

The effects of interactive writing instructional method on the Amharic writing skills of students with hearing impairment

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Abstract

This study aimed to explore the impact of the interactive writing instructional method on the Amharic writing skills of grade seven students with hearing impairment. A single-group experimental design was employed, involving seven participants selected using the comprehensive sampling technique due to the small study group size. The school was also selected purposefully. Data were collected through pretest and posttest methods, which were analyzed using a paired sample t-test. The results showed a significant improvement in students' writing skills, with a mean score increase from 34.10 in the pretest to 62.07 in the posttest, representing a notable 32.36-point average score difference between the two tests. Furthermore, the analysis revealed a statistically significant difference in writing skills between the pre- and post-intervention results. The results of the study suggest that the interactive writing instructional method has a positive effect on improving Amharic writing skills among students with hearing impairment.

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Introduction

Learners who are hearing impaired do not have access to spoken language through their auditory system, making it challenging for them to learn reading and writing skills. Instead, they rely on visual manual systems, such as sign language (Alemayehu, 2019). However, this can be problematic in environments where few people are proficient in sign language (Graham, 2010). According to research (Botelho, 2003; Guarinello, 2009; Richards & Renandya, 2002; Ramsey, 1997), the absence of community sign language can hinder overall language development, which in turn affects reading and writing abilities. For individuals who are hearing impaired, the lack of phonological codes for reading and writing is compounded by the ambiguity of sign language, where words may not always have a direct equivalent in spoken language. This cumulative language barrier can have a direct impact on the reading and writing skills of individuals who are hearing impaired (John et al., 2015).

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Research in Ethiopia has consistently shown that students with hearing impairments face significant challenges in acquiring literacy skills (Alemayehu, 2019; Mulugeta, 2019). In the past, efforts have been made to teach students who are hearing impaired to develop oral language skills, similar to those of their hearing peers. However, these attempts have been unsuccessful.

Human language is not a product of tongues, teeth, and lips; it is rather a product of a human mind. Spoken language is an imperfect representation of our inner competence and written language is a representation of spoken language (Donald & David, 2006). Writing skills require an active process of constructing meaning rather than acquiring knowledge. Classroom instruction is a process of supporting that construction rather than communicating knowledge (Dever & Karabenick, 2011; Jensen, 2005; Kazu, 2009; Smith, 2007; Wormelli, 2007; Sousa, 2009). Due to inappropriate teaching, learners who are hearing impaired in regular classrooms have low writing performance (Alemayehu, 2019; Tirussew et al., 1995). Writing expression requires the combined use of various skills; writing is an even more complex task for learners who are hearing impaired, and who experience a delay in the development of their language skills (Schirmer et al., 2005). Various researchers have found that learners who are hearing impaired perform poorly in writing skills and their writing scores were relatively found to be lower than their hearing peers' scores (Antia et al., 2005; Geers, 2003; Schirmer & Mcgoughg, 2005; Spencer & Tomblin, 2008). Researchers suggest two reasons; learners who are hearing impaired are not able to acquire language skills as efficiently as those of their hearing peers and teaching practices in writing are insufficient (Graham & Hebert, 2010; Karasu, 2004; Meyer, 2007; Wolbers, 2008).

It is proposed that, with the use of several methods and practices, (e.g., interactive approach), the writing skills of learners who are hearing impaired could improve, and they can attain levels closer to their peers with hearing abilities. The Interactive Writing Instruction (IWI), used as a teaching method, originated from the combination of using both "process and product" writing strategies (Kluwin & Blumenthal, 1992). It includes pre-writing, planning phase, composing, revising for clarity and organization, editing, and publishing. Learners are encouraged to use a variety of strategies as they create texts. The focus is on the process of formulating and expressing ideas. An interactive writing instruction is flexible and includes feedback throughout the creation of texts. Learners who are hearing impaired are encouraged to use a variety of strategies as they create texts. During the process of creating a text, the initial focus is on the process of formulating and expressing ideas, rather than on editing and finalizing the text for the end product (Kluwin & Blumenthal, 1992). Kluwin and Blumenthal found the interactive writing process to help learners understand the course content, remain attentive, and engage with the material, teacher, and each other.

Interactive Writing Instruction is a teaching approach that can also be used with learners who are hearing impaired to develop writing skills. According to Destal and Wolbers (2012), IWI is comprised of seven driving principles, with three overarching, theoretical-based principles: the strategic instruction to students clearly to follow the processes of teachers using words; teaching through sharing ideas between a teacher and students (interactive), building and cooperatively determining writing actions, and students

externalizing their thoughts to be accessible to their peers; the implicit and explicit methods of IWI that help to promote linguistic competence among students who are hearing impaired.

