

# **Effectiveness of the Re-Teaching Deaf and Hard-of-Hearing Students in Inclusive Settings in Tanzania: A Case Study**

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**Abstract:** This study examined the effectiveness of the re-teaching approach in teaching deaf and hard of hearing students in inclusive settings in secondary schools. Using a mixed approach, data were collected through closed-ended and open-ended questionnaires, interview guides, and practical tests. The findings revealed that re-teaching fosters remembering and retaining the memory of deaf and hard of hearing students in inclusive settings. Also, re-teaching enhances mastery learning among deaf and hard-of-hearing students in inclusive schools by increasing time spent on learning over time needed on learning. Time, especially the general school timetable, was the main barrier hindering re-teaching implementation in Tanzania's inclusive settings. The study concluded that re-teaching mainly rests on questions-based strategies like filling gaps, sentences with blank spaces; diagrams with blank spaces to fill as they give more time for practice. Re-teaching needs to be connected to national strategy for inclusive and general school timetables to help improve the learning of deaf and hard of hearing in inclusive settings to maximize their performance. School management should be capacitated with how deaf and hard-of-hearing learners learn for the smooth implementation of re-teaching in inclusive schools.

**Key-words:** re-teaching; effectiveness; hearing impairment learners; learning.

## **1. Introduction**

Teaching and learning is a complex process that requires teachers to make knowledgeable decisions about teaching strategies and ways to support students' learning (URT, 2010). Decisions about teaching strategies should also focus on helping children with hearing impairments to learn well and help to improve their academic performance. Given the current trends of deaf

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education, especially in inclusive settings, shifts in teaching methodologies and strategies are inevitable to meet their specific learning needs as a group or individual learners (Marzano, 2010). In addition, new and innovative strategies for deaf and hard of hearing have been recommended, including re-teaching to improve their academic endeavors in inclusive school settings.

AMUCTA has been advocating innovative methods in the program of BEDSN, particularly to teachers specializing in hearing impairment, re-teaching being one of the innovative methods. Though many AMUCTA graduates have not yet integrated into employment, they have been using the strategy in teaching practices for almost four years in inclusive secondary school without viable information on the effectiveness of the re-teaching strategy. So, with this in mind, the current study intended to examine the effectiveness of the re-teaching approach in teaching deaf and hard of hearing students in inclusive settings in secondary schools in Musoma Technical Secondary school in the Mara region, Tanzania.

## **2. Background to the Study**

Deaf and hard-of-hearing students are not simply hearing students who cannot hear, but students with academic needs and strengths different from their hearing peers (Knors & Marshack, 2014). The argument connotes that deaf or hard-of-hearing students should not be perceived as students with merely hearing problems but rather students with diverse learning needs and strengths, sometimes strong or weak compared to their hearing peers, which need to be well accommodated. Like other students, children with hearing impairment face several problems regarding their academic, intellectual, linguistic, social, and emotional development, which require adequate accommodation to help them learn effectively.

Deaf children have difficulty mental imagery, concept formation, problem-solving, language learning, academic achievement, and navigating everyday life (Bellert, 2012). Children's communication problems with hearing impairment are the main impediment in inclusive education elsewhere as both the regular and special education teachers mainly use spoken language in an inclusive setup (Safder, Akhtar, Fatma & Malik, 2012). A study conducted in Ethiopia reported that sometimes some teachers speak orally and are unable to meet deaf and hard of hearing needs. It further revealed that teachers could not provide deaf and hard of hearing with any kind of support except for hearing students only (Desalegn & Worku, 2016). The absence of communication with teachers and other hearing peers in the school causes deaf and hard of hearing quarreling with their hearing peers (Desalegn & Worku, 2016). Deaf and hard of hearing individuals who communicate sign language face several communication difficulties in meeting their daily needs, including education (Desalegn & Worku, 2016; Al-Nafjan, Al-Abdullate, Al-

Ghamdi, Al-Khalaf & Al-Zahran, 2020; Khomera, Fayiah & Gwayi, 2020). Specifically, Desalegn & Worku (2016) report that students with hearing impairment fail to play with hearing peers as they do not understand their interests. However, also, more importantly, they fail to communicate that they cannot hear what the teacher or the other pupils are saying (Desalegn & Worku, 2016; Khomera, Fayiah & Gwayi, 2020). Do these problems emanate from deafness or mode of teaching in inclusive schools?

Students with hearing impairment lag behind in academics as compared to their counterparts with visual impairment and physical disabilities on account of their problems in communication, socialization, curriculum adaptations, and modifications, and above all, sign language interpretation (Safder, Akhtar, Fatma & Malik, 2012; Desalegn & Worku, 2016; Al-Nafjan et al., 2020). Again, the studies are pressing the puzzle as to why the deaf lag behind academics. Is it due to their physical condition of deafness or related instructional challenges? Studies need to be more comprehensive on this issue to help practitioners find alternatives that respond to the actual cause of their problems.

These problems became more severe when these hard-of-hearing students joined secondary schools from primary schools as all of the instructions were given in Kiswahili language, including sign language, which is usually supported with Kiswahili. When they join secondary the language change to English, which also force the sign language to be English supported rather than Kiswahili supported

These children may require special education accommodations that go beyond cognitive issues. Comprehensive information on the cognitive profile of deaf and hard-of-hearing students about learning is needed to know how better to educate these students who are said to be vulnerable, especially in inclusive settings. In responding to the above argument, Marzano (2010) suggested that in order to effectively and efficiently educate the deaf and hard of hearing students in inclusive settings, educators need to fully understand their specific learning needs and find appropriate strategies to help them master their learning. Also, Knoors, Brons, and Marschark (2019) suggest that if teachers want to educate deaf learners effectively, they have to apply evidence-informed methods and didactics with the needs of individual deaf learners in particular.

Some strategies which provide additional opportunities for learners after actual inclusive class learning have been proposed in the works of various scholars. The re-teaching approach has also given much reflection and different dimensions from other remedial strategies (Fisher & Frey, 2008; Bellert, 2015; Mazingo, 2017). According to Bellert (2015), re-teaching is post-instructional actions or strategies initiated by teachers to support students who did not learn content, concepts, or procedures from 'first' teaching and learning activities. Re-teaching is essential when helping students extend and

refine their understanding of previously taught knowledge and skills (Mozingo, 2017). The argument here is how re-teaching is done in helping those students without lowering their self-esteem as it may label them as low achievers?

