THE EFFICACY OF THE DESIGNED INTERVENTION LEARNING MATERIALS FOR IMPROVING ENGLISH LANGUAGE COMPREHENSION ABILITY TO STUDENTS WITH HEARING IMPAIRMENT IN SELECTED TANZANIA INCLUSIVE SECONDARY SCHOOLS

Eugen Mtemi Philip[1],
Salvius Kumburu[2i]
[1]PhD,
Department of Special Needs Education,
Archbishop Mihayo University College of Tabora (AMUCTA),
Tanzania
orcid.org/0000-0002-8642-1994
[2]PhD,
Department of Psychology,
Ruaha Catholic University (RUCU),
Tanzania

Abstract:
This study embarked on intervention research to establish the efficacy of the developed intervention learning materials in improving language comprehension ability among students with hearing impairment in inclusive classrooms in secondary schools in Tanzania. The study adopted a developmental design using pre-test, post-test quasi-experimental mixed approach in which the experimental group was subjected for intervention using designed intervention materials while the control group used a traditional approach in learning comprehension. The study employed questionnaires, interviews and documentary review as methods of data collection. The quantitative evaluation employed paired sample t-test and independent t-test to compare scores within the group and between the experimental and control groups. The qualitative evaluation used a phenomenographic approach. The findings revealed that the post-test mean scores of the students in the experimental group improved significantly in comparison with the control group.

Keywords: hearing impairment, language comprehension, inclusive classroom

---

[i] Correspondence: email eugenphilip@gmail.com, kumbulus@yahoo.co.uk

1. Introduction

Poor English language comprehension ability among students with Hearing Impairment (HI) has been a great concern for many researchers, especially in countries whose English language is not the first language, but rather, a second or language of instruction (Mpofu & Chimhenga, 2013; Naik & Sharma, 2013). Globally, children with HI are faced with numerous problems in learning English language comprehension. These problems include a lack of knowledge of sign language, inadequate vocabulary in the target language, lack of trained teachers to teach language and adapt the curriculum in a classroom setting (Mpofu & Chimhenga, 2013; Naik & Sharma, 2013). In Tanzania, for example, students with HI use Tanzania Sign Language (TSL) prepared by Chama Cha Viziwi Tanzania (CHAVITA), Deaf Association of Tanzania to learn English language. While this is the practice, there are several linguistic differences between English and Kiswahili which cause some difficulties to transfer Kiswahili vocabulary to English language (Batamula, 2009; Ministry of Education and Vocational Training, 2007; Muzale, 2004; Tanzania Childreach, 2016). Further, a baseline study conducted in inclusive secondary schools in Tanzania in 2016 reported that students with HI failed to learn English language due to limited amount of vocabulary and sign language skills, inappropriate use of pedagogical approach (lack of use of visual aids, sign language interpretation); and lack of trained teachers to adapt English language curriculum in a classroom setting.

The Government of Tanzania considers language competency as the cornerstone towards accessing information from written and non-written materials (United Republic of Tanzania, 2014). Language competency comprises the ability to listen, speak, read, and write (Bowyer-Crane & Snowling, 2005). It is within those four skills (listening, speaking, reading and writing), that the four higher-order language skills: comprehension, phonological awareness, phonic, and fluency and vocabulary are grounded (National Reading Panel, 2000; Scarborough, 2002b). Broadly speaking, language comprehension ability is the application of background knowledge in understanding facts and concepts, understanding of language structures, such as grammar, semantics, morphology; verbal reasoning, and reasoning knowledge (Scarborough, 2002b). Thus, comprehending, whether oral or written is understood as the ultimate goal of reading.

Essentially, students who have excellent language comprehension skills easily master higher language proficiency knowledge (Scarborough, 2002a). However, learning comprehension skills is not automatic; it requires a conducive learning environment in which there is accessibility to learning materials and appropriate expertise (Novotny, 2011). National Reading Panel (2007) maintains that three important elements are required to promote reading comprehension. These are vocabulary development, vocabulary instruction and comprehension strategies. Research has suggested several strategies to help students in learning comprehension skills. These include question asking and answering, summarization, story mapping, comprehension monitoring, and

graphic organizers (Blickenstaff, Hallquist, & Kopel, 2013; Lysons & Farrington, 2012). However, for effective learning, a combination of the above strategies is recommended (National Reading Panel, 2007; Shanahan, 2005). With regard to students with Hearing Impairment, research recommends incorporation of others, such as sign language interpretation, simplified teaching and learning materials when learning comprehension skills along with the strategies discussed above (Hoffman & Wang, 2010; Nikolaraizim, Vekiri, & Easterbrooks, 2013).