In the interactive writing instruction, students and teachers collaborate in the construction of texts while building on prior knowledge. Students use what they know about language, conventions of print, and how words work to create meaningful writing. Interactive Writing Instruction can be a valuable instructional method that greatly enhances engagement in the classroom. This technique improves spelling knowledge, provides a letter sound connection, and links the decoding process as the teacher and students collaborate to create longer and more complex texts (Fountas & Pinnel, 2006; Karchmer & Mitchell, 2003).

Interactive Writing Instruction intervention is the focus of the present study at Alpha Special School. Hearing impaired learners who are enrolled in Alpha Special School require support in order to achieve the optimum levels targeted for their peers with hearing abilities. Many studies in Ethiopia have indicated that hearing loss can adversely affect the language skills and academic performance of children who are hearing-impaired and are enrolled in traditional school settings (Alemayehu, 2003, 2016, 2019; Girma, 2008; Tesfaye, 2014; Tirussew et al., 1995).

The study conducted by Girma (1990) explored the effects of Interactive Writing on hearing students and highlighted its benefits in enhancing children's independent writing skills. In contrast, Wolbers (2008) and Mccarthey and Garcia (2005) investigated the impact of instructional approaches such as phonological awareness, alphabetic knowledge, and early reading on kindergarten children. The primary objective was to compare the effectiveness of a contextualized instructional approach based on an adapted interactive writing program with a field-tested program of meta-linguistic games. The researcher employed an experimental design, utilizing a pretest-posttest comparison-group design similar to the present study.

Teaching writing to students who are hearing impaired is considered one of the most challenging tasks for educators. Research suggests that with targeted interventions, however, positive outcomes can be achieved (Wolbers, 2008; Wolbers et al., 2018; Safitri & Ma'rifah, 2021). According to Caudery (1997), writing is the least practiced among the four language skills. This means that for learners who are hearing impaired, writing is frequently neglected and overlooked in spite of the fact that, through writing, learners can internalize vocabulary and sentence structures. Unfortunately, learners who are hearing impaired are often taught in traditional ways without considering their needs and potentials, resulting in a significant number of learners who are hearing impaired that have poor writing skills (Alemayehu, 2016, 2019).

Statement of the Problem

Researchers (e.g., Wolbers, 2008; Wolbers & Dostal, 2014) have extensively documented the challenges faced by hearing-impaired learners in writing and communicating. In Ethiopia, students with hearing impairments are often educated in inclusive classrooms or special schools, where they are taught the Amharic language. Additionally, some attend separate schools specifically designed for the deaf and hard of hearing, staffed by teachers who have graduated from higher education institutions (Feleketch, 2000). However, these instructors typically lack specialized training in teaching students with hearing impairments, which can lead to the use of instructional methods

designed for hearing students, potentially hindering effective learning outcomes (Wudnesh, 2023).

The lack of proficiency in sign language and insufficient training in teaching methods for students who are hearing impaired can significantly impede teachers' ability to effectively support these students in developing strong writing skills. As Berent and Clymer (2007) note, sign language is often the native language of students who are hard of hearing, making it essential for teachers to be proficient in this language. Furthermore, the scarcity of research examining the impact of trained teachers providing writing instruction to hearing-impaired learners makes it challenging to establish the effectiveness of such instruction, leaving a crucial knowledge gap in the field.

Prior to data collection, the researchers conducted informal discussions with teachers at the school to gain insight into the experiences of hearing-impaired students and learned that they were being taught in traditional ways. During the pilot study at Dagmawi Menelik and Victory schools, one of the researchers consulted with experienced Amharic language teachers specializing in special needs and sign language, inquiring about students who were hearing-impaired and struggled with writing in Amharic. This inquiry led to a dearth of local research on the topic. The only relevant study found was a master's thesis by Girma (1990), which focused solely on hearing students and demonstrated the effectiveness of IWI (Inclusive Writing Instruction) in improving their writing skills. The absence of research on writing skills for hearing-impaired learners, compounded by their unique challenges, motivated the researcher to investigate the use of IWI to enhance learning outcomes for these students. The findings of this research may contribute to both theoretical and practical applications of IWI.

Therefore, the purpose of the present study was to examine the impact of the IWI instructional method on the Amharic writing skills of grade seven hearing-impaired students at Alpha Special Primary School. In light of this purpose, the study is organized under the following two hypotheses: (1) there is a statistically significant difference between the mean scores of the Amharic writing achievement of the target group before and after intervention, and (2) There is a statistically significant difference between the mean scores for the pretest and posttest writing skills achievement of the target group of hearing-impaired students across all domains (sentence construction, sentence re-arrangement, complete sentence writing, punctuation mark, and guided composition).

