data gathered from interviews and observations.

3.7 Method of Data Analysis

As data were collected from the semi-structured interviews, documentary reviews were analyzed using Thematic Analysis. This method was chosen because it allowed the researcher to identify, analyze, and report patterns (themes) within the data that were relevant to the study's objectives. To ensure a systematic analysis, the researcher followed the six-phase approach as recommended by Braun and Clarke (2006):

Familiarization with Data: The researcher listened to the audio recordings repeatedly and read the field notes to gain an in-depth understanding of the participants' perspectives.

Generating Initial Codes: The audio recordings were transcribed verbatim, and the researcher began identifying and labeling significant segments of text (coding) related to IEP implementation and resource availability.

Searching for Themes: The initial codes were sorted and grouped into broader potential themes that captured the essence of the educational provisions provided.

Reviewing Themes: The potential themes were checked against the original data to ensure they accurately represented the facilitators' experiences and the observational findings.

Defining and Naming Themes: The researcher refined the specifics of each theme, ensuring they clearly reflected the study's focus on material resources, multidisciplinary collaboration, and instructional support.

Producing the Report: The final themes were synthesized with the results from the document analysis and naturalistic observations to provide a coherent narrative of the instructional reality at the Methodist Basic Unit School.

This interpretive process allowed the researcher to triangulate findings from different sources, ensuring a robust and credible analysis of the educational provisions for learners with Down syndrome.

3.8 Trustworthiness

To ensure the integrity of this study, the researcher adhered to the four criteria of trustworthiness: credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985).

The credibility of the findings was established through triangulation and member checking. The researcher triangulated data by comparing interview transcripts with classroom observations and documentary evidence. To validate the instruments (the interview guide and observation protocol), they were first reviewed by the research supervisor and a senior lecturer in the Department of Special Education at UEW to ensure the interview guides were logically aligned with the study's objectives. Furthermore, the researcher performed member checks by returning the transcribed interviews to the three specialist facilitators to verify that the transcripts accurately reflected their lived experiences. While the findings are specific to the Methodist Basic Unit School, transferability was enhanced through thick description. The researcher provided a detailed account of the research site, the participants' backgrounds, and the specific instructional context in Effiduase-Ashanti. This allows other researchers to determine the extent to which these findings might be applicable to similar unit schools in Ghana.

To ensure dependability, the researcher maintained a clear audit trail. This involved keeping a systematic record of the raw data, field notes, and the coding process used during thematic analysis. The research instrument was subjected to peer debriefing, where colleagues in the postgraduate programme reviewed the data collection process to ensure consistency and reliability in the interpretation of results. Confirmability was achieved by ensuring that the study's findings were grounded in the participants' responses rather than the researcher's biases. The researcher employed reflexivity by keeping a field journal to monitor personal assumptions. Additionally, the audit trail allows for an external review of the analysis, confirming that the conclusions are a direct product of the data collected from the facilitators and school records.

3.9 Ethical Issues

The researcher personally contacted three facilitators who were purposively selected because they worked directly with learners with Down syndrome. Each facilitator was given an information sheet and consent form explaining the purpose of the study and their voluntary participation. Relying on the previous researchers' information, the researcher used the right approaches or methods to apply on his clients which will eventually bring more positive changes to maximise at a threshold, the cognition to minimise the behavioural patterns of their learners to attain the desire result when the recommendations are put into practice. The researcher then based his test on mainly from some of the current researched facilitating techniques, upon which he interviewed three (3) facilitators for an efficient and effective result. Before the test, the researcher asked for permission as he had already indicated, from the authorities through the special educator: unit headteacher (supervisor) of the Methodist Basic Unit School, Effiduase-Ashanti, and assure them of confidentialities and anonymity of which they all agreed to.

CHAPTER FOUR

RESULTS AND DISCUSSIONS OF FINDINGS

4.0 Introduction

This chapter presented the findings, analysis, and discussion of the data collected to address the research objectives of this study. The results were derived from the thematic analysis of semi-structured interviews conducted with specialist facilitators, classroom observations, and documentary reviews at the Methodist Basic Unit School. To ensure clarity and a logical flow, the findings were organized into thematic categories that corresponded to the research questions. Specifically, this chapter explored the implementation of Individualised Educational Programmes (IEPs), the availability and utilization of instructional resources, and the nature of professional collaboration in the unit school. Each theme was presented with supporting verbatim responses from participants to reflect their lived experiences accurately.

4.1 .1 How is an Individualised Educational Programme (IEP) implemented to support learners with Down syndrome in the school?

The researcher's interview guide one, sought to enquire from the facilitators how an Individualised Educational Programme (IEP) is implemented to support learners with Down syndrome in the school. The researcher generated sub-questions as follows, with the responses from the participants on one-on-one, and focus group section as follows:

4.1.1 Theme 1: Implementation of Individualised Educational Programme

4.1.1 Interview with participants:

4.1.1 How is an Individualised Educational Programme (IEP) implemented to support learners with Down syndrome in the school?

1. **How do you implement Individualised Educational Programme (IEP) for each learner?**

Participant A stated:

> *I always follow each learners' progress by using the Individualise Educational Programme (IEP) we solely implemented with the parents, checking on the goals to make adjustments if the need arises and keep the learners' parents informed on the progress of each of their children.* (personal communication, January, 2025)

Participant B stated:

> *I implement the Individualised Educational Programme (IEP) by looking at the goals that addresses each learners unique needs with exceptionality so far as the learners with Down syndromes' conditions are concerned, coming out with innovative ideologies to meet their needs.* (personal communication, January, 2025)

Participant C stated:

> *For me, when it comes to implementation of the Individualised Educational Programme (IEP), we solely formulated with the parents whose children are with Down syndrome, I always base my policy on the use of the procedure of 'SMART' which is the specific, measurable achievable, and time-bound to support the learning needs of each learner with Down syndrome to achieve the desired goals.* (personal communication, January, 2025)

Discussions of Findings

From the semi-structured interview guide on research question one (1) sub-question one (1), on how an Individualised Educational Programme is implemented for each learner with Down syndrome, facilitator 'A' maintained, following each learners needs using the Individualised Educational Programme they and the parents whose children are with the Down syndrome formulated, by looking at the goals, make adjustments where appropriate and inform parents of progress. The findings revealed that IEPs were formulated only by facilitators and parents, lacking the recommended

multidisciplinary team approach. It is because of the absence of the medical specialists that makes the very foundation of the Individualised Educational Programme formulated and implemented by only the special educators and parents with their children with down syndrome a bit questionably and shaky.

Empirical studies by Alfaraj and Kuyini (2014), revealed teacher believed in use of technology improved communication and literacy, but inadequate training and a lack of suitable resources made it difficult to use effectively and efficiently as part of IEP intervention.

Facilitator 'B' maintained implementing the Individualised Educational Programme by looking at the goals that addresses each learner and coming out with improvisation. Facilitator 'B', expression could not hide the fact that, there is inadequate material resources hence, had to employ innovative ideas so far as improvisation is concerned, while addressing the goals of the learners. The findings revealed that, the inadequate material resources, directly and negatively affected each learner with Down syndrome due to the fact that, the use of more material resources which was not enough if available would have helped the learners to explore and accompany what is imbibe in them by their specialist facilitators.

Facilitator 'C', maintained the use of the acronym 'SMART' thus: Specific Measurable, Achievable Realistic and Time-bound as policy so far as the Implementation of the Individualised Educational Programme they solely formulated with the parents for each learner was concerned. Although a good idea, as indicated early-on, the Individualised Educational Programme should have been formulated by the multidisciplinary team which should have been the perfect way of given a very

strong foundation each child with exceptionality so far as each learner with Down syndrome was concerned.