Recently, the Ministry of Education, Science and Technology (MoEST) conducted a study in selected secondary schools which investigated the learning challenges faced by students with HI. The study revealed similar findings reported earlier by previous studies elsewhere in the globe (Mpofu & Chimhenga, 2013; Naik & Sharma, 2013, Childreach, 2016). The MoEST report revealed that students with HI in Tanzania face significant problems when it comes to English language learning, comprehension including. Among others, the problems included language barrier, teaching approaches, and lack of assistive devices (URT, 2018). These challenges are statistically illustrated in Figure 1.
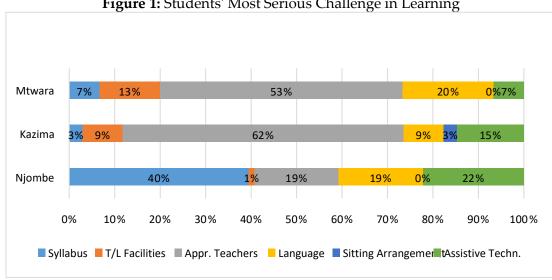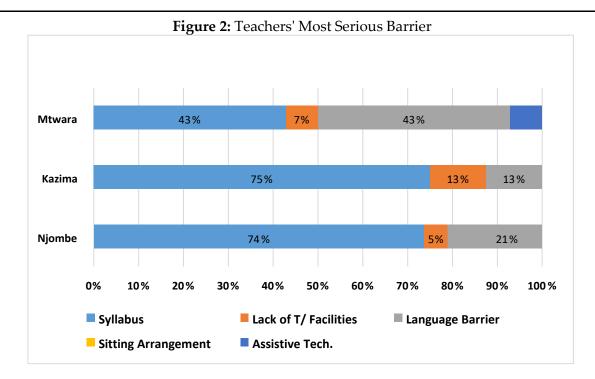
Figure 1: Students' Most Serious Challenge in Learning

Source: URT, 2018 (p.25).

Another challenge revealed by the study was about teachers' failure to use the Tanzania Sign Language to facilitate communication in English language. Expounding more, teachers and students faced serious communication barriers as they tried to combine English, Kiswahili and signs supported by Kiswahili or English in classroom interaction due to low proficiency in sign language (URT, 2018). Besides, the study found that schools lacked adequate and relevant resources, such as assistive devices for students with HI. Figure 2 illustrates the teachers' challenges.

Figure 2: Teachers' Most Serious Barrier

Source: URT (2018, p.26).

In view of the challenges encountered by students with Hearing Impairment (HI) in learning English language comprehension, some initiatives have been taken in both developed and developing countries. These initiatives include; first, provision of language learning support to parents with deaf children, such as teaching communication skills through special education teachers, provision of 'peripatetic' services about communication. Second, teachers are provided training on the preparation of teaching materials to mainstream teachers. Third, special education teachers are provided an opportunity to work with audiologists, and speech and language therapists, ensuring hearing aids and cochlear implants, provision of radio aid system for assisting students with HI to learn language skills. Fourth, many countries allow students with HI to stay in school for extra time to enable them overcome language learning challenges, training of sign language to teachers and parents (Department For Education, 2014; Department of Education - Republic of South Africa, 2002; Lakkala, 2013; National Deaf for Children Society, 2014; Ström & Hannus-Gullmets, 2015).

The Government of Tanzania has taken many serious steps to address challenges of language comprehension skills encountered by students with HI. Among the steps taken include provision of hearing aids to children with HI, organising sign language courses, seminars, and workshops about teaching English language to students including those with HI (Batamula, 2009; MoEVT, 2007; Tanzania Childreach, 2016). Other steps included establishing sign language clubs in schools for both students with HI and hearing able students, and engaging hearing peers who knew sign language to support students with HI during school hours. For example, in the schools visited during baseline

study, it was noted that inclusive schools with students with hearing impairment in the Lake Region had sign language clubs in which both students with hearing impairment and those without hearing impairment participated in learning Tanzania Sign Language (TSL).