Optimally, re-teaching is a second-chance opportunity for both teachers and students, as teachers can refine and target their instruction by clarifying student learning and understanding, and students can try again to learn the content, concept, skill, or procedure (Fisher & Frey, 2008; Mozingo, 2017). Finally, they are based on how re-teaching is differentiated with traditional strategies applied in remedial classes to aid low achievers to improve academically?

Accordingly, re-teaching would seem to be a common instructional practice and part of the everyday work of teachers. Students with learning difficulties are likely participating in many (but not all) re-teaching lessons, which potentially provide them invaluable opportunity to learn, or learn more of, what their peers already know (Bellert, 2015; Mozingo, 2017). What measures are put in place to ensure that teachers are motivated and take re-teaching activities as their everyday work while should be done after formal instruction?

Marzano (2010) suggested that re-teaching a lesson necessarily assumes they already know something, then utilize instructional techniques such as modeling and demonstration, graphic organizers, and questioning strategies. In addition, task-based learning strategies might be more effective in making learning meaningful and applicable (Lemke & Coughlin, 2009 cited by Easterbrooks, 2021). It is assumed that task-based strategies such as filling gaps, sentences with blank spaces, and diagrams with spaces to fill-in can best be applied to enable deaf and hard of hearing students check to what degree they have understood the lesson. Alternatively, these strategies allow students to demonstrate their understanding and give feedback to a teacher (Information Resources Management Association, 2019).

What will be the form of these strategies? Can they be in a standard form or questions-based form? Specifications need to be done to show the peculiarity of re-teaching over other instructional strategies, mainly when applied to deaf and hard of hearing in inclusive settings.

Re-teaching can include strategies like; re-working examples, textbook revision, and visual representations or symbolic modes such as graphical organizers (Further, Kutscher, 2008; O'Connor Jr, 2018). Visual representations, especially visual thinking, help develop memory and allow deaf students to clarify complex information (Alias, Azahari, Kamarudin, Zahari & Razak, 2019). Frye (2010) added that teachers could use charts and subject-specific strategies such as labeling graphics in science. What about in arts subjects labeling can be possible or not? If not, why and how can this apply to both science and arts-oriented subjects? Re-teaching by nature is a

practical, classroom-based process that needs to be both effective and sustainable (Graham, Berman & Bellert, 2015; Mozingo, 2017). Commonly, re-teaching is implemented after whole class or small group initial teaching, with a group smaller than the whole class (Bellert, 2015). Re-teaching can mastery learning for students experiencing learning difficulties as it diversifies time for learning according to different learning styles.

Educators are always searching for approaches that promote student development and academic achievement (McVee, Ortlieb, Reinchenber, & Pearson, 2019). Re-teaching is one of the approaches that might promote development and academic achievements to deaf and hard of hearing students in inclusive secondary schools. However, for these approaches, including re-teaching, to effectively align with the targeted objectives, there might be guiding principles or models to guide its implementations. To this note, the Gradual Release of Responsibility Model is adapted to be the guiding model on re-teaching. The Gradual Release of Responsibility model encompasses essential components, with its catch-phrase of 'I do, we do, and you do' serves as a framework for a practical re-teaching lesson (Pearson & Gallagher, 1983; Fisher & Frey, 2008). These components of the GRR are in line with the suggestions provided by Mozingo (2017) that a highly effective strategy for small-group instruction and re-teaching is station teaching in a sense that students rotate through three groups (two incorporating teacher-led instruction and the third station an independent activity). Some stations can reteach and reinforce, while others can provide extension and/or enrichment opportunities. The Gradual Release of Responsibility Model requires learning to shift from being teacher-centric towards assuming responsibility as independent learners (Salehomoum, 2019). GRR is an interventional model that goes beyond explicit and guided instructions and ensures independent learning for deaf and hard-of-hearing students in inclusive education (Salehomoum, 2019). On the same note, GRR recognizes the need for teachers to lead and scaffold instruction, even as they support learners in moving toward independent learning (McVee, Ortlieb, Reinchenber, & Pearson, 2019). How gradual release ensures the effectiveness of re-teaching in inclusive classes? Does this model known to all educators who are teaching in inclusive education? What are the fundamental principles apart from the catchphrase of the model that can contribute to the effectiveness of the re-teaching strategy in inclusive settings?

Re-teaching needs to be both teacher-directed, in that the teacher determines the content focus and then gives a chance to students to demonstrate their abilities after explicit instructions (Guskey, 2007; Marzano, 2010; McVee, Ortlieb, Reinchenber, & Pearson, 2019). Under which model this can be effective among the gradual release and direct instruction model since both give teachers and students different degrees. So specifically, which

model can be best in integrating these ideas when considering the role of re-teaching in inclusive settings?

Above all, Bellert (2015) emphasised that re-teaching requires time resources that are well scheduled in a general school timetable as a guideline on how to be well implemented. If time is scheduled in school time, will it be mandatory for teachers to re-teach the lesson, or are there other alternatives? Despite the scheduling of re-teaching in the timetable, motivational strategies to teachers should be provided to make them fully participate in re-teaching as it is an extra activity or work after their actual works. Also, Ileri, King'endo, Wangila and Thurania (2020) opine that educational frameworks should mandate schools to adopt, design, and implement strategies that support inclusive education. According to the National Association of State Directors of Special Education (NASDSE) (2018), any activity or action that becomes effective in a well-managed environment is essential to ensure accessibility and participation in school activities for all students who are deaf or hard of hearing. This needs to include the school schedules of different activities, including extra-curricular activities, wherever they take place (NASDSE, 2018). So any plan, including IEP, must consider all aspects of each student's school environment and plan for accommodations and services where and when needed. The school management should be ready to review plans to enact an inclusive vision for their schools to lay the foundations of implementing any strategy and approaches about inclusive education in the respective school (Schuelka, 2018). A recent study conducted in Kenya found that school strategies and plans were not anchored in overcoming physical barriers that hindered the implementation of inclusive education, with various challenges affecting the strategies. Strategies needed learners with disabilities to adjust to get education in inclusive schools (Ileri et al., 2020). It is essential to chunk school schedules, plans, and frameworks to help deaf and hard students learn well by integrating all the plans and strategies fruit to DHH students, including a re-teaching approach for easy implementation. To achieve this, school management's supportive and cooperative management is critical to implementing inclusive education and associated strategies to make deaf and hard of hearing students learn well in inclusive settings (Schuelka, 2018). Also, it is argued that school leadership is crucial for the successful implementation of inclusive education (Villa & Thousand, 2016). The strategies should also consider the motivational aspect of teachers who dedicate their time and skills to help deaf and hard of hearing learn well (NASDSE, 2018). As part of the strategies to improve inclusive education in Malawi, Khomera, Fayiah and Gwayi (2020) recommended that the government improve financial funding to support the education activities of deaf and hard of hearing, including motivating teachers. The most inclusive and high-quality schools have school leaders who lead with vision, inclusive values, motivation, autonomy, and trust in school staff (Schuelka, Sherab &

Nidup, 2018). Also, Rieser (2012) advises that any inclusive implementation strategy should be combined with teachers' motivation. Therefore, no doubt that even re-teaching strategy is not out of this realm for effective implementation.