This supports the Theory of Teaching Strategies (Positive Action, 2023), which holds that effective IEPs must be collaboratively designed by medical specialists, behavioural expects, facilitators and parents to cater for the learner's holistic development. In contrast to the theoretical expectation of shared responsibility, the Effiduase context demonstrate a fragmented approach, thereby limiting the richness of input and weakening programme implementation. Consistent with SCoTENS (2008), the absence of systematic review and adaptation of IEP targets further explains why provisions for learners with Down syndrome remained inadequate.

In conclusion, it could conveniently be stated that, the participants did their best but need more support so far as implantation of IEP for each learners' with exceptionality in concerned especially.

2. Describe each stage of implementing the Individualised Educational Programme (IEP).

Participant A stated:

> *It is my responsibility as a specialist facilitator to ensure that, the support and services enshrined in the Individualised Educational Programme (IEP) are implemented for each learner with Down syndrome through the introduction of the lesson linking up with the previous lesson, assesses learners during lesson and before coming up with summative assessment to bring a close to the each lesson. Parental involvement in the implementation of the IEP should not be left out since continuum of Provision is needed from them and as well as valuable information for considerations that will go a long way to help their children with Down syndrome.* (personal communication, January, 2025)

Participants B and C stated:

> *During the implementation of the Individualised Educational Programme (IEP), we introduce the lesson, demonstrate and allow learner to practice and assess them during and just before the lesson comes to a closure. It is our duty as a specialist facilitator to inform the learners' parents about the progress of their children specifically in meeting the goals and objectives. Additionally, if there are any changes in the formulation of the Individualised Educational Programme (IEP) which is being implemented, we will not hesitate informing the parents whose children are with the Down syndrome we have being giving instructions.* (personal communication, January, 2025)

Discussions of Findings

From the sub-question two (2) on the description of each stage of the implementation of the Individualised Educational Programme (IEP), the facilitators solely formulated with the parents whose children are with the Down syndrome, facilitator 'A' used the IEP to assess each of the learners during facilitations and came up with summative assessment before closing each lesson. Additionally, parents whose children are been taught were not left out with the implementation since there was the need for continuous collaboration so far as information was concerned. From the expressions, these were some of the duties of a behavioural specialist as stage of implementation of IEP was concerned. Empirical studies revealed that, enough teacher resources and parental enrolments are important (Devenish et al., 2023 & Faragher et al. 2020).

Facilitators 'B' and 'C' had both expressed ideology by indicating that, they introduce, demonstrate and gave other provisions at their disposal for their learners to also emulate what they had done during the lesson and just before the lesson came to an end. In addition, informed parents if changes were to be made so far as each learner was concerned on the Individualised Educational Programme (IEP) they formulated without the medical specialists.

In summation, analytically in the implementation of the Individualised Educational Programme, the participants went by the facilitation rules by introduction, learners practice, assessment and gave progress report to parents if any, on the changes on the Individualised Educational Programme they solely formulated with the parents hence, from facilitators 'A', 'B' and 'C', their expressions indicated above, clearly shows their professional competences they exhibited when it comes to teaching learners with Down syndrome.

This was aligned with the Theory of Teaching Strategies posited by The Positive Action, (2023) teaching strategies are broken down into smaller bits for easy accomplishments through task analysis though, not as international standard in perspective since each step is complement with strategic multi-sensory materials not forgetting parental involvement since there was the need for continuum of provision for their children.

Throughout the IEP implementation process, the student's requirements were taken into consideration and specific goals, modifications, and support packages were communicated. In order to support the child's learning, everyone involved must cooperate. This implies that there should be positive interactions between parents and caregivers. This collaboration involves collaborating with physicians, the school's special education team, and parents.

Creating a customized IEP with academic, behavioural, and social goals is one of the facilitators' responsibilities. In order to assess progress and make any adjustments to the procedures, they must also periodically review the IEP (Positive Action Staff, 2023; Down Syndrome Association, 2022).

According to Positive Action Staff (2023), to ensure that students with Down syndrome receive the best education possible, educators and parents or guardians must collaborate. Parents are the best people to know their child's likes, dislikes, and strengths and shortcomings. Maintaining open channels of communication and including them in the formulation of educational programs and objectives will help achieve this. This increases the training's effectiveness and personalization.

3. How do you attend to individual needs in your class?

Participants A and B stated:

> *During the instructional approach, we consider the hearing, speech and communication levels of each learner. We also demonstrate to each learner based on the level of cognition, the task, and then place the learner at the centre stage of the instruction to perform stage by stage every task while guiding them separately. We use real object to support our instructions which appeals to the various senses of each learner while we break down the teaching components into smaller bits for easy understanding.* (personal communication, January, 2025)

Participant C stated:

> *When I am undertaking instruction for my learners, I use to look at the level of cognition, speech and language development of each learner before providing practical demonstration and apply concrete or real materials for each of the learners with Down syndrome to dismantle and mantle such objects such as innovational jigsaw puzzle if the need be. Additionally, my learners go through pictorials which appeals to their various senses.*(personal communication, January, 2025)

Discussions of Findings

On the attendance to individual needs in providing facilitations to the learners with Down syndrome on the sub-question three (3), facilitators 'A' and 'B' indicated clearly that, during instruction, they consider the hearing, speech and communication levels of each learner as well as instruction to their learners. The facilitators' expression gave a fair idea of some of the support they render to learners during instructional hours.

Facilitator 'C' had almost the same support as far as attendance to learners with down syndrome are concerned by mentioning issues concerning cognition, speech and

language. Additionally, use of real and pictorials as what she does to attend to her learners with Down syndrome was not left out.

In summation, it is an undeniable fact that, each learner with Down syndrome has concomitant disability hence, was the duty of the behavioural specialists to address each of the learners needs with exceptionality, professionally and competently to address their holistic needs so far as impactation of knowledge to the learners was concerned. This was in line with The Theory of Teaching Strategies propounded by the Positive Action (2023) the integration of Social and Emotional learning although, a bit lacking at where the researcher undertook the study, and although not standardized, leverage of the learners in terms of cognition were conceded.

According to the Down Syndrome Association (2022), children and teenagers may struggle to talk fluently and effectively due to a variety of issues. Children are more prone to pronounce words incorrectly, and their speaking abilities may develop in a different, faster way. The most effective way to use graded speech activities is to be proactive, such as assisting individuals in producing and being conscious of words, syllables, and sounds (Down Syndrome Association, 2022). Facilitators give students with Down syndrome time to think about what they want to say and assist them in using simple, brief phrases. For instance, they advise children to use positive sentences, consider word order, count to ten (10) before speaking, and refrain from using several sentences while giving instructions (Down Syndrome Ireland, n.d.).

4. What strategies do you adapt to pay individual attention in your class?

Participants A, B and C:

> *We use child centred approach, peer tutoring, mixed ability grouping, role play, hands-on-techniques, repetitive learning practices, Pre-Mark and Adima principles, pictorials, concrete blocks/real object, task analysis, demonstration, guided practices, flash cards usage (number cards, alphabet cards, two and three letter ward cards) use of total communication, audio visual aids, and using of tactile visual aids.* (personal communication, January, 2025)

Discussions of Findings

From the sub-question on what strategies they adapt to pay individual attention in their class for the learners with Down syndrome, facilitators 'A', 'B' and 'C' collaboratively had the same ideology so far as strategies they adapt to pay individual attention in their classes which involves the use of concrete/real objects, use of total communication just to mention a few. What the facilitators made mentioned of in the interview clearly shows the professionalism they exhibited despite the inadequacy of some of the material resource they would have used always to enhance the fullness of their strategies during each teaching and learning processes.