Further, the baseline study revealed that most teaching approaches used by teachers were coaching, consultative, and collaborative. However, collaborative teaching approach was hardly used by teachers due to the lack of expertise. On the contrary, the empirical studies conducted about language comprehension skills for students with HI (e.g. Friend, Cook, & Shamberger, 2010; Lakkala, 2013; Mulholland & O'Connor, 2015) have confirmed that coaching, consultative and collaborative approaches are used mostly in inclusive classrooms. The collaborative approach was the dominant approach in inclusive setting. In this sense, collaborative teaching approach is a pedagogical practice that allows general and special education teachers to work together with other professionals (audiologists, speech, and language therapists) in delivering instruction to students with diverse needs in an inclusive setting (Friend *et al.,* 2010; Prietch1 & Filgueiras, 2012). In collaborative teaching approach, regular and special education teachers share responsibilities in lesson planning, classroom teaching, and lesson evaluation. In this approach, the regular teacher presents the content, while the special education teacher interprets the content in sign language to students with HI (Aldridge, 2015; Friend *et al.,* 2010; Jimenez-Sanchez & Antia, 1999; O'Reilly, 2016; Salter, Pearson, & Swanwick, 2015).

Apart from classroom teaching approaches aforementioned, researchers worldwide have identified interventions that have proved to be effective in improving language comprehension skills among students with hearing impairment. Such interventions include sign language bilingual programme, sign language and multi-sensory coding, interactive stories and exercises with dynamic feedback and English language comprehension strategies through Venn diagrams, summarising and re-reading strategies (Bickham, 2015; Dockery, 2013; Mich, Pianta, & Mana, 2013; Staden, 2013).

A large number of literature point out the problem of English language to HI. These include, but are not limited, to a study by Dockery (2013); Maina, Kochung, & Oketch (2014), Richardson (2010), Bickham (2015), Tajalli and Satari (2013), Mich, Pianta, and Mana (2013). All these studies focused on the intervention strategies to assist children with hearing impairment acquire language comprehension skills. However, interventions focusing on improving English language comprehension skills to students with hearing impairment in inclusive secondary schools in Tanzania are scant. Therefore, this study addressed the gap by designing Intervention Learning Materials (ILMs) that would help HI students to learn comprehension skills in secondary schools in Tanzania based on collaborative instructional approach.

2. Research Objective

The overall objective of this study was to improve English comprehension ability among students with hearing impairment in inclusive setting in Tanzania through instructional-based intervention.

Specifically, the study evaluated the efficacy of intervention learning materials for the improvement of English language comprehension ability of the students with hearing impairment in inclusive setting.

The research question was:

- How efficient are the intervention learning material in improving English language comprehension ability among students with hearing impairment?

3. Methodology

3.1 Study Design

This study was developmental by design in that the convergent parallel mixed-methods were embedded (i.e. phenomenographic, pre- and post-test quasi-experimental). The convergent parallel mixed-methods were used to collect both quantitative and qualitative data. After data collection, the two sets of data were analysed separately, combined them subsequently and then interpreted sensibly (Creswell, 2014). The study required mixed-methods because it sought to collect data about teachers' conceptions about the usefulness of Intervention Learning Materials (ILM) in helping students with Hearing Impairment (HI) to learn English comprehension skills and how teachers assist students to learn. Succinctly, the developmental design was deliberately selected due to its appropriateness in designing, developing, and establishing efficacy of ILM in improving English comprehension ability among students with HI in inclusive classrooms.

Likewise, the pre-and post-test quasi-experimental method enabled the assessment of the efficacy of the ILM in improving English language comprehension skills among students with HI. Quasi-experimental method deemed appropriate in this study due to its flexibility in that it allows purposive sampling and its effectiveness in evaluation of intervention (Creswell, 2014).

3.2 Study Area

This study was conducted in three secondary schools: Kazima Secondary School (Tabora Region), Bwiru Boys Secondary School and Buhongwa Secondary School (Mwanza Region). The selection of the schools in those two regions was based on the following reasons: first, Tabora Municipal and Mwanza City had high number of students with HI (55%, 23% respectively) among seven schools visited in Central, Western and Lake zones compared to other zones (Eastern, Southern, Northern). This was verified through the baseline study which was conducted in 2016. Second, the two regions, namely, Tabora and Mwanza, have been registering a large number of students with HI in inclusive

classroom than any other regions in Tanzania (MOEVT, 2012). Third, Tabora and Mwanza regions have long experience of providing inclusive education in Tanzania and particularly to students with HI (URT, 2004). Fourth, the distance of two schools: Bwiru Boys Secondary School and Buhongwa Secondary School is approximately ten kilometres from each other; thus, made it easy to monitor the progress of the intervention during summative evaluation. Table 1 shows a Summary of the Study Location and the Rationale for Selection.