### **3. Materials and Methods**

#### *3.1. Statement of the Problem*

Many scholars have been engaged in explaining the practices of re-teaching strategies, but they forgot to show how this strategy can be effective in inclusive school settings, especially when teaching deaf and hard of hearing students. Bellert (2015) found a lack of information and evidence about re-teaching and how it is effectively implemented in school settings. AMUCTA in 2015 conducted a pilot study to test innovative teaching practices in inclusive secondary schools, re-teaching being one of the practices, and found that re-teaching significantly improved the academic achievement of deaf and hard of hearing. Though the study findings show positive effects on deaf and hard-of-hearing academic achievements, the study lacked specific findings or recommendations showing how re-teaching would be effectively implemented in inclusive secondary schools to bring changes to deaf learning in inclusive settings. Also, there is a lack of available documentation about re-teaching as one of the innovative instructional strategies AMUCTA teaches teacher trainees taking Bachelor of Education in Special Needs (Hearing Impairment) when teaching inclusive schools. Further, apart from being applied by AMUCTA teacher trainees in teaching practice, no detailed information explains the re-teaching strategy for teaching deaf and hard of hearing students in inclusive secondary schools in Tanzania. Considering the sensitivity of re-teaching, the researcher intended to examine the effectiveness of the re-teaching approach in teaching deaf and hard of hearing students in inclusive settings in secondary schools in Tanzania.

#### *3.2. Research Objectives*

##### *3.2.1 Main Objective*

The study intended to examine the effectiveness of the re-teaching approach in teaching deaf and hard of hearing students in inclusive settings in secondary schools in Tanzania, particularly Musoma Technical Secondary School.

##### *3.2.2 Specific Research Objectives*

The following research objectives guided the study

- i. To identify specific strategies to be used in re-teaching the lesson in inclusive schools
- ii. To assess the extent to which re-teaching support the learning of deaf learners

iii. To determine the theoretical model connected to effective re-teaching

iv. To identify the barriers of implementing re-teaching practice in inclusive schools

#### 3.2.3 Research Questions

i. What are specific strategies to re-teach the lesson in inclusive schools?

ii. To what extent re-teaching supports the learning of deaf learners?

iii. Which theoretical model is connected to effective re-teaching?

iv. What are barriers to implementing re-teaching practices in inclusive schools?

#### 3.2.4 Organization of the Study

The study is organized into five parts. The first part presents the background information about re-teaching, statement of the problem, objectives of the study, and research questions. Part two discusses methodology, including design, population and sample size, and research methods. Finally, research findings are presented and analyzed in part three, while research findings are discussed in part four. Lastly, part five provides conclusions of the findings and the study's recommendations.

### 3.3. Research Methodology

#### 3.3.1. Research Design

This study adopted a descriptive survey design to describe conditions necessary for the effectiveness of the re-teaching strategy for teaching DHH in inclusive schools. Descriptive survey design, according to Best and Khan (2006), is concerned with:

*Descriptive study describes and interprets what is. It is concerned with conditions or relationships that exist; opinions that are held; processes that are going on; effects that are evident; or trends that are developing. It is primarily, concerned with the present though it often considers past events and influences as they relate to current conditions* (p. 118).

Thus, with descriptive survey design, the study collected data that described conditions like specific strategies for effective re-teaching, effects of re-teaching on DHH learning, theoretical model relevant to re-teaching effectiveness and barriers inhibiting effective implementation re-teaching in inclusive schools.

#### 3.3.2. Research Approach

In this study mixed approach was applied because the study collected data using both qualitative and quantitative methods through qualitative data dominated. The use of mixed techniques helped overcome the problem of methodological boundedness as it demonstrated the value of combining qualitative and quantitative methods (Cohen, Manion & Morrison, 2007). This approach helped to bridge the gap between qualitative and quantitative

methodologies (Belk, 2006). The identified approach allowed collection, presentation, analysis, and description of data in qualitative and quantitative methods (Cresswell & Clark, 2011).

#### *3.4. Study Area*

The study was conducted at Musoma Technical Secondary School found in Musoma Municipality in Mara Tanzania. Musoma Technical Secondary School was selected as is the only inclusive school accommodating deaf and hard of hearing students who were the main target of this study. Moreover, familiarity of the researcher to the area helped collect information at easy and low cost.

#### *3.5 Population*

Population refers to individuals who have the same observable characteristics (Dhivyadeepa, 2015). For, example all deaf and hard of hearing made the population, specialist teachers as well make the population as they might share common characteristics. Hence, the target population of this study was HI teacher trainees from AMUCTA who were conducting their teaching practice in Mara region especially Musoma Technical Secondary school, DHH students and school management, especially school head and heads of unit.

#### *3.6. Sample Size*

A sample is a group of people from whom data are collected. Sample, in other words, is the subset of some of the units in the population (Dhivyadeepa, 2015). The study comprised a sample of 10 teacher trainees from AMUCTA because they were responsible for implementing a re-teaching strategy as they learned it in their bachelor program. Also, it was hoped that they would provide live and rich experiences and authentic voices on the effectiveness of re-teaching. Further, 9 DHH students were chosen as beneficiaries of re-teaching strategies.

Furthermore, the head of school was chosen to authorize any plan and activity takes under his jurisdictions. Two heads of unit were chosen as the heads of HI unit and immediate supervisors of teacher trainees. Thus, the research sample involved in this study was 22 participants.

#### *3.7. Sampling Techniques*

According to Dhivyadeepa (2015), sampling involves special methods to select a group of subjects of a research study from its parent population, enabling the researcher through its study to draw inferences about the characteristics of the population. The researcher used probability and non-probability sampling techniques.