In reference to the above analytically, it was evidenced that, the specialist facilitators 'A', 'B' and 'C', indicated employing all the teaching strategies they have knowledge of so are as learners with Down syndrome concerned which would go a long way to help the learners be able to adjust themselves day in and out in this dynamic society we leave in. with this in view, The Theory of Teaching Strategies according to the Positive Action, (2023) was aligned with leverage of visual support to the leaners with Down syndrome although, limited availability from my participants.

For students with Down syndrome, who learn best by seeing things, a lot of visuals are crucial. To help them learn, you can, for instance, split up lengthy text passages, add more images to hand-outs, or create diagrams of intricate descriptions. Additionally, it's a fantastic idea to use colourful charts in the classroom and to have students play video games with close subtitles to reinforce the material. Finally, students with Down syndrome can be made to feel things by creating musical instruments with bottles filled with rice, lentils, beans, salt, sugar, balls, coins, sequins, and well-sealed drums made from pots, pans, and wooden spoons (The Touch-Type Read and Spell (TTRS), 2025 & Atanasova, 2021).

4.1.2 Theme 2: Instructional Support

4.1.2 Interview with participants:

4.1.2 What are the instructional support offered by facilitators to learners with Down syndrome?

Research interview guide two sought to exact from my participants on the supports they (facilitators) deliver during instructional hours to learners with Down syndrome. The researcher generated sub-questions as follows, with the responses from my participants on one-on-one basis as follows:

1. **What instructional support do you offer to the learners?**

Participant A stated:

> *I used visual aids a lot as a form of instructional support to learners with Down syndrome. This is due to the fact that, my learners are able to relate the visual representations I use, to spoken wards or sentences they hear although, will have been great if I went through refresher course to meet international standard so far as leaners with Down syndrome are concerned.* (personal communication, January, 2025)

Participant B stated:

> *Visual aids such as coloured pictures which I use during instructional periods helps the learners discriminate between colours and objects which are drawn on big cardboards. Additionally, I use photographs which also help my learners to get clear pictorial value of my instructions. I also use lines and symbols which are drawn on the chalkboard to support my lessons. Again, I use coloured cards which are square in shape as number or word-card which I improvise.* (personal communication, January, 2025)

Participant C stated:

> *Although, I usually offer the instructional support using the visual aids by first of all relating the previous lesson to the current lesson, bring out the key letters of the alphabets for instance, for the learners to name them after I do repeatedly, then use the letter cards improvised, a visual aids to support the alphabets as well as the pictorials which aid to bring meaningfulness to the lesson, I think the authorities can periodically organize workshops so that, current teaching strategies can be used for the learners with Down syndrome specifically.* (personal communication, January, 2025)

Discussions of Findings

With research question two (2), sub-question one (1) on what instructional support they offer to the learners, facilitator 'A' expressed using visual aid a lot due to the fact that his learners are able to relate what is represented usually to the spoken language but would have been good to get refresher course to meet international standard. Empirical review from Haseeb (2022) showed that, visual difficulties ca harm learners with Down syndrome if not properly managed.

The above true because, learners with Down syndrome understand better what is taught them during instruction using one aspect as visual aid at a time, while getting current teaching strategies adopted and adapted to manage the learners effectively and efficiently.

The expression made by facilitator ‘B’ was very similar to that of facilitator ‘A’ due to the fact that, he also made mentioned of the use of visual aid which are coloured in nature. Additionally, ‘B’ used photographs, coloured cards and symbols to aid his instruction towards the learners with Down syndrome as part of his instructional support to the learners. Empirical studies revealed that, enough teacher resources as support are important (Devenish et al., 2023 & Faragher et al. 2020).

From the interview, facilitator ‘C’ used visual aids by relating it to the previous lesson to that of the present, used improvised letter cards as well as pictorials to bring realism to her lesson. Additionally the participant made mention of the fact that, the authorities can periodically come out workshops so that, current teaching strategies to be specifically for the learners with Down syndrome.

From the participant expression, it was clear that, there was the need to get updated or current way of teaching learners with Down syndrome although, the visual aid, pictorials and letter cards which were all in a form of improvisation were what she used to support her instruction for the learners.

In a nut-shell analytically, it could conveniently be inferred from the verbatim expressed by participants ‘A’, ‘B’ and ‘C’ that, getting in-service training from the Ghana Education Service periodically on current way of teaching learners with Down syndrome was excellent to complement with the use of visual aids which helped their learners relate such to words and sentences and thereby relate what they have learnt from their immediate environment to that of the wider. This was aligned with all the Theory of Teaching Strategies suggested by The Positive Action (2023) since the adoptation and adaptation of all these strategies are extremely vital but were inadequate based on the researcher’s participant’s communiqué.

Children need print and other visual materials to be larger and bolder since their eyes cannot distinguish minute details or contrast. For those that learn best visually, textual input improvement can also be very beneficial. To draw emphasis to key aspects and facilitate the recognition and assimilation of new knowledge, educators can utilize bolding, underlining, vibrant colours, and other formatting techniques (Touch-Type Read and Spell, 2025 & Down Syndrome Association, 2022). Additionally, visual aids such as lists, visual timetables, and photographs can aid with comprehension (Down Syndrome Ireland, 2025).

For students who have vision issues, a facilitator can also assess how easy it is to see the classroom's contents and suggest adjustments if necessary. Along the way, they can also ensure that all of the teachers are aware of the needs of the students. It is best to use visual aids (such as signs, gestures, pictures, numbers, letters, words, sentences, and symbols), visual-spatial aids (such as timetables, grids, movies, storyboards, charts, and other graphic organizers), and activities that allow students to copy a model in order to help them learn more effectively in all subjects. The next step up from visual support is now images of actual objects. Because they are two-dimensional and provide a realistic view of the subject matter, photographs should come before more abstract representations like illustrations, pencil or marker line drawings, and symbols. This is why it is better to begin with images, then go to line drawings, and finally to symbols (Down Syndrome Association, n.d.; Down Syndrome Ireland, n.d.).

2. Describe those instructional supports

Participant A stated:

> "*Although the material resource we have are inadequate, I try to make provisions on tactile visual aids due to the fact that, the learners are able to touch the objects which helps them to learn better."* (personal communication, January, 2025)

Participant B stated:

> *The use of the real object which I personally purchase helps the learners to have a feel of the realism of the object through touching to get the surface nature be it smooth or rough, real objects where the learners can mantle and dismantle the objects, and the mobile phone and laptop which they as learners can also touch and visualize the displayed on whatever they type.* (personal communication, January, 2025)

Participant C stated:

> *With the offer of instructional support on tactile visual aids, I usually present to the learners the real objects relating to the lesson by citing example of what one orange added to another orange will be equal to. The truth is that, we have inadequate material resources, making it difficult to support these learners effectively*. (personal communication, January, 2025)

Discussions of Findings

On the description of the instructional support on the sub-question two (2), facilitator 'A' maintained although there is inadequate material resource, he improvise to get some material resource for lessons. This showed the difficulty facilitator 'A' had to go through due to the shortage of material resource resulting in the improvisation as part of provisions for each learner with Down syndrome he delivers instructions to.

Facilitator ‘B’ on his expression revealed using real objects, using his own money to purchase some of the material going a long way to help the learner improve upon their tactile kinesthetic qualities not forgetting the use of his mobile and laptop as tactile visual aids, this helps the learners to learn better although brings about financial burthen to the facilitator.

Facilitator ‘C’ also lamented in her verbatim expression, the same sentiment citing using real objects which comes with cost due to the fact that, material resources she used were inadequate.