Methods

Research Design

Among the various quantitative research methods, experiments provide the most rigorous test of hypotheses (Gall, Borg & Gall, 2005). The hypothesis of this experimental design was that learners who are hearing impaired and who receive interactive writing instruction (IWI) would make significant positive progress in sentence construction, sentence rearrangement, complete sentence writing, punctuation mark, and guided composition. One school was selected for the current single experimental group. The sample population of the study was grade seven students who were hearing impaired. Due to the small number of

participants, a single group (pretest and posttest) experimental design was employed to conduct the research making it more defensible as a rigorous approach to experimentation.

According to research recommendations (Marsden & Torgerson, 2012; Robin, 2009; Graziano & Raulin, 1998; Campbell & Cook, 2006; Robson, 2015), a single-group experimental design is considered suitable for small participant groups. This study involves two variables: the independent variable (interactive writing instruction method) and the dependent variable (writing skills). After a pretest, a grade seven Amharic language teacher was trained and monitored by the researcher to ensure the quality of the intervention. The teacher delivered 14 hours of interactive writing instruction (IWI) over a two-month period, with close supervision from the researcher.

Study Site

The place of the study (Alpha Special School) was selected based on its convenience for the researcher. The school has many years of experience in teaching the Amharic language only to learners who are hearing impaired, and it is close to AAU where the principal researcher lived and studied. According to a 2020 Addis Ababa City Administration annual education report, a relatively high number of learners who are hearing impaired were at Alpha Special School for the hearing impaired. As a result, the school as well as the grade level was considered due to the existence of a pool of students who met the criteria for participating in the study.

Participants

Ballance (2023) argued that selecting the study sample is one of the most important steps of the study, and it is part of the main population chosen by the researcher with various techniques. So the target population of this study was students with hearing impairment. According to the Ministry of Education, the total number of learners who are hearing impaired is small.

The participants were selected using the availability sampling technique and all seventh-grade students who were hearing impaired and attended Alpha Special School in 2021 participated in the study. There were seven students in grade seven, and all were considered for the present study. Additional characteristics of the research participants are presented in Table 1

Table 1

Demographic Characteristics of the Participants

Participants	Age	Sex	Degree of Hearing impairment
Participant I	14	M	Severe
Participant II	17	F	Severe
Participant III	15	M	Profound
Participant IV	15	F	Severe
Participant V	16	F	Severe

Participants	Age	Sex	Degree of Hearing impairment
Participant VI	18	M	Severe
Participant VII	17	M	Moderate

In Ethiopia, students typically begin grade seven at the age of 13. According to Table 1, most of the students with hearing impairments were expected to be in grades eight to twelve. Due to their varying degrees of hearing loss, many students struggled to acquire spoken language, even with the use of hearing aids.

However, students with moderately severe hearing loss may still be able to learn spoken language through the use of hearing aids, although this is not always the case. As a result, some students may not naturally acquire spoken language and instead rely on alternative methods, such as sign language. The teacher conducting the study also used sign language to communicate with the participants. The purpose of the study was to determine whether an IWI implemented through sign language would improve the writing skills of these seven students with hearing impairments.

Data Gathering Methods and Procedures

Data Gathering Methods

Data essential for this study were collected through a pretest and posttest method completed by the research participants. Many scholars recommend that this type of data gathering method is the most suitable tool for collecting accurate data that can help in making more accurate recommendations (Robson, 2015; Smith, 2007; Marsden & Torgerson, 2012). As a result, the researchers used this method to measure the target group's achievement in the improvement of writing skills (e.g., sentence construction, rearrangement, completing, punctuation mark usage and guided composition). Due to the absence of a control group to compare the outcome, the impact of the IWI method was measured by comparing the means of the scores of the participants for the pretest and posttest.

The pretest and posttest were designed based on the selected grade level (seventh grade) content of the Amharic textbook and the writing tasks. The tests were constructed by the researcher. The proportional weight for each writing strategy was evaluated according to the writing skill evaluation model of Jacobs et al. (1981).

Validity and Reliability

The reliability of the instruments was checked through various processes including a pilot study and peer reviews. The pilot study was conducted at Victory Special School that included six participants for 5 weeks. The validity and reliability of the tests were checked by the pilot study. In addition, the validity of the tests was evaluated by experts at Addis Ababa University. Generally, the data gathered during the pilot study and expert reviews served as input for the reconstruction of the items. In addition, the reliability of the instruments was checked using Cronbach's alpha coefficient, and the results are presented in Table 2.

Table 2*Reliability Coefficients of the Tests*

Specific Domains	Pretest	Posttest
Sentence construction	0.935	0.975
Sentence rearrangement	0.870	0.975
Complete sentence writing	0.930	0.949
Punctuation mark	0.914	0.956
Guided composition	0.758	0.994
Total writing skills score	0.991	0.993
Average IWI	.889	.973

As indicated in Table 2, the total pretest and posttest scores were highly consistent and reliable. The average Cronbach's alpha coefficients, as indicated in the same table, for the pretest and posttest were .889 and .973 respectively. In addition, this study used quantitative data analysis by using paired samples t-test. Before data analysis was conducted, the normal distribution of the data for the parametric test was checked by the researcher as presented in Table 3 below.