In probability sampling, stratified sampling was used to obtain the number of deaf and hard of hearing students based on homogeneity and inclusion of students from all intended classes of forms three and two. The students were stratified in line with their forms and hearing levels so that all category to be well represented.

Purposive sampling was applied to school heads, heads of unit, and teacher trainees because of their status quo and experience on how deaf and hard of hearing lean. In purposive sampling, researchers often handpick the cases to be included in the sample based on their judgment of their typicality or possession of the particular characteristics being sought (Cohen, Manion & Morrison, 2011; Kothari, 2004). So, purposive sampling was used to access 'knowledgeable people', i.e. those who have in-depth knowledge about deaf education maybe under their professional role, power, and access to networks, expertise, or experience.

### *3.8. Data Collection Methods and Instrumentation*

Interview guide used to collect data from the head of school, teacher trainees and heads of the unit while questionnaires used to collect information from the students to trap their perception on re-teaching practices. Again practical exercises were given to DHH students to collect information on the effects of re-teaching in inclusive school.

## **4. Research Findings**

This chapter deals with the presentation and analysis of the research findings. The data are presented according to the research objectives that guided the study. Firstly, identifying specific strategies to be used in re-teaching the lesson after the inclusive class; secondly, assessing the extent to which re-teaching help to solve the problem of working memory of the deaf learners; thirdly, determining the theoretical model connected to effective re-teaching and fourthly, identifying the barriers to implement the re-teaching practice in inclusive schools.

In order to successfully present and analyze the findings of this study, the part was divided in two main parts. The first part presented the background information of the respondents. Part two presented the findings that answer the research questions. The major data analysis tool was Statistical Package for Social Sciences (SPSS) and Excel. The presentation involved descriptions in terms of words and descriptive statistics in terms of percentages, mean and standard deviations in some cases. For example, a chart like a bar chart was used in some cases while text-method of data presentation mainly was used to present interview and open-ended data.

#### *4.1. Demographic characteristics of respondents*

Two variables were used to represent the demographic characteristics of respondents of this study. These include gender; and categories of respondents. Background information was considered to have an overview of the respondents so as to have an accurate picture of their participation in the study. For example, 13 (59.1 percent) of respondents in this study were male, while 9 (40.9 percent) were female. Male respondents seemed to outnumber females because all students were male as Musoma Technical Secondary School accommodates only boys. Concerning the category of respondents, findings revealed that teacher trainees were the majority comprised 10 (45.5 percent) followed by DHH students 9 (40.9 percent) and 3 (13.6 percent) for school management members from Musoma technical secondary school. The findings generally revealed that teacher trainees and DHH students constituted a large percentage of respondents as they were the direct participants in the re-teaching strategy after inclusive classroom. The demographic characteristics presented in this study provide real picture and validity of the information presented in this study.

#### *4.2. Specific strategies to be used in re-teaching the lesson after the inclusive schools*

In order to answer the first research question, which stated “What are specific strategies to be used in re-teaching the lesson after the inclusive class?” The findings from teacher trainees and DHH students show that there are specific strategies that are used when re-teaching the lesson. The majority of the teachers revealed that the re-teaching approach dominantly use question-based strategies. For example, most teachers identified strategies like; questions with filling gaps, sentences with blank spaces, diagrams with blank spaces to fill in. One teacher further explained that:

*“In re-teaching the lesson I can opt to use the mind map diagram with gaps which require students to fill in. I do this so as to involve the learners in teaching and learning.”*

Some students, when answering the question asked “What strategies the teachers normally use when teaching you after classroom teaching?” responded:

*“Sometimes teachers tend to use questions and practices supported with sign language and translation to the concepts and terms which deemed to be difficult to us.”*

Generally, the findings show different strategies with the nature of practical oriented in forms of questions. This is because re-teaching is meant for consolidating learning for DHH due to their learning styles and the challenges they face during inclusive class teaching. So, with question-based strategies, DHH will be given enough time to learn and achieve targeted behavior as a cardinal objective of mastery learning.

#### 4.3. Re-teaching in supporting the learning of deaf learners

In order to establish the extent to which re-teaching supported the learning of deaf and hard-of-hearing students in inclusive schools, responses from close-ended questions on the effects of re-teaching on deaf learning were first presented. Responses ranged from agree (1) to disagree (3) on each statement. (Figure 3.1) summarizes all statements in terms of percentages.

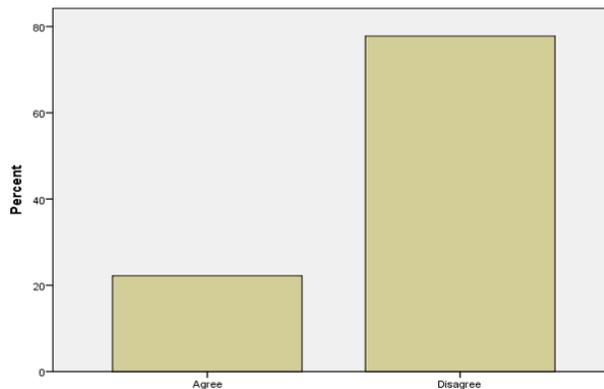


Figure 1. Summary of inclusive teaching on deaf learning. Source: Field data

Findings in figure 1 revealed that most respondents 77.8 percent disagreed that deaf students understand well in inclusive classes. The reasons to support the findings from the figure above also came from open ended questions. Majority of students who responded on this question said that inclusive class itself limits their learning. One student further explained;

*“Inclusive class teaching limits my understanding because no teachers who can interpret to us but in re-teaching teachers teach directly by using sign language as they know and master it.”*

Another student added that:

*In inclusive class teaching teachers normally tend to concentrate with hearing peers than deaf or hard of hearing students. Some teachers provide divided attention in inclusive class but during re-teaching all teachers focus only on deaf and they not provide divided attention.*

The findings largely show that the re-teaching approach is a good alternative to help deaf and hard of hearing learn well after inclusive classroom teaching. Further, the study's findings show that the responses of all statements regarding re-teaching and learning of deaf learners ranged between not sure and agree. The mean (M) for these statements were (I understand well when the teacher re-teaches the lesson in resource room =2.6667; Re-teaching makes me remember the learned information in inclusive class= 2.5556 respectively). The results in mean average are between not sure and agree. Since, the means scores are near to agree it can be interpreted that majority of students agreed that re-teaching help them to learn well different

from inclusive classes. The findings from a close-ended questionnaire obviously indicated that re-teaching had positive effects on deaf learning.