The above verbatim expressions expressed by facilitators ‘A’, ‘B’ and ‘C’ clearly on the description of instructional support usage denotes inadequacy of the material resource making facilitations highly difficult and ineffective due to the fact that, learners with down syndrome should not be thought without material resources available such as real/concrete objects and pictorials in their highlighted forms to appeal to their various senses for them to have effective assimilation.

The above was aligned with the Theory of Teaching Strategies espoused by Positive Action (2023) with reference to the incorporation multisensory learning although was lacking at the Unit School the researcher undertook the expressive interview from participants.

3. How do you offer those instructional support?

Participant A stated:

> “*As a specialist facilitator, I usually prefer using audio-visual aids such as television, mobile phone and my laptop which are adapted with sounds to aid with the instructions that, I undertake*.” (personal communication, January, 2025)

Participant B stated:

> *I use the audio-visual aid such as television, laptop to help learners have a feel of their tactile kinesthetic qualities while consuming into their minds what is taught them. I usually do this by relating the entire lesson to what my learners listen and visualize on the visual of the objects.* (personal communication, January, 2025)

Participant C stated:

> *With the use of the orange scenario, each learner will have more than two oranges, pick one of the orange and add another to it to achieve the correct result. This will be followed up with concrete blocks with the same procedure and move on the to use my laptop where each learner is made to tap on the required numbers associated with the number of objects which will bring out the displayed numbers and the resultant answer.* (personal communication, January, 2025)

Discussions of Findings

On how they offer those instructional support with respect to sub-question three (3), facilitator 'A' came out the fact that, he prefers the use of audio-visual aids which are adapted with sounds to aid in instructional delivery. This audio-visual aids in effect will go a long way to improve on the level of cognition of the learners if always available and used effectively and efficiently.

Facilitator 'B' on how he offer those instructional supports also indicated almost the same support as using audio-visual aids to improve upon the tactile kinesthetic qualities. This inevitably will improve the cognitive function of the learners.

Facilitator 'C' teaching functional arithmetic related the use of oranges in terms of additions as well as the use of concrete blocks. Additionally, laptop which related to the concept of addition for instance, to bringing about numerical values was also used.

In summary, facilitators ‘A’, ‘B’ and ‘C’ preferred the usage of audio-visual aids belonging to them to aid their facilitations since learners with Down syndrome learn better when the audio-visual aids are employed during each instructional stage. The Positive Action (2023) teaching strategies were aligned with the above use of real objects or multi-sensory materials, but unfortunately were inadequate from the verbatim expression from the researcher’s participants.

It aligns with the aforementioned. The Touch-Type Read and Spell (TTRS) (2025) stated that to effectively utilize the IEP for students with Down syndrome, specialist facilitators must: incorporate auditory, visual, and kinesthetic/tactile components in lessons; recognize that instruction is primarily directed at visual learners who struggle with executive function skills; encourage students to review materials outside of class to enhance retention; establish a safe and non-judgmental classroom environment; promote peer interactions through collaborative work; eliminate distractions; deliver instructions and tasks in a stepwise manner; instruct on organizational skills; maintain communication with parents and family support teams; make learning engaging; and provide opportunities for success to sustain student motivation.

Nock (2018) asserted that educators should utilize tangible objects to facilitate students' comprehension of functional arithmetic.

4.1.3 Theme 3: Material Resource Provision

4.1.3 Interview with Participants:

4.1.3 What are the specific material resources provided learners with Down Syndrome?

Research interview guide three sought to investigate from the facilitators the specific material resources provided learners with Down syndrome. This research interview

guide also generated sub-questions as follows, with the responses from my participants on focus group basis as follows:

1. **What visual aids do you provide to the learners with Down syndrome in the class?**

Participants A, B and C stated:

> "*Concrete and real objects, pictorials, flash cards (wards cards, number and alphabet cards) are some of the visual aids we use to provide to the learners with Down syndrome."* (personal communication, January, 2025).

2. **What audio-visual aids do you provide to the learners during instructional hours?**

Participants A, B and C stated:

> "*The audio-visual aids we usually provide during each instructional section to learners with Down syndrome involves television, mobile phone and laptops."*
> (personal communication, January, 2025)

3. **What tactile visual aids do you provide to the learners during lessons?**

Participants A, B and C stated:

> "*We provide to learners with Down syndrome tactile visual aids such as concrete and real objects, mobile phones and laptops."* (personal communication, January, 2025)

Discussions of findings

With semi-structure guide three (research question) with sub-question one (1) on the visual aids they provided to learners with Down syndrome in the class, facilitators 'A', 'B' and 'C' maintained using concrete and real objects, and flash cards. These visual aids are actually the basic aids that complement learning to enhance the right acquisition of knowledge although, inadequate at the institution. Empirical review from Byrne et al. (2002) indicated that, use of real/concrete objects as well as pictures and flashcards augment facilitations.

With sub-question two (2) on the audio-visual aids, facilitators 'A', 'B' and 'C' unanimously expressed the fact that, television, their mobiles phones, and their laptops are the audio-visual aids they use which comes with cost of repair when spoiled. These aids with its constant availability and usage effectively will help the learners.

Lastly with sub-question three (3) on the usage of tactile visual aids, facilitators 'A', 'B' and 'C' again unanimously expressed the provisions of concrete and real objects, mobile phones which they have to use their own money to purchase, and their laptops which comes with extra cost on maintenance as far as facilitations to learners are concerned. These provisions when provided constantly will improve the level of the cognitive function of the learners with Down syndrome.

Analytically in summary of question 3, sub-sections 1,2 and 3, participants 'A', 'B' and 'C' in the focus group maintained using real/concrete objects and flashcards, and had to use their laptops a mobile phones as audio-visual aids and tactile visual aids but, came with a cost when gotten spoiled or damaged. Finally, the researchers Theory of the fifteen (15) teaching strategies were aligned with the above since the use of multi-sensory so far as adaptive technologies are concerned were half-way provided by the researcher's respondents.

Visual-spatial short-term memory surpasses verbal memory in the context of working memory. This indicates that visual processing and learning are significant strengths in the learning profile. Due to the challenges associated with handwriting for individuals with Down syndrome, stemming from both physical and executive function difficulties, it is advisable to encourage them to record class discussions for home review, utilize visual tools for electronic note-taking, and employ a smartphone

dictionary that provides audio and visual information (Nock, 2018 & The TTRS, 2025). Facilitators must consistently integrate sensory, gross, and fine motor tasks into intervention programs, as adolescents with Down syndrome benefit from participation in a variety of three-dimensional and multi-sensory activities whenever possible (Nock, 2018).

Ultimately, as previously said, the Theory of Teaching Strategies Positive Action (2023) asserts the significance of imparting practical life skills to students with Down syndrome, as these abilities are essential for their autonomy and everyday functioning. These competencies encompass self-care practices, financial management, time allocation, interpersonal communication, and fundamental domestic responsibilities. Allow students to engage in independent exploration during small activities, while facilitators observe the resulting surprises (Hookways, 2024).

In conclusion, the Theory of Teaching Strategies the researcher used was aligned with the semi-structured interview he had with his participants for instance, this findings aligns with Srivastava (2024) who also observed that IEP effectiveness declines without team collaboration; while (Action Sen, 2022; “SCoTENS”, 2008; & Brittany and Cal, 2024) indicated IEP should be reviewed on a regular basis; specialists must use concrete objects to teach numeracy awareness, employ a smartphone dictionary to provide entries that include audio and visual information (Nock, 2018 & The TTRS, 2025); that, musical instruments from bottles filled to a quarter with rice, lentils, beans, salt, sugar, balls, coins, sequins, and well-sealed, drums from pots, pans, and wooden spoons can evoke emotions in learners with Down syndrome (Touch-Type Read and Spell, 2025 & Atanasova, 2021); and finally, material resources provided learners with Down syndrome should include a wide variety of toys and other objects

(Nock, 2018), and other authors stipulated above but were lacking and inadequate respectively at the Methodist Unit School, Effiduase-Ashanti.