Table 3*Results for Normal Distribution*

Domain	Sample	Kolomogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Sentence Construction	Pre	.298	7	.060	.840	7	.099
	Post	.298	7	.200*	.913	7	.416
Sentence Rearrangement	Pre	.267	7	.142	.900	7	.330
	Post	.281	7	.100	.850	7	.122
Complete Sentence Writing	Pre	.307	7	.045	.842	7	.103
	Post	.208	7	.200*	.968	7	.881
Punctuation Mark	Pre	.119	7	.200*	.968	7	.984
	Post	.237	7	.200*	.871	7	.188
Guided Composition	Pre	.270	7	.132	.892	7	.287
	Post	.250	7	.200*	.852	7	.128
Total Score	Pre	.281	7	.101	.846	7	.113
	Post	.267	7	.140	.890	7	.276

According to the results presented in Table 3, the data were normally distributed because both the Kolmogorov-Smirnov and Shapiro-Wilk indicate that the significant levels of the data were above 0.05.

Data Gathering Procedures

Research data were collected through pretest and posttest writing skills tests given to the participants before and after the experiment (intervention). Due to the absence of a control group to compare outcomes, the effects of IWI were measured by comparing each student's pretest and posttest mean scores. Both the pretest and posttest consisted of measurements of sentence construction, sentence rearrangement, complete sentence writing, punctuation marks, and guided composition that can measure the writing skills and performance of students. The tests were assessed and graded by two trained Amharic teachers of Alpha Special School for the hearing impaired.

Procedure of the Experiment

As mentioned earlier, this study employed a pretest-posttest single-group experimental design. The pretest was given before the beginning of the intervention to all seven participants. The post-test was given at the end of the intervention, which lasted two months.

The study was carried out with hearing-impaired grade seven students. The students were selected using the compressive sampling technique due to the small size of the study group. Afterward, the researchers selected an Amharic language teacher based on experience and skill in sign language. A total of 14 hours of training for seven days were given to the selected Amharic language teacher. Through this process monitoring and intervention continued until the posttest period. The researchers systematically managed the entire process to ensure its integrity.

Then the pretest was administered to the participants and raw data were collected using an instrument based on the curriculum. Having fulfilled the requirements, a posttest was administered to the participants using the instrument developed from the curriculum. Finally, the data were analyzed, presented, and discussed and conclusions were drawn.

Variables

The independent variable for the present study was the interactive teaching method that included the pre-writing or planning phase, organization, composing, and revising for clarity and editing. The dependent variables, on the other hand, include the ability and writing performance of learners who were hearing impaired to engage in the following activities: sentence construction, sentence rearrangement, complete sentence writing, punctuation mark, and guided composition.

To control extraneous variables, the following measures were taken. There was only one teacher who was trained and conducted the intervention for the learners who were hearing impaired. The teacher was given additional responsibility to assess and prevent any extraneous variables until the post-test was conducted. The single experimental group was from the same grade level to monitor any possible extraneous variables by one teacher (like location, equipment, environment, time, and instructions).

To reduce the possibility of the pretest questions giving participants clues to what was the expected outcome and to improve their performance on the language and academic tests, two similar tests were developed following the sequence of the curriculum. These tests were

developed on the sequence of content and difficulty level of the school curriculum. The teacher was trained and the instructional strategies used were observed and monitored until the final posttest was completed. The purpose was to secure the quality of the experiment and maximize treatment fidelity for the researcher. To prevent unexpected phenomena within the social context, the class sessions were frequently observed and the site was evaluated to determine if the participants had some similar intervention and confirmed that the changes were only due to the IWI implemented to the sampled seven learners who were hearing impaired.

The Intervention

The intervention was conducted for two months by a well-trained Amharic language teacher who was skilled in sign language. The main objective of the intervention was to improve the writing skills of learners who were hearing impaired, because hearing impairment can affect written language performance. IWI can help students to focus better during the teaching and learning process and can improve their understanding. The instruction can support learners who are hearing impaired as the instruction includes visual aids (e.g., pictures, videos, and slideshows) that can make the sessions interesting and easier to understand and help in writing phrases and sentences related to the topic.

Main Content and Syllabus of the Intervention

The main content of the intervention was directly extracted from grade seven teacher's guide with some improvements by the researcher that included word building, sentence construction, and rearrangement of sentences, complete sentence writing, punctuation marks, and guided composition.

The Intervention Process

During the intervention process, IWI was implemented to write in the Amharic language for a variety of purposes. Using this teaching method, the teacher scaffolded instruction and transferred more responsibility to the students to support the learning process and students when they were engaged in shared or independent writing activities. The strategic instruction to students clearly followed the processes of teachers using words, teaching through sharing ideas between the teacher and students (interactive), building and cooperatively determining writing actions.