Table 1: Summary of School Selection

Schools	Rationale	Evidence
▪ **Kazima** ▪ **Bwiru** ▪ **Buhongwa**	• High number of students with HI (55%, 23%) in Central, Western, Lake zones	• Baseline study, 2016
	• High enrolment of students with HI in inclusive setting than other regions	• MOEVT- BEST: 2013 - 2016
	• Long experience in providing education to students with HI in inclusive setting in Tanzania	• MOEVT, 2004
	• Accessibility of the researcher in data collection	• Bwiru and Buhongwa are in Mwanza city

3.3 Population and Sample

The target population of this study included all teachers teaching English language subject in inclusive schools that accommodate students with HI, special needs teachers, regular English language teachers, and Form One students from Kazima, Bwiru Boys and Buhongwa secondary schools. Form One students were selected basing on the fact that the transition from primary school where the medium of instruction is Kiswahili to secondary school in which the medium of instruction is English poses challenges in English comprehension.

Purposive sampling was used to select participants during formative andsummative evaluation, 14 students with HI and 26 students without HI, one English language teacher, one special needs teacher (also SL interpreter). Hence, a total of 42 participants were involved in the study from Bwiru secondary school, which was experimental group Similarly, 12 students with HI and 28 students without HI and one English language teacher, making a total of 41 participants were involved in control group in Buhongwa secondary school.

3.4 Data Collection Methods and Research Instruments

Four data collection methods were employed in this study, namely; observation, interviews, documentary review and test. Succinctly, instruments used were observation checklist, interview guide, English comprehension tests, and documentary review guide. The instruments were used to collect data during designing and prototyping of ILM, formative, and summative evaluation of ILM from both the control and experimental schools. The indicated table shows a summary of instruments used for data collection.

Table 2: Summary of Data Collection Instruments and Their Rationale

S/N	Research Instrument	Types of Data	Rationale
1	Semi-structured interview guide	Qualitative data from students and teachers	Elicit information for refining ILM
2	Observation checklist	Qualitative data from classroom instruction	Elicit information for refining ILM
3	English language comprehension test	Quantitative data from the test	Testing efficacy of ILM
4	Documents review guide	Qualitative data from the policy, syllabus; English language text	Get insights on policy issues and learning objectives

3.5 Procedures of Conducting Evaluation of Intervention Learning Materials

During evaluation, the pre- and post-test control group quasi- experimental design was implemented. In the course of field testing, the researcher selected two schools, Bwiru Boys secondary school (experimental group) and Buhongwa secondary school (control group), in which Form One students were involved. The following procedures were followed during the summative evaluation: first, the researcher briefed teachers and students about the administration of the tests. Second, teachers from both control and experimental groups were briefed that the purpose of the pre-testing was to determine the level of English language comprehension ability of the students before the intervention was made. Of the two groups, only the experimental group was exposed to six weeks intervention (the ILM), while the control group was exposed for teaching for six weeks to determine the support provided by teachers through conventional teaching. Meanwhile, the control group was exposed to six weeks' conventional programme using the traditional approach of teaching. At the end of intervention, both the experimental and the control group were subjected to a post-test. Essentially, the purpose of the post-test was to find out if there was a difference in performance between the experimental group which had been under intervention programme and the control group which was taught using conventional (traditional) teaching approach. In other words, the post-test measured the efficacy of the ILM in improving the comprehension ability of students with HI.

3.6 Validity and Reliability of Data Collection Instruments

With regard to validity, Gay *et al.* (2012) elucidate that validity is the most essential aspect to consider during development and evaluation of instruments. Keeping in view to this rationality, the researcher used the English language authorised text by the Tanzania Ministry of Education, Science, and Technology (MoEST) and all test items were set by adhering to syllabus objectives and the table of specifications according to Bloom's Taxonomy. Similarly, in this stage, the instruments were checked to see whether they measured the components of language comprehension which are: extracting meaning from a text, facts, context, sequence, inference, conclusion and vocabulary.

Validation of the instruments was carried through experts whose comments were put into account. Above all, all research instruments were given to experts in the field of

special needs education, experienced teachers who were teaching in inclusive and special needs classes, experts form the Department of Foreign Languages and Literature- University of Dodoma (UDOM), experts from measurement and evaluation in education and CHAVITA members. These experts helped to confirm the validity and suitability of the tools which were used to measure English comprehension. Their review helped to eliminate and modify some instruments for construct, content and face validity. Further, all the instruments were subjected to item analysis in terms of item validity and sampling validity to know the extent they represented the intended.