The findings of close-ended questionnaire about re-teaching effects on deaf learning were well coupled with the findings from interview and open-ended questions from questionnaires respectively. In answering the questionnaire, one of the students agreed that re-teaching helps retain memory. It was further explained:

*“It helps in remembering since it gives us the second chance to learn more the same lesson after general classroom teaching.”*

Also, one teacher trainee, when was interviewed, added:

*Re-teaching fosters remembering and retention of the memory because learners get enough time to learn and practice on the same lesson. But also, as a teacher I use this chance to correct mistakes inherited from inclusive class something that help deaf learners to remember more and retain the information learned.*

Further, one student explained;

*“Re-teaching reminds me what I learnt in the previous lesson because we learn in a convenient time and place by using good sign language.”*

Generally, the study's findings revealed that re-teaching enhances mastery learning as it minimizes the barriers for learning and maximizes time spent on learning. The findings with effects of re-teaching on deaf learning were also investigated by relating performance from the exercises given after inclusive classroom whilst exercises given after re-teaching. The findings show that deaf students performed 83.333 percent after re-teaching compared to 60 percent after inclusive classroom teaching. Results showed that during inclusive class the performance were highly deviated from the mean by 18.0278 but after re-teaching, the performance was deviated slightly from the mean by 8.6603. The findings indicated that re-teaching greatly enhance mastery learning as it reduced learning variations as the performance deviated slightly from the mean by 8.6603.

These findings are coupled with the findings from open-ended questions. One of the teachers responded that re-teaching improved the academic performance of deaf students. The findings were also, supported by head of unit from Musoma Technical Secondary School who said that the approach is good to students especially deaf and hard-of-hearing students. She added that in re-teaching students can answer questions in classes. However, the accurate indication should be revealed from examinations. Also, head of the school contributed:

*Re-teaching strategy seems to be helpful to deaf and hard of hearing l. Due to its importance teachers have been requesting school quality assurance officers to recognize it as the strategy of teaching deaf and hard of hearing in inclusive schools so as to consolidate their learning after inclusive class instructions.*

Basing on the evidence from the field and school management it is obvious that re-teaching strategy is helpful to deaf and hard of hearing as teacher trainees did it from AMUCTA.

#### *4.4. Theoretical model connected to effective re-teaching*

The findings here are intended to answer the research question stated “Which theoretical model is connected to effective re-teaching?” The researcher presented the results about the theoretical model that would be connected to effective re-teaching from close-ended questionnaires using descriptive statistics. Responses ranged from disagree (1) to agree (3) on each statement. Data show different results on different components of different models. The mean of the first statement (I enjoy the lesson when the teacher explains each and everything) was 2.0000, which indicated that students were undecided and tentatively disagree that direct instruction from the teacher is not favourable to deaf and hard of hearing. The second statement (I enjoy the lesson when the teacher gives opportunity to do thing ourselves in groups) had the mean of 2.5556 which was between undecided and agree but also the results almost by half deviated from the mean and become near to agree. Finally, the third statement (I enjoy the lesson when the teacher gives the opportunity to do things independently) had the mean of 3.0000 which was agree. Results showed no deviation from the mean showing that all respondents agreed that students enjoy much when they were given opportunity to practice independently. So, second and third statements identified collaborative learning and independent practice as important theoretical model components necessary for effective re-teaching. Findings from the interview guide backed up these findings from close-ended questionnaires. Most teacher trainees said that the theoretical model suitable for effective re-teaching is the gradual release of responsibilities model with the components of focus lesson collaborative learning and independent practice. One of the teacher trainees added:

*“Gradual release of responsibility model suits re-teaching because re-teaching is more practical oriented whereby students need to much involve in learning after explanations from the teacher.”*

Another teacher trainee exemplified that re-teaching allowed different components starting with teacher domination then full students’ involvement in terms of collaboration by using group discussion and independent practices by using individual assignments. All these are key elements and components of gradual release of responsibilities model. The findings of the study indicated that gradual release of responsibility model was a specific model connected to effective re-teaching.

#### *4.5. Barriers to implementing the re-teaching practice in inclusive schools*

The researcher sought to identify barriers in implementing re-teaching practices in inclusive schools. Responses ranged from disagree (1) to agree (3) on each statement. The findings under this theme indicated that the means for all statements were (Time for re-teaching is sufficient =2.7778; School management supports the implementation of re-teaching=2.0000 respectively). Findings from the close-ended questionnaire indicated that time and school management did not hinder the re-teaching approach in Musoma technical secondary school. The means of all statements were almost significantly agreed that time was enough for re-teaching as well school management supported implementation of re-teaching. However, the above findings were contrary to the findings from interview and open ended questionnaires.

Most of the respondents interviewed commented that re-teaching was not free from barriers during its implementation. The First head of unity clarified:

*“Time is not enough to implement re-teaching approach because is not is not part of the general school timetable which is full of many activities on the whole day.”*

Further the second head of unit maintained:

*Re-teaching strategy is not accommodated in a general school timetable since is new idea to us and school management in general simply because we have heard and seen it hear for the first time from the teacher trainees that’s why is not part of the school general timetable.*

On the same note, one student on responding to opened-ended questionnaire explained:

*The general school timetable comprises cleanliness, sports and subject clubs among many others which normally conducted after classroom hours the time when re-teaching is expected to take place. This situation prevents us to full participate in re-teaching as we are needed to attend to all scheduled activities on the day.*

So, if the re-teaching practice could be integrated into the general school timetable, it could be effectively implemented, explained the first head of the unit.

Another barrier mentioned in the interview was less cooperation and acceptance from the management on how deaf and hard-of-hearing students learn. Most of the respondents especially teacher trainees confirmed:

*Some management members have limited knowledge on deaf education as the result they show less cooperation and acceptance on the overall activities designed to help deaf and hard of hearing learn well specifically the implementation of re-teaching strategy with notion that deaf cannot learn as the hearing peers learn.*

The head of school clarified:

*“School management helps heads of unit to get room and resources for implementation of re-teaching but the problem comes when teachers responsible for implementing re-teaching start to demand extra payment to re-teach the lesson.”*

Further, the study's findings confirmed that to some extent, the school management is reluctant over re-teaching as no clear information from the headmaster office on how re-teaching was implemented. This means that the school management did no follow-up to evaluate the practice of re-teaching.