Each objective of the lesson aimed to build students' writing skills and implicit competence by providing writing skills practice and immediate feedback opportunities (Krashen, 1994). The teacher used whole-group instruction and Amharic texts. Another strategy was also used which involved visuals such as pictures, photos, realia, and diagrams. It allowed students to express their ideas in the class by using and representing ideas in sign language. Next, the students collaboratively translated their ideas into written Amharic in their exercise books.

Moreover, this practice allows learners who are hearing impaired to work together, share ideas, and move sequentially through creating texts, improving linguistic competence and producing meaningful written texts. During this process, it was hoped that students'

participation would increase as they might build their understanding of the grammar of the Amharic language and practice developing written texts including essay writing.

Data Analysis

Once the data collection was completed, the data obtained from the participants were coded and entered into SPSS for analysis. Statistical tests of significance were run at the alpha level of .05 or 95% confidence interval level. The data collected through the tests were analyzed using descriptive and inferential statistics. The mean and standard deviation of the scores from the pretest and posttest were compared. This study used paired samples t-test to analyze the impacts of interactive writing instruction intervention. Finally, the findings were presented systematically and discussed thoroughly.

Results

The main aim of this study was to test the hypothesis of whether the IWI technique would have an impact on learners who were hearing impaired in (1) improving their Amharic writing skills, (2) causing a difference between the mean scores of the target group before and after the intervention (pretest and posttest), and (3) triggering a significant difference between each writing strategy (e.g., sentence construction, sentence rearrangement, complete sentence writing, punctuation mark and guided composition). To measure the outcomes, a single experimental design was employed. Pretest and posttest data collection was conducted for grade seven learners who were hearing impaired.

The First Hypothesis

One of the research hypotheses was that the mean scores of Amharic writing achievement in the target group would be significantly different before and after the intervention, with a statistically significant difference expected between the two time points. Specifically, it was stated as follows: There is a statistically significant difference between the mean scores of the Amharic writing achievement of the target group before and after intervention. The results obtained are presented in Table 4.

Table 4

Paired Samples T-test Results of Writing Skills Tests

Domain	Sample	N	Mean	Std. Deviation	df	t-value	p-value	Sign. Level
Total Writing Skills Score	Pretest	7	34.10	10.63	6	12.44	0.000	0.80
	Posttest	7	62.07	13.5				

Table 4 above indicates that there was a statistically significant difference between the mean scores of the writing skills pretest and posttest taken by the target group. Before learning how to write through IWI (pre-intervention) the participants scored 34.10, whereas, after instruction using the IWI, their mean score was 62.07 (post-intervention). Based on the mean variance $t(6) = 12.44$, $p=0.000$, pre-post Std. D= (10.63 and 13.5), Eta squared=

(0.80) statistics results were registered. This indicates a statistically significant difference at (≤ 0.05) between the pretest and posttest scores for the target group in writing skills.

The results above indicate that the IWI significantly influenced the Amharic writing skills of learners who were hearing impaired, and the results of the posttest were positively influenced by the intervention. Therefore, based on this finding, the null hypothesis of the study was rejected. In addition, this finding concurs with the findings of other similar studies (e.g., Elizabeth, 2009; Dostal & Wolbers, 2014; Wolbers, 2008; Wolbers et al., 2018).

The Second Hypothesis

As indicated earlier, the second hypothesis of this study proposes that there will be a statistically significant difference in performance across each of the five domains assessed: sentence construction, sentence rearrangement, complete sentence writing, punctuation mark usage, and guided composition. Table 5 presents the results obtained in this regard.

Table 5

Paired Samples T-test Results of Specific Writing Domains

Domain	Sample	N	Mean	Std. Deviation	df	t-value	p-value	Sign. Level
Sentence Construction	Pre-test	7	2.27	1.83	6	10.92	0.000	0.78
	Post-test		14.09	3.26				
Sentence Rearrangement	Pre-test	6	7.4	1.75	6	8.23	0.000	0.73
	Post-test		13.3	3.05				
Complete Sentence Writing	Pre-test	6	6.56	1.9	6	12.33	0.000	0.80
	Post-test		12.04	2.9				
Punctuation Mark	Pre-test	6	7.59	2.04	6	9.27	0.000	0.75
	Post-test		12.83	3.01				
Guided Composition	Pre-test	6	5.21	1.98	6	6.68	0.000	0.66
	Post-test		9.8	2.22				

The results in Table 5 demonstrate a statistically significant difference between the mean scores for the pretest and posttest writing skills achievement of the target group of hearing-impaired students across all domains. The data reveal that after learning to write using the IWI strategy, the participants showed significant improvements in their writing skills. Specifically, their posttest mean scores increased to 14.09 for sentence construction, 13.30 for sentence rearrangement, 12.04 for complete sentence writing, 12.83 for punctuation, and 9.80 for guided composition.