In terms of reliability, the test items correlational coefficient estimation of the test of English language comprehension was done. During piloting of the instruments, the researcher administered the test to 26 students with HI in other schools at first. After administering the test during piloting, the researcher scrutinized all the answer scripts thoroughly in which one respondent was rejected due to the irresponsibility attempt. Finally, the remaining 25 test scripts were considered for the reliability estimation. In this stage, Cronbach's Alpha method was employed to estimate reliability coefficient. Categorically, the reliability of all the seven items in terms of Cronbach's alpha was. 849 and inter correlation was 0.679 – 0.849 which were statistically significant. This implied that comprehension skills in test items had high reliability, hence being able to produce trustworthy results.

3.7 Ethical Consideration

The researcher ensured that the study is conducted in accordance with the ethical qualities which underscored on informed consent, protection of participants against any harm and respect for subjects (Cohen, Manion& Morrison, 2007; Denzin & Lincoln, 2011; Emanuel, Abdoler & Stunkel, 2006).Further, the researcher observed the Tanzania Statistics Act of 2015 on research ethics which demand seeking of permission from the government before data collection and adhering to research ethics (URT, 2015).

Research permit was sought from Regional Directors of Mwanza and Tabora Regions in order to be able to conduct this study. Similarly, in this study, the participants, namely, teachers and students were explained the aim of the research. They were also informed about the purpose of the study which was about testing new model of teaching English language comprehension in inclusive classroom to students with hearing impairment. Above all, after getting full knowledge about the study and its benefits, the participants were given freedom to participate or to withdraw from it.

4. Findings and Discussion

The specific objective sought to develop or create and validate Intervention Learning Materials (ILMs) in improving English comprehension to students with HI.

4.1 Participant Observation Results

Basing on the participant observation, the following were revealed. First, the English language teacher, special needs teacher also a sign language interpreter worked together prior to teaching in improving teaching aids which were prepared by the researcher by adding more visualisation aids in the form of diagrams.

During teaching in the inclusive classroom, the teacher presented the lesson while Sign Language (SL) interpreter who signed what the teacher taught. Difficult words were clarified by the teacher and SL interpreter through visualisation strategies, such as pictures, diagrams and maps. Likewise, sign language interpretation facilitated the clarification of difficult concepts. In the case of sitting arrangement, students who knew Tanzania Sign Language (TSL) sat with students with HI to to help each other during the teaching and learning process. Classroom interaction was encouraged by the teacher to all students, regardless of their disabilities.This finding in terms of use of multiple strategies to teach students with HI is supported by previous studies conducted byHoffman and Wang (2010), Nikolaraizim *et al.* (2013), and Csizer and Kontra (2020). Hoffman and Wang (2010), for example, in their study found that the use of sign language graphics added vocabulary items to students with HI. The above findings are also reinforced by the study conducted later by Nikolaraizim *et al.* (2013) which used sign language and multimedia resources to improve literacy level to students with HI. The results showed that sign language videos, pictures and concept maps increased reading comprehension ability of the students after intervention. Recently, the study conducted by Csizer and Kontra (2020) disclosed that sign language use helped deaf and hard of hearing students to overcome challenges of learning second language.

Further, findings derived from observation revealed that visualisation strategies helped teachers to clarify key concepts in the classroom. Visualisation strategies were used during provision of advancer organizer and actual teaching. The use of visualisation strategies in teaching reading comprehension has been supported by previous study conducted by Staden (2013). Staden (2013) used a balanced literacy approach with the addition of multi-sensory coding strategies and reading scaffolding to increase the reading skills to a group of 64 children ranging in age of six to 11. The study results revealed that the application of sign language linked with visualisation aided the literacy and vocabulary development.

4.2 Results from Interviews

Results from interviews to students with HI revealed that they were able to actively participate in learning due to visualisation and advance organiser strategies used. Similarly, they opined that the use of Tanzanian Sign Language (TSL) facilitated communication in the classroom and ultimately enabled them to understand what was being taught.

Teachers also reported the benefits of collaborative working among the English language teacher and Special Needs (SN) teacher in providing learning support to students in teaching inclusive classroom. SN teacher noted the following:

"Through working together, each teacher was able to bring, on board, her expertise in improving teaching aids and teaching strategies in the classroom. The approach helped us to teach students with HI well (Semi-structured interview with a SN school teacher)."

On the same note, the English language teacher concisely commented:

"We worked together collaboratively, we were able to help students with HI to well understand the lesson through SL interpretation and collaborative teaching (Semi-structured interview with English language teacher)."

In the interview, teachers were asked to compare the impact of teaching approach in students learning between that which applied the Intervention Learning Materials (ILMs and the conventional approach used at school.