4.2 Major Findings

It was found out that:

1. There was no Individualised Educational Programme (IEP) performed by the multidisciplinary team for each learner with Down syndrome.
2. Human resources in the form of periodic in-service training for the participants were inadequate.
3. Material resources in a multi-sensory environment to help the multisensory features of the learners with Down syndrome were also inadequate.

With the all-inclusive approach on the teaching strategies and some of the current provisions internationally acclaimed by the special educator who doubled as a researcher, it will not surprising to see a dramatic change in the learners as their level of cognition will increased to reducing their inappropriate behavioural patterns of which he believe this will go a long way to help the learners with Down syndrome actualize themselves in the near future.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This final chapter provided a summary of the study's findings, drowned logical conclusions based on the analyzed data, and offered practical recommendations for improving educational provisions for learners with Down syndrome. The chapter was structured to reflect the research objectives, highlighting the implications of the current instructional gaps at the Methodist Basic Unit School and suggested directions for future interventions and policy development.

5.1 Summary of Findings

The findings of this study provided a comprehensive overview of the educational provisions for learners with Down syndrome at the Methodist Basic Unit School in Effiduase-Ashanti. A central revelation of the research was that, while Individualised Educational Programmes (IEPs) were consistently utilized as a primary tool for monitoring learner progress, their development remained technically fragmented. The process was characterized by a dual collaboration between specialist facilitators and parents, which effectively excluded the multidisciplinary expertise of medical practitioners, speech therapists, and psychologists required by international standards. This narrowed approach often resulted in educational plans that prioritize basic academic goals while neglecting the complex health and behavioural concomitant conditions inherent to Down syndrome.

Furthermore, the study established that, facilitators were forced to rely on rigorous pedagogical improvisation to manage the cognitive and behavioural needs of their learners. Although these specialists employed various adaptations to minimize hyperactivity and engaged learners, their efforts were frequently hindered by a lack of

formal, continuous professional development. Consequently, instructional strategies at the unit school were often reactive rather than proactive, focusing more on immediate classroom management than on long-term functional independence.

Crucially, the research identified a severe inadequacy in both material and human resource provisions. The absence of essential multi-sensory tools such as tactile aids and pictorial representations significantly limited the cognitive engagement of the learners. This material scarcity, coupled with the absence of medical specialists and other allied health professionals, placed an overwhelming instructional burden on the specialist facilitators. Ultimately, these systemic gaps in resource allocation and professional collaboration created a restrictive environment that hampers the holistic development and future self-reliance of learners with Down syndrome in the district.

5.2 Conclusions

This study concluded that, while there was a clear commitment to inclusive education at the Methodist Basic Unit School, the current educational provisions for learners with Down syndrome were significantly undermined by systemic and instructional gaps. The investigation has established that, the Individualised Educational Programme (IEP) being the cornerstone of special education was currently implemented through a restricted collaborative model that lacked the essential input of a multidisciplinary team. This absence of professional diversity in the planning process, often leads to educational strategies that are not fully aligned with the learners' complex neurological and behavioural needs.

Furthermore, it was concluded that, the lack of the multidisciplinary team in the formulation of the Individualized Educational Programme (IEP) was a dent on the learners with Down syndrome, whilst the inadequacy of in-service training on current

standardized instructions, was also a direct consequence of a severe scarcity of specialized human resource. Additionally, the persistent reliance on facilitators' improvisation as a result of the lack of multi-sensory tools and tactile aids created a "custodial" rather than a "transformative" learning environment, where learners were physically present but pedagogically underserved. Without specialized materials and regular professional training, facilitators are limited in their ability to move learners toward the ultimate goal of functional independence.

In the final analysis, the findings suggested that, the disconnect between Ghana's Inclusive Education Policy (2015) and the classroom reality in Effiduase-Ashanti remained a barrier to equitable education. For learners with Down syndrome to achieve self-reliance and social integration, educational provisions must evolve beyond mere physical inclusion. True progress requires a robust investment in specialized resources and a mandate for multidisciplinary collaboration that places the unique developmental needs of the learner at the center of the educational process.

5.3 Recommendations

Based on the findings and conclusions of this study, the following recommendations were proposed to improve the educational provisions for learners with Down syndrome at the Methodist Basic Unit School and similar institutions in Ghana:

1. To the Methodist Basic Unit School Management:

Establish Formal Multidisciplinary IEP Teams: The school should move beyond the current dual-collaboration model by actively inviting medical and other healthcare professionals, such as neurologists, cardiologists, speech therapists and psychologists from nearby health facilities, to participate in annual IEP reviews. This will ensure

that the learners' medical and behavioural complexities are professionally addressed within their educational plans.

Create a Resource Improvisation Hub: Given the scarcity of materials, the school should establish a dedicated workspace where facilitators can collaborate to create low-cost, multi-sensory teaching aids using local materials. This “internal resource bank” would reduce the individual burden on teachers and ensure a steady supply of tactile and pictorial tools.

2. To the Ghana Education Service (GES) and District Education Office:

Mandate Specialized In-Service Training: The GES should organize periodic, disability-specific workshops for facilitators in unit schools. These training sessions should focus on contemporary behavioural strategies, such as Positive Action, and the use of assistive technologies to move beyond “custodial” care toward evidence-based instructional support.

Provision of Multi-Sensory Kits: The District Education Office should prioritize the allocation of specialized “Special Education Toolkits” to unit schools. These kits should include tactile letters, interactive software, and visual schedules which are essential for the cognitive development of learners with Down syndrome.

3. To Parents and the Community:

Strengthen Home-School Synergy: Parents should be encouraged to serve as “co-educators” by reinforcing classroom goals at home. The school should facilitate regular parent-teacher support groups where families can share successful behavioural strategies and receive guidance on how to support their children's transition to independent living.

5.4 Suggestions for Further Research

Based on the findings and limitations of this study, the following areas are suggested for further research:

1. **A Comparative Study of Unit Schools:** Future research could adopt a comparative approach to examine educational provisions for learners with Down syndrome across multiple districts in the Ashanti Region. This would help determine if the resource gaps and IEP challenges identified at the Methodist Basic Unit School are localized or representative of a broader systemic trend in Ghana.

2. **The Impact of Assistive Technology in Resource-Constrained Settings:** Further investigation is needed into the role of low-cost digital assistive technologies in bridging the cognitive and communication gaps for learners with Down syndrome. Such research would build upon this study's findings regarding the limitations of manual pedagogical improvisation.

3. **Longitudinal Study on Vocational Outcomes:** Further research is needed to track the transition of learners with Down syndrome from unit schools into the workforce or vocational training in Ghana. Such a study would provide critical evidence on whether current Individualised Educational Programmes (IEPs) effectively equip learners with the functional skills required for adult independence.

4. **The Role of Parental Socio-Economic Status in Educational Support:** A study investigating the correlation between parental resources and the quality of home-based educational support would offer deeper insights into the "home-school synergy" required for learners with Down syndrome. This

would build upon this study's findings regarding the dual collaboration between facilitators and parents.

5. Finally, University researchers and graduate students in special education should conduct further studies with larger sample and diverse methodologies to strengthen evidence.

The crucial takeaway is that, the researcher intuitively believe all the recommendations, and suggestions for further research would unequivocally, further go a long way to help learners with Down syndrome 'worm' themselves into the world of work in the future, contribute their quota towards the development of the nation wherever they might be, and lead independent lives.