Although the p value of each domain was $p=0.000$, the standard deviation value before the intervention in each domain were 1.83 for sentence construction, 1.75 for sentence rearrangement, 1.9 for complete sentence writing, 2.04 for punctuation and 1.98 for guided composition. However, after they had learned through IWI, their posttest mean scores were 3.26 for sentence construction, 3.05 for sentence rearrangement, 2.9 for complete sentence writing, 3.01 for punctuation and 2.22 for guided composition. The Eta squared result for

sentence construction was 0.78, 0.73 for sentence rearrangement, 0.80 for complete sentence writing, 0.75 for punctuation and 0.66 for guided composition. There were significant differences at (≤ 0.05) for the target group of students.

The results above support the findings that IWI significantly influences Amharic writing skills of learners who are hearing impaired and the results of the posttest were positively influenced by the intervention. Furthermore, based on these findings, the null hypothesis of the study was rejected. These findings are consistent with the findings of other researchers (Elizabeth, 2009; Dostal & Wolbers, 2014; Wolbers, 2008; Wolbers et. al., 2018).

Discussion

Severe and profound hearing impairment can have enormous effects on an individual's holistic development; the resulting challenges in language development can slow and hinder their educational success. Delayed language can influence the ability of learners who are hearing impaired to develop communication skills needed for reading, writing, and speaking/signing (Alemayehu, 2019). Alemayehu (2019) further stated that unless appropriate intervention is applied, language hearing impairment has a delaying effect on language development. In this paper, the major findings from the qualitative data are discussed. The aim of the present study was to determine how effective IWI would be for improving the writing skills of learners who were hearing impaired. The results indicated that overall the participants improved their writing skills with respect to the dependent variables after receiving the intervention.

With reference to the first hypothesis, i.e., "there is a statistically significant difference between the mean scores of the pretest and posttest on Amharic writing achievement of the target group before and after intervention," it was observed that there was a significant difference between the mean scores of the pretest and posttest on writing ability of the target group. In the pretest measuring their writing skills before the use of IWI, the mean score was 34.10, whereas after they had learned through IWI, their mean score for total writing skills was 62.07. The results indicated that due to the intervention conducted by the classroom Amharic teacher, changing her instructional strategy from her traditional ways of teaching to IWI was effective and resulted in significant advances in the development of the writing skills for the participants.

According to Wolbers, (2008), the gains of students include complex sentence structures and improved written communication for all learners. The results further indicate that IWI significantly influences the Amharic writing skills of learners who are hearing impaired. Hence, the hypothesis which was stated as "there is a statistically significant difference between the mean scores of the target group Amharic writing achievement before and after intervention" is confirmed. In addition, these findings are supported by the findings from other researchers.

As already mentioned, the second hypothesis predicted that there would be a statistically significant difference between the scores of the writing skills domains assessed, including sentence construction, sentence rearrangement, complete sentence writing, punctuation, and guided composition. The analysis of the results showed a significant difference in the mean scores of the target group's writing skills from pretest to posttest.

Specifically, the mean scores on the pretest were: 2.27 for sentence construction, 7.4 for sentence rearrangement, 6.56 for complete sentence writing, 7.59 for punctuation, and 5.2 for guided composition.

After receiving instruction using the IWI, their mean score for sentence construction was 14.09, 13.3 for sentence rearrangement, 12.04 for complete sentence writing, 12.83 for punctuation and 9.8 for guided composition. Based on the mean variance t, (6) T- value scores were 10.92 for sentence construction, 8.23 for sentence rearrangement, 12.33 for complete sentence writing, 9.27 for punctuation and 2.68 for guided composition. Although the *p* value of each domain is $p=0.000$, the standard deviation value before the intervention in each domain was 1.83 for sentence construction, 1.75 for sentence rearrangement, 1.9 for complete sentence writing, 2.04 for punctuation and 1.98 for guided composition. However, after they had learned through IWI, their posttest mean scores were 3.26 for sentence construction, 3.05 for sentence rearrangement, 2.9 for complete sentence writing, 3.01 for punctuation and 2.22 for guided composition. This means there are significant differences at (≤ 0.05) in the target group students' writing skill scores.