Regarding the teaching approach in the implementation of ILMs, one teacher commented:

"The lecture and discussion approach required us to make remedial classes for the students with HI, we did this after the end of sessions. As a result, we use a lot of effort because we notice that the students do not understand at all in the classroom. The present approach combined with pre-teaching brought very good results in learning English language comprehension to students with HI (Semi-structured interview with English language teacher)."

Apart from teachers' comments, HI students also expressed satisfaction with the new teaching approach in implementation of ILMs. They reported that the ILMs enabled them to interact well in learning with hearing counterparts. They were also able to understand what they read in the text. One student with HI stated that:

"This collaborative instructional approach has helped us to understand what is taught like hearing students. We can understand the text which we read and answer questions, like the students without impairment (Semi-structured interview with a student with HI)."

Previous studies have also supported the use of collaborative instructional approach in the implementation of ILMs in teaching students with special needs (Friend, Cook, & Shamberger, 2010; Prietch & Filgueiras, 2012). Likewise, studies affirm that the CIA has tremendously helped students with special needs, especially students with HI in understanding lesson taught resulting from expertise of teachers working together in

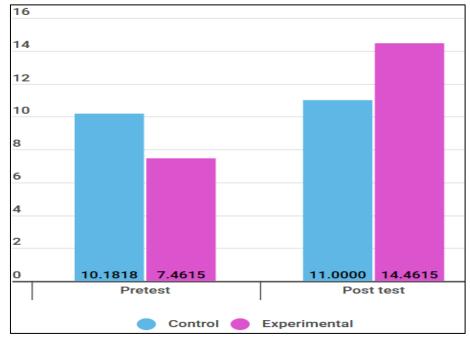classroom instruction (Dieker & Murawski, 2003; Embury & Dinnesen, 2013; Momtaz & Garner, 2010).

4.3 Pre-post Test Results

The performance of students with HI was considered as among the key indicators for effectiveness and practicality of Intervention Learning Materials (ILMs) in improving English language comprehension ability. Other indicators for efficacy of ILMs with respect to the present study included researcher' observation, teachers' and students with HI perceptions on the usefulness and effectiveness of ILMs.

The pre-test results showed that the overall mean scores on reading comprehension skills for the experimental and control groups were 7.4615 and 10.1818 respectively. With regard to time, both the control and experimental groups were subjected to intervention for six weeks. The findings indicate that students with HI in the control group performed slightly higher than those in the experimental group during the pre-test. However, after intervention in which ILMs were implemented in the inclusive classrooms, the performance scores in English comprehension indicated that the mean score of post-test in control group was 11.00 while the mean for experimental group was 14.46. Hence, the mean score difference in post-test between control and the experimental groups was 3.4615. Therefore, there was a significant difference in score in post-test between control and experimental groups. The experimental group performed higher than control group. These data indicate that English language comprehension skills among students with HI improved significantly in the experimental group compared to the control group. Henceforth, the ILMs executed in the intervention were efficacious in improving comprehension ability among students with HI in an inclusive classroom.

A comparative analysis of the mean performance scores on English comprehension ability between experimental and control groups is illustrated in Figure 3.

These findings are consistent with previous studies (Bickham, 2015; Staden, 2013). For instance, Bickham (2015) study revealed that there was a slight difference between pre-test achievements between control group and experimental group in reading comprehension in the aspect of re - reading strategy; in which results of pre – test was slightly higher than experimental group.

Figure 3: Comparison of the Mean English Comprehension Ability Scores
in the Pre-Post Testing between the Experimental and Control Groups

Hence, comprehension ability improved in the part of experimental group. The good performance of the students with HI in the experimental group confirms that the designed ILMIECA can significantly improve English language comprehension ability of students with HI in inclusive classrooms. In that light, the designed ILMIECA can be implemented in Tanzania inclusive schools with students with HI to improve English language comprehension skills; ultimately, enable them to perform well not only in English language but also in other subjects since the medium of instruction in secondary school is English. Studies conducted by Staden (2013) and Bickham (2015) confirm that if intervention programme is designed well according to intervention procedures, students with HI can perform well.

5. Conclusion and Implications

Based on the discussion of the findings, the following conclusions can be made.