To a large extent, the findings of the current study confirmed many barriers to the effective implementation of the re-teaching approach in inclusive secondary schools. Some were associated with management as teacher trainees and students indicated. Also, the study's findings confirmed that teachers were not self-motivated to implement re-teaching in the absence of extra payment.

## **5. Discussion**

In this chapter, the researcher provided discussion of the results related to the effectiveness of re-teaching approach in teaching deaf and hard of hearing students in inclusive settings in secondary schools in Tanzania and how those findings compare and contrast with those identified in previous researches to conclude good practices of re-teaching.

### *5.1 Specific strategies to be used in re-teaching the lesson after the inclusive schools*

The findings showed specific strategies that can be used to re-teach the lesson. The findings showed that using question-based strategies like questions filling gaps, sentences with blank spaces, and diagrams with blank spaces can be the most effective strategies for effective re-teaching. The current study's findings corroborate with the previous study by Marzano (2010) who suggested that in re-teaching a lesson is necessarily start by making connections to what the learners already know, then utilise instructional techniques such as modelling and demonstration; graphic organizers, and questioning strategies. Further, Kutscher (2008) proposed that re-teaching can include strategies like; re-working examples, textbook revision, and visual representations. In addition, task-based learning strategies might be more effective to making learning meaningful and applicable (Lemke & Coughlin, 2009 cited by Easterbrooks, 2021).

Further, Information Resources Management Association (2019) stresses the roles of task-based techniques by saying that task-based strategies such as questions with filling gaps, sentences with blank spaces, diagrams with spaces to fill-in can best applied to enable deaf and hard of hearing

students to check to what degree they have understood the lesson. Basing on the findings of the current study it can be explained that re-teaching is practice-based strategies that require more activities to be performed by students after inclusive class teaching. Effective re-teaching should be designed to provide enough opportunities of practices to enhance mastery learning. Information Resources Management Association (2019), support the argument by saying that the task-based strategy gives an opportunity to students to demonstrate their understanding and give feedback to a teacher. It must be remembered that more practice makes someone perfect and ultimately fosters an understanding of deaf and hard of hearing.

Also, findings revealed that a teacher could opt to use the mind map diagram with gaps requiring students to fill in or label. This finding is consistent with the previous study, which revealed that re-teaching could effectively use charts (as well as subject-specific strategies such as labeling graphics in science (Frye, 2010). Iroegbu & Margaret (2019), argued that instructional graphics combined with text, illustration and colours to convey a message to helps in the immediate understanding of the concept which is not easily achievable by words alone.

Further, the findings indicated that some teachers tend to use questions and practices supported with sign language and translation to the concepts and terms deemed difficult to students during inclusive classroom instructions. The findings concurred with the previous study's findings, which stated that by nature, re-teaching is a practical, classroom-based process that needs to be both effective and sustainable (Graham, Berman & Bellert, 2015). The findings of this study justify that by nature effective re-teaching approach needs strategies which are practical oriented in forms of questions or working practices which give the learners enough time to practice on what were learned during the classroom teaching. Mozingo (2017) supports the findings that re-teaching opportunities should allow students to demonstrate their growth in learning and understanding through different ways to show learning e.g., such as oral explanations, graphic organizers, and visual representations. This is because more practices make someone perfect, especially in retaining memory.

### *5.2. Re-teaching in supporting the learning of deaf learners*

Findings from closed-ended questionnaires revealed that deaf and hard-of-hearing students do not learn effectively in inclusive classes. However, many instructions are connected to verbal or spoken language, which hinders deaf and hard of hearing students' learning. The findings collaborate with the findings from the previous studies. This finding confirms with the results of Saidi (2019), that in most cases verbal language is the one used frequently compared to sign language because regular teachers are not good at sign language. Also, the findings correspond with the findings of Desalegn and

Worku (2016), which stated that sometimes some teachers speak orally and are unable to meet deaf and hard of hearing needs. Some teachers cannot provide any kind of support except for hearing students. Deaf and hard of hearing, they fail to communicate that they cannot hear what the teacher or the other pupils are saying (Desalegn & Worku, 2016; Khomera, Fayiah & Gwayi, 2020).

Also, some teachers provide divided attention in inclusive class, but all teachers focus only on deaf without divided attention during re-teaching. Based on this study's findings, inclusive classes are not favourable for deaf and hard of hearing for mastery learning without other individualized based strategies that suit learning styles of deaf and hard of hearing students. The findings of the study correlate with the findings from the study conducted by Getnet (2019) which stated that a teacher who simultaneously teaches students having different abilities, is impossible to satisfy either the hearing or hearing-impaired students. It is further reported that teachers who are teaching at the inclusive classroom usually leave the class half-heartedly because they cannot help the students (Getnet, 2019). To offset the challenges of divided attention revealed in the current study and supported by the previous studies, other previous studies stressed that the re-teaching approach is one of the methodologies that can be applied to support students who did not learn content, concepts or procedures from 'first' teaching and learning activities in inclusive class instructions (Bellert, 2015; Marzano, 2010). Also, Mozingo (2017) claimed that re-teaching involves responding to a problem right away, using a new method or approach.

Re-teaching fosters remembering and retention of the memory because learners get enough time to learn and practice on the same lesson. More practices corresponded with practical activities based on the concepts learned from the first learning may have significant advantages to deaf and hard of hearing students on their learning and academic performance in general (Bellert, 2015; Fisher & Frey, 2008; Mozingo, 2017). Benjamin Bloom in mastery learning (ML) said that degree of learning is the function of time spent relative to time needed for learning. Considering the learning style of deaf and learning needs of deaf and hard of hearing, re-teaching is inevitable for mastery learning. This is because during inclusive classes, whether there are interpreters of sign language normally the time for learning is limited to deaf as teachers tend to divide time, half of the time spent is devoted to hearing students and the rest time to deaf (Desalegn & Worku, 2016; Getnet, 2019). In such a situation, teachers cannot provide deaf and hard of hearing with any kind of support except for hearing students only (Desalegn & Worku, 2016). This makes re-teaching very important to supplement the lost time to deaf and hard of hearing during the inclusive classroom as is explained by Mozingo (2017) explained that re-teaching in the purposeful grouping is used to clear up errors and misconceptions. It is further suggested

that, with re-teaching, instructors will continually monitor students' progress to make sure that they master key skills and concepts (Mozingo, 2017).