The results indicate that the IWI significantly influences the Amharic writing skills of learners who are hearing impaired, and the results of the posttest are positively influenced by the intervention. Furthermore, based on these findings, the hypothesis of the study "there are statistically significant differences between the mean scores of the pretest and posttest on Amharic writing achievement for hearing impaired students before and after intervention" was confirmed. Several studies revealed that the writing skills of learners who are hearing impaired indicate weaknesses in spelling and punctuation, phrase and sentence construction, lack of vocabulary mastery and irregular sentence structures. Previous writing assignments for learners who are hearing impaired were fragmented, meaningless, and irrelevant and were very incoherent in terms of grammar and meaning. Researchers have revealed that the weaknesses are due to inaccessible language environments and a lack of early language intervention (Alemayehu, 2019; Dostal & Wolbers, 2014; Elizabeth, 2009; Wolbers, 2008; Wolbers et al., 2012, 2018). However, the same authors confirmed that the IWI intervention can bring significant changes in the writing skills of students with hearing impairment.

Conclusions and Recommendations

The participants who were hearing impaired exhibited significant improvements due to the IWI intervention. This study revealed that the lack of appropriate instruction, communication, and writing skills resulted in the lagging behind of learners who are hearing impaired in their normal development in terms of language and cognitive functions. After these students graduate and enter adulthood, their problems may often become long-lasting leading to poor academic achievement and unemployment. The results of the present study are encouraging in the sense that they promote the writing skills of learners who are hearing impaired. According to the results of this study, IWI provided plenty of opportunities for the participants to learn through different instructional strategies (e.g., visual scaffolds, models, videos, pictures, etc.) and specific teaching strategies (e.g., process and product writing approaches). As a result, many insightful implications for significant gains were identified. The first one is that the IWI method developed the Amharic writing skills of students with

hearing impairment and had a positive impact on students' writing performance. Moreover, IWI incorporates effective differentiated instructional strategies and assessment methods to cater to diverse learning needs.

Statistically significant differences were found between the mean scores of the target group before and after the intervention. Moreover, there is a statistically significant difference between each specific domain (e.g., sentence construction, guided composition, punctuation mark and composition). This method provided students with a positive learning environment that increased their writing skills. Thus, the key issue is early identification and mediation with appropriate and adequate support services for the learners who are hearing impaired to support their development of writing skills.

This study's results suggest that the IWI method has the potential to significantly improve the Amharic writing skills of students with hearing impairments and enhance their writing performance. To optimize the effectiveness of writing skill lessons for these students, it is crucial to take into account several key factors.

First, to enhance the effectiveness of writing instruction for students with hearing impairments, universities and colleges should prioritize equipping trainee teachers with the appropriate teaching methodologies for this student population. Second, a thorough comparison between the teaching approaches used by hearing-impaired teachers and those of non-hearing-impaired teachers when teaching deaf students should be conducted to identify best practices. Third, the Ministry of Education in Ethiopia should also organize in-service refresher courses or re-training programs for language teachers and school inspectors to ensure they are equipped to teach writing to students with hearing impairments.

Furthermore, the researchers of this study recommend that language teachers should employ a range of techniques and methods specifically designed for writing instruction for students who are hearing impaired. Moreover, extensive and in-depth research is necessary to investigate effective strategies for teaching and writing to students with hearing impairments.

Limitation of the Study

This study's findings should be viewed in the context of its limitations. Specifically, the study was conducted in a single special school using a single-group experimental design, which may not be representative of other schools or settings. Future research would benefit from expanding this study to include multiple schools and incorporating a control group and experimental design to increase the generalizability of the results. Additionally, in order to benefit more learners with hearing impairments, other schools for the hearing impaired should be encouraged to be included in the evidence-based IWI as part of curriculum implementation.

Ethical Statement

Prior to data collection, the researchers obtained a letter from Addis Ababa University and presented it to the school's principals and relevant authorities. Throughout the research process, we adhered to formal and rigorous ethical considerations. Before collecting data, all participants were informed about the research purposes, and measures were taken to ensure

their protection and welfare. Additionally, we ensured that confidentiality and anonymity were maintained throughout the data collection process.