It is apparent that the designed ILMs improved English language comprehension ability of the targeted students.Sign language interpretation enabled students with HI to understand what was taught in the classroom. Consequently, students with HI were able to contribute in group work and classroom discussion. Provision of advance organiser on vocabulary enabled students with HI to be confident in answering questions in the classroom. In terms of performance in individual homework, students with HI performed the same as students without hearing impairment in tasks requiring lower language comprehension skills. Moreover, visualisation strategies such as pictures and maps stimulated learning of students. In addition, teachers applied scaffolding as

advocated in Social Constructivism Theory through supporting learning of students with HI in pre teaching and actual teaching by linking students' prior knowledge with the text they read in order to enhance reading comprehension skills.

The ILMs taken in broader perspective through collaborative instructional approach can be applied in any level of secondary education, that is, from Form One to Form Four in teaching English comprehension due to collaboration of teachers' expertise in planning of instructional materials, preparation and collaborative teaching. Through incorporation of visualisation strategies, site visit, advance organiser and sign language, barriers of learning English comprehension can be removed.

Conflict of Interest Statement
The authors declare no conflicts of interest.

About the Authors
The authors are in the academic postion of lecturers specialized in Special Education.
Eugen Mtemi Philip, Archbishop Mihayo University College of Tabora, P.O. Box, 801, Tabora, Tanzania. Email: eugenphilip@gmail.com.
Salvius Kumburu, Ruaha Catholic University, P.O. Box, 774, Iringa, Tanzania. Email: kumbulus@yahoo.co.uk.

References

Batamula, C. (2009). *Deaf education in Tanzania: an overview of the current situation*. Retrieved from https://fcatanzania.weebly.com/uploads/1/0/4/7/10473141/deaf_in_tz.pdf

Bickham, L. (2015). *Reading comprehension in deaf education: Comprehension strategies to support students who are deaf or hard of hearing (Master's dissertation)*. St Fisher John College.

Blickenstaff, J., Hallquist, E., & Kopel, K. (2013). *The effects reading strategies in comprehension for elementary age learners* (St. Catherine University). https://sophia.stkate.edu/cgi/viewcontent.cgi?article=1001&context=maed

Bowyer-Crane, C., & Snowling, M. J. (2005). Assessing children's inference generation: What do tests of reading comprehension measure? *British Journal of Educational Psychology*, *75*, 189–201. https://doi.org/doi:10.1348/000709904X22674.

Creswell, J. W. (2014). *Research Design : Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks: Sage Publications.

Csizer, K., & Kontra, E. (2020). Foreign language learning characteristics of deaf and severely hard-of-hearing student. *The Modern Language Journal*, *104*(1). https://doi.org/doi:10.1111/modl.126300026-7902/20/233–249

Department For Education. (2014). *The national curriculum in England: Key stages 3 and 4 framework document*. Retrieved from http://www.efrpattaya.com/SECONDARY_national_curriculum.pdf2/9/2017.

Department of Inclusive Education. (2016). *Implementing inclusive education in South Africa 2001 – 2016*. https://www.enspired.net/sites/default/files/uploaded-files/20161024_dbe_sa_education_system.pdf

Dieker, L. A., & Murawski, W. W. (2003). Co-teaching at the Secondary School Level: Unique issues, current trends and suggestions for success. *The High School Journal,86*(4), 1–11.

Dockery, K. (2013). *The reading comprehension of deaf/ hard –of- hearing Jamaican students: The contribution of intellectual ability, sign language comprehension, vocabulary knowledge, and metacognitive awareness*. Retrieved from www.digitool.library.mcgill.ca/thesisfile121323.pdf

Embury, D., & Dinnesen, M. S. (2013). Co-teaching in Inclusive classrooms using structured collaborative planning. *Kentucky Journal of Excellence in College Teaching and Learning*, 10, 36–52.

Friend, M., Cook, L., & Shamberger, C. (2010). Co-teaching: An illustration of the complexity of collaboration in special education. *Journal of Educational and Psychological Consultation*, 20, 9–27.

Gay, L. ., Mills, G. E., & Airasian, P. (2012). *Educational research. competencies for analysis and applications* (10th ed.). Boston: Pearson Educational Books.

Hoffman, M., & Wang, Y. (2010). The use of graphic representations of sign language in levelled texts to support deaf readers. *American Annals of the Deaf*, *155*(2), 131–136.

Lakkala, S. (2013). *The Inclusive teacher education in finland case.* Lapland. The University of Lapland.

Lysons, K., & Farrington, B. (2012). *Purchasing and Supply Chain Management* (8th ed.). London. Pearsons.

Maina, E. N., Kochung, E. J., & Oketch, O. (2014). Learning strategies used by deaf students in English reading comprehension in secondary schools for the deaf in Kenya: Implications on academic achievement. *Education Research*, *5*(4), 122–130.