Further, findings of this study revealed that re-teaching can be used to correct mistakes inherited from inclusive class something that help deaf learners to remember more and retain the information learned. The findings correspond with the findings of the previous study stated that

re-teaching helps to discover common errors and misconceptions, encouraging students to self-correct and modify their learning (Mozingo, 2017). Another previous study, revealed that re-teaching acts as the bridge to both teachers and students to nourish the lesson after the inclusive class instruction as is stated by Fisher & Frey (2008) that re-teaching is a second-chance opportunity for both teachers and students, as teachers can refine and target their instruction by clarifying student learning and understanding and students can try again to learn the content, concept, skill or procedure. The general findings from the practical test show improvements on academic performance of deaf students after re-teaching compared to the performance after general classroom teaching. The findings show that after inclusive class the mean performance was (60%) but after re-teaching their performance increased to (83.33%). This performance actually signified the importance of re-teaching strategy on deaf learning and performance in inclusive schools. This undoubtedly show that if re-teaching is applied effectively by teachers will help to improve the academic performance of deaf and hard of hearing in inclusive settings as case of practical results obtained from the field.

### *5.3 Theoretical model connected to effective re-teaching*

The findings support the gradual release of the responsibility model as an ideal theoretical model that can fit in the effective re-teaching strategy. For instance, the first statement is near to agree that the teacher can dominate the lesson at the early stage (I do it), second statement is also near to agree that (we do it), and the third statement completely agree with the (you do it independently) component. The findings to large extent favour the model of Gradual release of responsibility. These components of the GRR correspond with the findings of the study by Mozingo that effective re-teaching should follow the station teaching strategy two incorporating teacher-led instruction and the third station an independent activity. This suggestion is not far with the shift of responsibilities from being teacher-centered to learner centred through independent practices (Salehomoum, 2019). Further, the components of focus lesson (I do it), collaborative learning (we do it together) and independent practice (you do it independently) as fundamental principles of the gradual release of responsibility make the approach more effective to yield fruitful academic results on deaf and hard of hearing. The findings of this study corroborate with the findings of some previous studies which concluded that the Gradual Release of Responsibility Model encompassing essential

components, with its catch-phrase of ‘I do, we do, and you do’; serves as a framework for an effective re-teaching lesson (Pearson & Gallagher, 1983; Fisher & Frey, 2008). Also, GRR gives the teacher flexibility when implementing the re-teaching strategy to deaf and hard of hearing as is supported by one study that GRR recognizes the need for teachers to be responsible for leading and scaffolding instruction, even as they supported learners in moving toward independent learning (McVee, Ortlieb, Reinchenber, & Pearson, 2019).

Gradual release of responsibility model suits re-teaching because re-teaching is more practical oriented whereby students need to be much involved in learning after explanations from the teacher (Mozingo 2017; Salehomoum, 2019; McVee, Ortlieb, Reinchenber, & Pearson, 2019). With gradual release of responsibilities, instruction responsibilities tend to shift from teachers to be student dominated as is justified in the figure below:

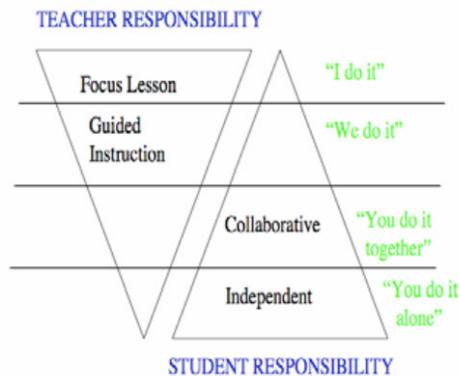


Figure 2. Model showing how responsibilities tend to shift during re-teaching. Source: Adopted from Frey & Fisher (2006)

It is important to understand that the gradual release of responsibility model is not linear. Instead, students move back and forth among each of the components to help them in mastering skills, strategies, and learning standards (Fig. 2). The findings exemplified that re-teaching allow different components starting with teacher domination then full students’ involvement in terms of collaboration through group discussion and independent practices using individual works like assignments, exercises, homework etc. This is well coupled with the previous studies which stated that re-teaching needs to be both teacher-directed, in that the teacher determines the content focus and then give chance to students to demonstrate their abilities after explicitly instructions from the teacher (Guskey, 2007; Marzano, 2010; Mozingo 2017; Salehomoum, 2019; McVee, Ortlieb, Reinchenber, & Pearson, 2019). So, Gradual release of responsibility model and components ensure the gradual shifts of responsibilities from teacher centre to learner centered as reciprocal

kind of instruction which is very strong strategy in helping learners to learn well.

#### *5.4. Barriers to implementing the re-teaching practice in inclusive schools*

The findings from the interview and open-ended questions noted time as main barrier in implementing the re-teaching approach in inclusive schools. This is because re-teaching is not known and is not part of the general school timetable. The findings are consistent with the previous study, which established that re-teaching requires time resources (Bellert, 2015). The findings of this study confirmed that time problem has roots in the general school timetable and fails to recognize re-teaching as the official activity connected to deaf learning. The findings of the study by Schuelka (2018) report that school management should be ready to review plans, including school timetable, to enact an inclusive vision for their schools to lay the foundations of implementing any strategy and approaches about inclusive education including re-teaching strategy. Also, the current study's findings correspond with the results of Ileri et. al (2020) that school plans were not anchored in the implementation of inclusive education and needed learners with disabilities to adjust themselves to get the needed education in inclusive schools. Connecting to implementation of re-teaching strategy it is clear that it is the implementers of re-teaching and deaf learners to adjust themselves to suit the school timetable not the timetable to consider and integrate any inclusive related strategy as is suggested by NASDSE (2018) that any activity should take place in a well-managed environment by including it in the school schedules of different activities including extra-curricular activities, wherever they take place.

Also, the findings of this study revealed that there was less cooperation and acceptance from the management on how deaf and hard-of-hearing students learn. This can result from little knowledge or reactance of school management members on deaf education. Most of management members have no or little knowledge on how deaf and hard of hearing children learn as the result they tend to provide less cooperation and sometimes do not accept any activities designed to help deaf and hard of hearing students learn well in inclusive schools including re-teaching which is time-consuming practice. The findings of the study, collaborate with the findings of the previous study which indicated that supportive and cooperative school management is very important in order implement inclusive education and associated strategies to make deaf and hard of hearing students to learn well in inclusive settings like the re-teaching strategy to deaf and hard of hearing (Schuelka, 2018). Villa and Thousand (2016) also, support the idea by stressing that school leadership is crucial for the successful implementation of inclusive education re-teaching

being one of the strategies to be taken care of by the school management for effective implementation.