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APPENDICES

APPENDIX A

Presentation of raw data which was fine-tuned by The Head of Department, Special Education-my Supervisor:

Format: Semi-Structured Interview Guide to the Specialist Facilitators (Managers).

How is an Individualised Educational Programme (IEP) implemented to support learners with Down syndrome in the school?

1. How do you implement Individualised Educational Programme (IEP) for each learner?
2. Describe each stage of implementing the Individualised Educational Programme (IEP).
3. How do you attend to individual needs in your class?
4. What strategies do you adapt to pay individual attention in your class?

4.1.2 What are the instructional support offered by facilitators to learners with Down syndrome?

1. What instructional support do you offer to the learners?
2. Describe those instructional support
3. How do you offer those instructional support?

4.1.3 What are the specific material resources provided learners with of Down syndrome?

1. What visual aids do you provide to the learners with Down syndrome in the class?
2. What audio-visual aids do you provide to the learners during instructional hours?
3. What tactile visual aids do you provide to the learners during lessons?

APPENDIX B

The twenty (20) sensory learning toys for learners with Down syndrome;
Textured Balls:

Figure 1: ***Tactile Balls Pk 6 (learningspaceuk.co.uk)***

Vibrating Pillow:

Figure 2: ***Vibrating Blue Square Pillow Cushion: Sensory Comfort***

(learningspaceuk.co.uk)

Sensory Boards:

Figure 3: ***Sensory Tactile Play Board (learningspaceuk.co.uk)***

Sensory Tubes:

Figure 4: ***Fluorescent Tube Ladder - Multi-Sensory Fidget Toy for Glowing Fun (learningspaceuk.co.uk)***

Bubble Tubes:

Figure 5: ***Lumina Giant Bubble Tube 183cm (learningspaceuk.co.uk)***

Playdough:

Figure 6: ***20 Pots of Play Dough (learningspaceuk.co.uk)***

Weighted Blankets:

Figure 7: ***3kg Weighted Blanket Small (90 x 100) (learningspaceuk.co.uk)***

Light-Up Toys:

Figure 8: ***Spikey Light up Double Baton (learningspaceuk.co.uk)***

Fidget Toys

Figure 9: ***Tactile & Fidget Sensory Box (learningspaceuk.co.uk)***

Musical Instruments:

Figure 10: ***Percussion Plus Small Hands Classroom Pack (learningspaceuk.co.uk)***

Trampolines:

Figure 11: ***BERG Hoppa Toddler Trampoline (learningspaceuk.co.uk)***

Projectors

Figure 12: ***Pico Genie Impact 2.0+ Ultra Portable 1200 Lumens LED Smart Projector (learningspaceuk.co.uk)***

Wiggle Seats:

Figure 13: ***Bouncyband® Basketball Style Wiggle Seat (learningspaceuk.co.uk)***

Cocoon Swing:

Figure 14: ***Cacoon Hanging Chair Single (learningspaceuk.co.uk)***

Rockers:

Figure 15: ***Indoor Large Wooden Tube Rocker (learningspaceuk.co.uk)***

Didicar:

Figure 16: ***Didicar - Self Propelled Ride-on Toy (learningspaceuk.co.uk)***

Spinning Toys:

Figure 17: ***Spin Again (learningspaceuk.co.uk)***

Peg Puzzles:

Figure 18: ***Wooden Peg Puzzle - Pets (learningspaceuk.co.uk)***

Liquid Tiles:

Figure 19: ***Large Liquid Filled Sensory Floor Tile - Pack of 6***

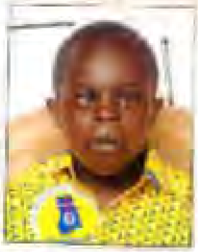
(learningspaceuk.co.uk)

Tummy Time Play Mats:

Figure 20: ***Colourful Circle Toddler Mat with Mirror (learningspaceuk.co.uk)***

APPENDIX C

Educational case history for Child "A"



Unit for Special Needs Children

We are one

Admission Form

1. NAME OF CHILD: DOKEY PAUL
2. DATE AND PLACE OF BIRTH: 2ND JUNE, 2011
3. NATIONALITY AND LANGUAGES SPOKEN: GHANAIAN, TWI AND EWE
4. SEX: MALE
5. FATHER'S NAME: MR. PAUL DOKEY
6. OCCUPATION: TAILER
7. RELIGION: PRESBYTERIAN CHURCH
8. ADDRESS AND MOBILE NO.: 0247873184 -KATANGA
9. MOTHER'S NAME: MADAM AGNES JANET AKPAH
10. OCCUPATION: SELLER
11. RELIGION: CHRISTIANITY
12. ADDRESS AND MOBILE NO.: 0249647378

School starts at 8 each weekday and closes at 12:30pm. With my signature I confirm that I have been informed that the school takes no responsibility for the child if it is not picked up at closing time if unable to go home by him/herself. [illegible]

I have provided the materials asked for in the admission list and presented the child's health records as well as the child's national health insurance card.

SIGNATURE

PARENT/GUARDIAN

We are one
Unit for Special Needs Children

We the undersigned agree to cooperate in the training and transition from school to work of

Name of student DOKEY PAUL
Date of birth .....
Residence TAM NKRUMAH

As representative of the unit, I ..... (name of teacher)
will prepare the pupil in school to work as

..... (name of job)

by teaching necessary basic skills.

As trainer at the workplace, I ..... (name of trainer)
will teach the pupil the necessary skills on the job site.

As parent or guardian, I PAUL DOKEY ..... (name of parent)
agree to furnish all the necessary tools and materials for work and support the training in every way possible.

The pupil will graduate in ..... and then work full time in the job.

Signature and Date ..... (name of teacher)

Signature and Date ..... (name of trainer)

Signature and Date Dokey ..... (name of parent)

1. Background information

Gender MALE

Name MADAM AGNES JANET AKPAH

0249647378

Occupation SELLER

Living with child? Yes ✓ No

OF HAVING DOWN SYNDROME

ABILITY

AND ATTEND TO SOME HOUSE DUTIES

I HOPE HIS SPEECH WOULD IMPROVE BEHAVIOUR WOULD MINIMISE

FAULT AS WELL AS HAVE

Child's surname DOKEY

Name child usually uses PAUL

Father's Name MR. PAUL DOKEY

Father's Occupation TAILOR

Living with child? Yes ✓ No

Guardian (male)

Occupation

Living with child? Yes No

2. Child's main problems

What is your child's main problem? SPEECH

When did it begin? FROM BIRTH

Other problems? INTELLECTUAL DI

Are the problems improving? YES

HE IS ABLE TO COMMUNICATE

IMPROVE. ADDITIONALLY, HIS BEHAV

HIS SPEECH SHOULD BE OF M GOOD BEHAVIOUR

3. Educational history

Does or did your child go to school ? YES
In what year was he enrolled? JUST A YEAR
Please give the name of the school and the class teacher S.D.A

Did your child have problems in KG in school? YES

Does your child like to go to school ? YES

4. Family situation

List all other people living in the household and how they are related to the child

NAME	YEAR OF BIRTH	RELATIONSHIP TO CHILD	OCCUPATION
DAVID DORKEY		BROTHER	STUDENT
GLORIA DORKEY		SISTER	STUDENT

Do other family members or relatives have a similar problem? NO
Who ?
Important details of family situation (extreme poverty, parent's health problems etc.) MIDDLE INCOME FARMERS FARMERS
Please list languages spoken at home EWE, TWI, ENGLISH