Mich, O., Pianta, E., & Mana, N. (2013). Interactive stories and exercises with dynamic feedback for improving comprehension skills in deaf children. *Computers and Education,65*, 34–44.

Ministry of Education and Vocational Training. (2007). *National strategy for inclusive education*. Dar es Salaam: Gouvernment Printer.

Momtaz, E., & Garner, A. (2010). Does collaborative learning Improve EFL students' reading comprehension? *Journal of Linguistics and Language Teaching*, *1*(1), 15–16.

Mpofu, J., & Chimhenga, S. (2013). Challenges faced by hearing impaired pupils in learning: A case study of King George VI memorial school. *IOSR Journal of Research & Method in Education (IOSR-JRME)*, *2*(2), 69–74.

Muzale, H. R. (2004). *Kamusi ya Lugha ya Alama ya Tanzania (LAT) = Tanzanian Sign Language (TSL) Dictionary: Kiswahili-TSL-English* (2nd ed.). Dar es Salaam: Languages of Tanzania Project University of Dar es Salaam.

Naik, S. M., Naik, M. S., & Sharma, A. (2013). Rehabilitation of hearing impaired children in India-An update. *Online Journal of Otolaryngology*, *3*(1). Retrieved from http://www.alliedacademies.org/articles/rehabilitation-of-hearing-impaired-children-in-india--an-update.pdf.9/9/2013

National Deaf for Children Society. (2014). *Living with hearing impairment*. *11*(14). Retrieved from http://disabilitycentre.lshtm.ac.uk/files/2012/10/CEHH14_online.pdf%0A

National Reading Panel (U.S.), & N. I. of C. H. and H. D. (U. S. . (2000). *Report of the national reading panel: Teaching children to read: an evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: reports of the subgroups. Institutes of health*. Washington, D.C: National Institute of Child Health and Human Development, National.

National Reading Panel. (2007). *Report of the national reading panel: Teaching children to read*. Retrieved from www.nichd.nih.gov/publications/nrppubskey.cfm%0A

Nikolaraizim, M., Vekiri, I., & Easterbrooks, S. R. (2013). Investigating deaf students' use of visual multimedia resources in reading comprehension. *American Annals of the Deaf*, *157*(5), 458–473.

Novotny, K. G. (2011). *Reading comprehension in the secondary classrooms (Master's dissertation)*. Minnesota State University.

Prietch1, S., & Filgueiras, L. V. (2012). *One assistive technology does not fit all educational strategies: A Reflection on deaf students in mainstream classroom*. Retrieved from http://sipt07.si.ehu.es/WS/RethinkingUA/Papers/wsrua2013_submission_Prietch.pdf

Scarborough, H. S. (2002a). Connecting early language and literacy to later reading disabilities: Evidence, theory, and practice. In *S. B. Neuman & D. K. Dickinson (Eds.), Handbook of early literacy research Press.* (pp. 97–110). NY: Guilford Press.

Scarborough, H. S. (2002b). Strands of early literacy development. Reprinted from connecting early language and literacy to later reading (dis)abilities: Evidence, theory, and practice. In *S. B. Newman & D. K. Dickinson (Eds.) Handbook of early literacy research press* (p. 98). NY: Guilford Press.

Shanahan, T. (2005). *Practical advice for teachers. The national reading panel report. Learning point associates/north central regional educational laboratory*. Chicago: University of Illinois.

Staden, A. (2013). An evaluation of an intervention using sign language and multi-sensory coding to support word learning and reading comprehension of deaf signing children. *Sage Journals Publications*, *29*(3).

Ström, K., & Hannus-Gullmets, B. (2015). *From special (class) teacher to special educator – the Finnish case. In Ingår I D.L. Cameron & R. Thygesen (Eds.) Transitions in the field of special education. Theoretical perspectives and implications for practice*

Tajalli, P., & Satari, S. (2013). *Effectiveness of metacognitive strategies on reading skills of students with hearing disorders. Procedia - Social and Behavioural Sciences84(2013) 139 – 143.*

Tanzania Childreach. (2016). *Deaf children's access to quality education in the Kilimanjaro region*. Retrieved from www.childreachtz.org

United Republic of Tanzania. (2014). *Enrolment of students with disabilities in percentage in secondary education 2009-2013*. Dar es Salaam: Gouvernment Printer.

URT (2018). The National Strategy for Inclusive Education. ministry of Education Science and Technology. Retrieved from https://www.rodra.co.za/images/countries/tanzania/policies/National%20Strategy%20for%20Inclusive%20Education_version%20for%20signing.pdf