Further, findings revealed that teachers were demanding extra payment so as to involve in re-teaching the lessons after inclusive classroom teaching. This showed that teachers are not self-motivated and they have no readiness to implement re-teaching in the absence of extra payment.

It is obvious that motivation is a powerful determinant when implementing any program. Motivation can be intra (within) the implementer which is associated with readiness of the practitioners. Another source of motivation is the management's incentives to teachers involved in implementing the re-teaching strategy. NASDSE (2018) contributed on the part of the motivation in relation to the implementation of inclusive education strategies by saying that strategies should also consider the motivational aspect to teachers who dedicate their time and skills to help deaf and hard of hearing to learn well. Also, in their study, Khomera, Fayiah and Gwayi (2020) recommended that the government should improve financial funding to support the education activities of deaf and hard of hearing, including motivating teachers. Further, the role of motivation in implementing the re-teaching approach, as was revealed in this current study was reflected in the previous studies like (Rieser, 2012; Schuelka, Sherab & Nidup, 2018; Said, 2019). For instance, Schuelka, Sherab & Nidup, 2018 stated that motivation for teachers is one of the factors of inclusive and high-quality schools implementing inclusive strategies. On the same note, Rieser (2012) accorded that any inclusive implementation strategy should be combined with teachers' motivation. Accordingly, based on the role of motivation to implement inclusive education, Saidi (2019) opined that lack of motivation to teachers of students with hearing impairments is one of the challenges hindering the implementation of inclusive education in Tanzania. Put re-teaching, inclusive education practices cannot be implemented if teachers are not well motivated, so motivation strategies should be devised to make teachers dedicate their effort and time to re-teaching to help deaf and hard of students learn well in inclusive settings in Tanzania. Therefore, no doubt that even re-teaching strategy is not out of this realm for effective implementation.

## **6. Conclusions**

Therefore, about the effectiveness of the re-teaching approach for teaching deaf and hard of hearing students in an inclusive setting in secondary schools, the study concludes that:

- i. Questions-based strategies like questions with filling gaps, sentences with blank spaces, diagrams with blank spaces to fill in are among the most efficient strategies suitable for implementing a re-teaching approach in inclusive schools.

ii. Further, specific strategies which determine the operations of re-teaching practices in inclusive schools in Tanzania should be known in advance and made a national strategy of teaching deaf and hard of hearing in inclusive schools in Tanzania.

iii. Furthermore, the re-teaching approach should be connected to education policy, curriculum, and national strategy for inclusive to help improve the learning of deaf and hard of hearing in inclusive schools to maximize their performance.

iv. More theoretical models should be adapted and connect them with the practices of re-teaching to make it more flexible and most efficient to suit the diverse needs of deaf and hard of hearing in inclusive schools.

v. Both government and school management should find suitable ways of motivating teachers with extra payment to effectively re-teach the lesson as it is time demanding.

vi. School management should be capacitated with the knowledge of how deaf and hard of hearing learners learn to help smooth implementation of re-teaching in inclusive schools.

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## Appendix A: Questionnaire for Students

Item	Disagree	Undecided	Agree
I understand the lesson during general classroom instruction			
I understand well when the teacher re-teaches the lesson in resource room			
The re-teaching makes me remember the learned information in inclusive classroom teaching			
I enjoy the lesson when the teacher explains each and every thing			
I enjoy the lesson when the teacher gives opportunity to do thing ourselves in groups			
I enjoy the lesson when the teacher gives opportunity to do things independently			
Time for the re-teaching is sufficient			
School management supports the implementation of re-teaching			

1. What strategies the teachers normally use when teaching you after inclusive classroom teaching?
2. How these teaching approaches help you in your learning?
3. How far this practice is different from the general inclusive teaching to you as a deaf learner?
4. How far this the re-teaching is helpful to you as a deaf learner?
5. What do you think are the challenges to you in implementing the re-teaching practice to your school?
6. What do you think are the challenges to your teachers in implementing the re-teaching practice to your school?
7. What do you suggest as ways to improve the practice of the re-teaching to the management of your school and the government in general?

## Appendix B: Questionnaire for Students in Swahili

Items	Disagree	Undecided	Agree
I understand the lesson when taught in inclusive class			
I deeply understand when the lesson is re-taught in the resource room			
I remember things I have learnt when the lesson is re-taught			
I enjoy the lesson when the teacher does not involve the students			

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I enjoy the lesson when I'm given an opportunity to participate in learning

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I enjoy the lesson when I'm given an opportunity to practice independently after the instructions of the teacher

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Time is enough to re-teach the lesson

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School management helps to implement the approach of re-teaching

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1. Which methods teachers use to re-teach the lesson after inclusive class?
2. How the re-teaching method helps you in your learning?
3. How far the re-teaching method is different from other methods used during inclusive class learning?
4. What are the advantages of using the re-teaching methods compared to other methods used during inclusive classroom teaching?
5. Which challenges you face when implementing the re-teaching method?
6. Which challenges face your teachers when implementing the re-teaching method?
7. What can you suggest to the school management and government in general to effectively implement the re-teaching as the method of teaching deaf students in inclusive school?

### **Appendix C: Interview Guide for Teacher Trainees**

1. What specific strategies do you apply when the re-teaching your lesson?
2. How does the re-teaching differ from other forms of teaching settings?
3. Why do you re-teach the lesson after inclusive classroom teaching?
4. What effects have you noted to your students since you started to implement re-teaching?
5. Which theoretical components can be connected to in re-teaching?
6. What are the barriers you are facing in implementing the re-teaching in this school?
7. What do you suggest to improve the practice of re-teaching?

### **Appendix D: Interview Guide for Heads of school and Unit**

1. What observable effects have you noted to your students since this approach is implemented to your school?
2. How do you support teachers and students in implementing this practice of re-teaching?
3. How this practice collides with your school timetable and other plans?
4. What are the barriers your face implementation of the re-teaching approach?
5. What do you suggest to improve the practice of re-teaching?



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