Has your family moved since the child's birth ? YES

How long has the child been living in the present family make-up ? SINCE BIRTH

If not living with both parents, does the child see the absent parent(s) ? —

How often? Child's reaction to visit

What type of games does he/she prefer? HE LIKES PLAYING FOOTBALL WITH FRIENDS
Does he/she do chores willingly? NO, UNLESS HE IS PROMPTED

Eating and Nutrition

Does your child have trouble chewing, swallowing or eating food? YES
Can he/she eat or drink by him/herself? YES
Please list any concerns you have about your child's eating habits: HE IS NOT ABLE TO CHEW HARD FOODS
Does your child eat things like paper, dirt, hair etc.? NO
List any supplemental drugs or vitamins medicine your child takes: NO
List any types of food which seems to make your child ill —
List any food group your child refuses to eat —

6. Mother's health during pregnancy and delivery
Age of mother at pregnancy 39 YEARS

Have any previous children been born with special problems? NO

(The following questions in chapters 6 and 7 will only be necessary if they have any strong relevance for the present status of the child, e.g. cerebral palsy due to lack of oxygen in prolonged labour or brain damage as a consequence of infant cerebral malaria)

Were you in good health when the pregnancy began? YES

Have you had any health problems during this pregnancy (like bleeding, fall, accident, or threatened miscarriage ...) you relate to the problems of your child?
NO

Did you have natural childbirth? YES On time? YES

Were there complications during labour (like caesarean section, induced labour, forceps delivery, breech presentation or ...)? NO

How much did the baby weigh? 3.3kg How long was the baby at birth? ______

Please list any other events which you think were important about this child?
—

Did the baby have any problem with nursing from either the bottle or the breast? NO, UNTIL HE BECAME ILL AFTER TEN(10) MONTHS BEFORE HE STOPPED BREAST FEEDING.
If the baby had colic, how long did it last? — Did baby sleep well? YES

Was the baby a quiet baby, busy baby, happy baby, or a difficult baby? Circle those that seem appropriate to describe your baby. Comments
HE USUALLY CRIED DURING THOSE DAYS.

Did the baby have serious illness or accidents during the first year of life?
YES

Please describe:
IT WAS RELATED TO MALARIA AND HE WAS GIVEN MEDICATION TO STOP IT

Was your baby hospitalized during the first year of life? YES Where: EFFIANA HOSPITAL

Why? (Please describe)
HE FELT SICK WITH MALARIA

Did the baby have regular check ups during the first year? Yes ✓ No

Where?
AT TEBU HOSPITAL

7. Growth and development

To the best of your ability remember the age at which your baby learned the following tasks (example: sat alone 7 months)

Head control 4 MONTHS Sat alone 5 TO 6 MONTHS Crawled 8 MONTHS Talked in 2-word sentences 1 YEAR AFTER Walked alone 13 MONTHS Dry during the day 2 YEARS Dry at night 2 YEARS

Dressed self ______ Buttoned clothes ______

Were you ever worried about your baby being slow to develop? No

Does your child have any additional handicap? Yes ✓ No

Please explain:
HE HAS INTELLECTUAL DISABILITY

How is your child's general health? HE NORMALLY DOES NOT FALL SICK

Does he/she have a diagnosed health problem? NO

Is he/she under treatment? — List any medication your child is taking

Does a doctor prescribe the medicine? ______ Other?

Please list date, place, and reason for any time your child has been hospitalized

5

Educational case history for Child "B"

Unit for Special Needs Children

We are one

Admission Form

1. NAME OF CHILD: MAHAMADU XAUNTALLA SULLEY
2. DATE AND PLACE OF BIRTH: 14TH MAY, 2001 KOLEBU-ACCRA
3. NATIONALITY AND LANGUAGES SPOKEN: GHANAIAN DAGBANI
4. SEX: MALE
5. FATHER'S NAME: ALHAJI SULLEY TAHIRU
6. OCCUPATION: —
7. RELIGION: ISLAM
8. ADDRESS AND MOBILE NO: —
9. MOTHER'S NAME: MADAM MARSIYA IBRAHIM
10. OCCUPATION: BUSINESS
11. RELIGION: ISLAM
12. ADDRESS AND MOBILE NO: AR-0003-3278 TEL.NO: 0556524738

School starts at 8 each weekday and closes at 12:30pm. With my signature I confirm that I have been informed that the school takes no responsibility for the child if it is not picked up at closing time if unable to go home by him/herself.

I have provided the materials asked for in a separate list and presented the child's health records as well as the child's national health insurance card.

.....

SIGNATURE

PARENT / GUARDIAN

We are one
Unit for Special Needs Children

We the undersigned agree to cooperate in the training and transition from school to work of

Name of student: MAHAMUDU MUNTALIF SULLEY
Date of birth: 14TH MAY, 2001
Residence: EFFIDUASE ZONGO

As representative of the unit, I ..... (name of teacher) will prepare the pupil in school to work as

..... (name of job)

by teaching necessary basic skills.

As trainer at the workplace, I ..... (name of trainer) will teach the pupil the necessary skills on the job site.

As parent or guardian, I MADAM MARIAM IBRAHIM (name of parent) agree to furnish all the necessary tools and materials for work and support the training in every way possible.

The pupil will graduate in ..... and then work and train on the job.

Signature and Date ..... (name of teacher)

Signature and Date ..... (name of trainer)

Signature and Date ..... (name of parent)

Child's complete name: MAHAMADU MUNTALA SULEY

Gender: MALE

Date of Birth: 14th MAY, 2001

Father's Name: ALHAJI SULEY [illegible]   Mother's Name: MARIAM MARIYA IBRAHIM

Mother's Address (House No. / Location / Phone): AK-0003-3278 TEL NO: 0555524788

Mother's Occupation: BUSINESS

Living with child? Yes ✓ No

2. Child's main problems

What is your child's main problem?

DOWN SYNDROME

When did it begin? FROM BIRTH   How? (Causes)

Other problems?

INTELLECTUAL DISABILITY

Are the problems improving? YES   getting worse?   About the same?

Explain

HE IS ABLE TO ATTEND TO INSTRUCTION MOST OFTEN

How do you hope your child will benefit from coming here? I BELIEVE HIS COMING TO SCHOOL HERE WILL HELP HIM IN THE FUTURE

If you think of your child in the future, how would you like your child to be?

I THING HE WILL BE ABLE TO PERFORM DUTIES ON HIS OWN WITHOUT BEING INSTRUCTED.

[illegible] HEALTH AND DEVELOPMENTAL HISTORY – PARENT QUESTIONNAIRE

This questionnaire will be used by the special teacher *to gather information on the child that will serve to develop an educational programme and to better understand the child's behaviour and the parental background. It is not necessary to gather the data all at once,* but necessary data can be recorded in several contacts with the parents.

The questionnaire concentrates on several dimensions which are relevant for a better understanding of the child:

Background data

- of the child
- of the parents
- where the child lives
- economic situation of the family

Information on the child's handicap and challenges faced by the family

- Child development
- expectations of parents for future development

Child's strengths and resources

- getting along with others
- responsibility and helping in the house
- likes and dislikes
- sleeping, eating and toileting

Family environment in which the child lives

- household members
- language spoken in the home

In using the questionnaire, you must

- create a relaxed and trustful atmosphere
- know when to postpone certain questions to another meeting in order not to destroy the relationship with the parent
- *use the local language and be sufficiently familiar with the questionnaire to not read the questions but be able to put them in your own words*
- avoid words and concepts which the parents don't understand and use simple language
- ***leave out those parts of the questionnaire which are not important for the education or understanding the present situation of the child***

3. Educational history

Does or did your child go to school? YES

In what year was he enrolled? 2015

Please give the name of the school and of the class teacher [illegible]

Did your child have problems in KG or school? YES

Does your child like to go to school? YES

4. Family situation

List all the people living in the household and how they are related to the child

NAME	YEAR OF BIRTH	RELATIONSHIP TO CHILD	OCCUPATION
IBRAHIM SULLEY		BROTHER	
MAHER MOHAMMED		BROTHER	
RAMA ASIFA		CURSIN	STUDENT

Do other family members or relatives have a similar problem? NO

Who?

Important details of family situation (extreme poverty, parent's health problems etc.) MIDDLE INCOME EARNER

Please list languages spoken at home HAUSA

Has your family moved since the child's birth? YES

How long has the child been living in the present family situation? 13 YEARS

If not living with both natural parents, does the child see the natural parent(s)? NO

How often? ___ Child's reaction to visit ___

5. Child's social behaviour and personality

Please discuss the following characteristics of your child so we can better understand him/her better.

Please describe your child's personality.

Is he/she extremely quiet? No cries very easily? No hard to control? ___ easily scared or afraid? SOMETIMES cannot sit still? NO

Any other observations ___

What are the things you enjoy about him/her? HE ATTENDS TO HOUSE HOLD CORSE

What are some of your child's strengths?

HE IS ABLE TO PURCHSE SOME ITEMS FROM THE MARKET

What are things that he/she does which upset, anger, or worry you? ___

Interpersonal Relations

How does your child get along with brothers and sisters? CORDIAL

With neighbourhood friends? NOT CORDIAL

In case of conflict, how does your child behave? HE IS ABLE TO WITHSTAND OTHERS

Is your child able to defend his interests? YES

Is your child accepted by other children? NO

Does your child have friends? NO

Does your child usually leave for school happy? YES

How does your child feel after school? HAPPY

Responsibility

What can you trust him/her to do by himself/herself? HE IS ABLE TO PERFORM SELF HELP SKILLS

Does he/she usually finish what he/she starts? YES

How does he/she take care of his/her belongings (clothes, toys, room)? HE IS ABLE TO CLEAN HIS ROOM.

List any of the chores this child does on a regular basis: HE IS ABLE TO SWEEP, WASH COOKING ARTICLES.

Behaviour

Please describe behaviour at home: HE IS INTERESTED IN PLAYING GAMES AND WATCHING T.V.

How does he/she respond to verbal directions? HE OBEYS INSTRUCTIONS

Can you compare school/home behaviour? HE IS HARD WORKING BOTH AT SCHOOL AND HOME.

How do you punish this child if he/she misbehaves? I USUALLY MEB CAHN TO CORRECT HIM.

Likes and Dislikes

What is his/her favourite activity? PLAYING OF VEDIO GAMES AND WATCHING OF TELEVISION.

What kind of things or events is he/she afraid of? HE IS AFRAID OF DOGS.

What kind of things or events worry him/her? NEIGBOURHOOD FRIENDS

Which person or persons does he/she seem to admire most? HIS GRANDMOTHER.

What types of games does your child prefer? VIDEO GAMES
Does he/she do chores willingly? YES

Eating and Nutrition

Does your child have trouble chewing, swallowing, or eating food? NO
Can he/she eat on his/her own? YES
Please list any concerns you have about your child's eating habits —
Does your child eat things like paper, dirt, etc? NO
List any supplemental vitamins or special foods your child takes NO
List any types of food which your child refuses to eat —
List any food groups your child refuses to eat —

5. Mother's health during pregnancy and delivery
Age of mother at pregnancy 38 YEARS

Have any previous children been born with special problems? NO

(The following questions in chapters 6 and 7 will only be necessary if they have any strong relevance for the present status of the child, e.g. cerebral palsy due to lack of oxygen in prolonged labour or brain damage as a consequence of infant cerebral malaria)

Were you in good health when the pregnancy began? I WAS NO FEELING WELL

Have you had any health problems during this pregnancy (like bleeding, fall, accident, or threatened miscarriage ...) you relate to the problems of your child?
NO

Did you have natural childbirth? YES Crying? YES

Were there complications during labour (like caesarean section, induced labour, forceps delivery, breech presentation ...)? NO

How much did the baby weigh? 2.8kg How long was the baby at birth? ___

Please list any other events which you think were important about this birth:

Did the baby have any problem with nursing from either the bottle or the breast? NO

If the baby had colic, how long did it last? ________ Did the baby sleep well? YES

Was the baby a quiet baby, crazy baby, happy baby, or a difficult baby? Circle those that seem appropriate to describe your baby. Comments:
HE WAS HOSPITALISED AS A RESULT OF THE FACT THAT HE WAS NOT CRYING INITIALLY

Did the baby have serious illness or accident during the first year of life?
YES

Please describe:
AT 10 MONTH, HE WAS OPERATED ON THE STOMACH TO REMOVE SOME FLUID

Was your baby hospitalised during the first year of life? YES Where? TAMALE TEACHING HOSPITAL

Why? (Please describe)
HE WAS OPERATED ON

Did the baby have regular check-ups during the first year? Yes ✓ No

Where?
TAMALE TEACHING HOSPITAL

7. Growth and development

To the best of your ability remember the age at which your child has reached the following tasks (example: sat alone 7 months)?

Head control 12 MONTHS Sat alone 12 MONTHS Crawled 3 YEARS Talked in 2 word sentences
1 YEAR Walked alone 3 YEARS Dry during the day 2 YEARS Dry at night
2 YEARS

Dressed self 12 YEARS Buttoned clothes 12 YEARS

Were you ever worried about your baby being slow to develop? YES

Does your child have any additional handicap? Yes ✓ No

Please explain: INTELLECTUAL DISABILITY
How is your child's general health? OKEY

Does he/she have a diagnosed health problem? YES, HE WAS OPERATED ON BOTH EYES

Is he/she under treatment? NO List any medication your child is taking

Does a doctor prescribe the medicine? Other?

Please list date, place, and reason for any time your child has been hospitalised.

APPENDIX D

SEMI-STRUCTURED INTERVIEW GUIDE FOR FACILITATORS

Title of Study: Educational Provisions for Learners with Down Syndrome: An Investigation of Individualised Educational Programme (IEP) Implementation in Effiduase-Ashanti.

Section 1: Demographic Information

1. How long have you been a special education facilitator?

2. How many years of experience do you have working specifically with learners with Down syndrome?

Section 2: Implementation of IEPs (Objective 1)

1. Can you walk me through the process of developing an Individualised Educational Programme (IEP) for a learner with Down syndrome in this school?

2. Who are the key people involved in the IEP formulation?

3. What challenges do you face when trying to implement these plans in the classroom?

4. How do you monitor and report the progress of learners based on their IEP goals?

Section 3: Instructional Supports and Behavioural Strategies (Objective 2)

1. What specific teaching strategies do you find most effective for managing the cognitive needs of learners with Down syndrome?

2. How do you handle behavioural challenges or “hyperactivity” during instructional hours?

3. In what ways do you adapt the general curriculum to suit the individual learning pace of these students?

Section 4: Material and Human Resource Provisions (Objective 3)

1. What types of material resources (e.g., multi-sensory tools, pictorials) are currently available in the unit school?

2. How do you manage when specific learning materials are inadequate or unavailable?

3. Can you describe any “improvisations” you have had to make to facilitate teaching?

4. How would you describe the level of support you receive from other professionals (e.g., therapists, medical practitioners)?

Section 5: Conclusion and Recommendations

1. In your opinion, what are the most critical gaps in the educational provisions currently offered?

2. What improvements would you suggest to help these learners achieve better independence and self-reliance?