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References

- Alemayehu T. (2003). Communication experience of language of deaf students in the special classes in Ethiopian. *Journal of Education* 23(1).
- Alemayehu T. (2016). Quality of interpretation services and its implication in creating inclusive classrooms for deaf preparatory school students. *EASSRR* 32(2).
- Alemayehu T. (2019). Language and socio-emotional development of congenitally deaf learners. *Zena-Lissan*, 28(2), 1-28.
- Antia, S. D., Reed, S., & Kreimeyer, K. H. (2005). Written language of deaf and hard-of-hearing Students in public schools. *Journal of Deaf Studies and Deaf Education*, 10(3), 244-55. <https://doi.org/10.1093/deafed/eni026>
- Ballance, O. J. (2023). *Sampling and randomization in experimental and quasi-experimental CALL studies: Issues and recommendations for design, reporting, review, and interpretation*. Cambridge University Press. <https://doi.org/10.1017/S0958344023000162>
- Berent, G. P., & Clymer, E. W. (2007). *Professional development for educators teaching English for academic purposes to deaf students of English as a foreign language*. The Postsecondary Education Network International. <http://www.pen.ntid.rit.edu/newdownloads/resources/documents/other/EAPProfDev.pdf>
- Botelho, M. (2003). *Multiple intelligences theory in English language teaching: An analysis of current textbooks, materials and teachers' perceptions* [Unpublished Master's Thesis]. <http://www.ohiolink.edu/etd/sendpdf.cgi?ohioul079466683>
- Campbell, D, & Cook, J. (2006). *Experimental and quasi-experimental designs for research*. London: Longman ltd.
- Caudery, T. (1997). *Process writing: Writing in the English language classroom*. Prentice Hall.
- Dever, B. V., & Karabenick, S. A. (2011). Is authoritative teaching beneficial for all students? A multilevel model of the effects of teaching style on interest and achievement. *School Psychology Quarterly*, 26(12), 131-144.
- Donald, F. Moore & Martin, D. S. (2006). *Deaf learners' development in curriculum and Instruction*. Gallaudet University Press.
- Dostal, H., & Wolbers. K., (2014). Developing language and writing skills of deaf and hard of hearing students, a simultaneous approach. *Literacy Research and Instruction*, Vol.53, pp. 245-268.
- Elizabeth, G, (2009). *Teaching written language to students who are deaf or hard of hearing* [unpublished MA Thesis]. Washington University.

- Feleketch Bahiru. (2000). *Social and academic problems of hearing impaired students in the Second cycle of primary school in selected special schools* [unpublished Master's Thesis]. Addis Ababa University.
- Fountas, I., & Pinnell, G. S. (2006). *Teaching for comprehending and fluency: Thinking, talking, and writing about reading, K-8*. Heinemann.
- Girma Gebre . (1990). *በአማርኛ ድርሰት የመጻፍ ክሂልን ለማዳበር መስተጋብራዊ ስልት (Intractive Approach) ያለው ተግባራዊነትና ውጤታማነት* [unpublished Master's Thesis]. Addis Ababa University.
- Girma Wossenie. (2008). *Effects of instrumental enrichment and meditated learning experience on EFL vocabulary task performance of student with hearing impairments*. [Ph. D. Dissertation]. Addis Ababa University.
- Geers, A. E. (2003). Predictors of reading skill development in children with early cochlear Implantation. *Ear and Hearing, 24*, 59-68.
- Graham, S., & Hebert, M. (2010). *Writing to read: The evidence-base for how writing can improve reading*. The Carnegie Corporation of New York.
- Graziano, M. & Raulin, L (1998). *Research Methods: A Process of Inquiry*. Harper Collins College Publishers.
- Guarinello, A. C, Santana,A. P., Berberian,A.P & Massi,G. A. (2009). Deafness: Educational – historical aspects in the Brazilian context. In D. F.Moore & M.S. Miller (Eds.). *Deaf people around the world: Educational and social perspectives*. Gallaudet University Press
- Gall, J. P., Gall, M. D., & dan Borg, W. R. (2005). *Applying educational research: A practical guide (5th ed.)*. Pearson Education.
- Jacobs, H. L., Zinkgraf, S.A., Wormuth, D. R., Hartfiel, V. F., & Hughey, J. B. (1981). *Testing ESL composition: A practical approach*. Newbury House.
- Jensen, E. (2005). *Teaching with the brain in mind (2nd ed.)*. ASCD.
- John, A., Marc, M., & Pamela, J. (2015). Deaf students' reading and writing in college: Fluency, coherence, and comprehension. *The Journal of Deaf Studies and Deaf Education, 21*, 303-309.
- Karasu, H. P. (2004). *Assessment of writing skills of hearing impaired students who attend Mainstream classes* [Unpublished Master's Thesis], Anadolu University.
- Karchmer, M. A., & Mitchell, R. E. (2003). Demographic and achievement characteristics of deaf and hard-of-hearing students. In M. Marschark, & P. E. Spencer (Eds.). *Oxford Handbook of Deaf Studies, Language, and Education* (pp. 21-37). Oxford University Press.
- Kazu, I. Y. (2009). The effect of learning styles on education and the teaching process. *Journal of Social Sciences, 5(2)*, 85-94.
- Kluwin, T. N., & Blumenthal, K. (1992). Implementing a successful writing program in public Schools for students who are Deaf. *Exceptional Children 59(1)*. <http://find.galegroup.com>
- Krashen, S. D. (1994). The input hypothesis and its rivals. In N. C. Ellis (Ed.). *Implicit and explicit learning of languages* (pp. 45-77). Academic Press Limited

- Marsden, E. & Torgerson, C. J. (2012). Single group, pre- and post-test research designs; some methodological concerns. *Review of Education*, 38(5), 583-616. [10.1080/03054985.2012.731208](https://doi.org/10.1080/03054985.2012.731208)
- Mccarthey, J., & Garcia, G. (2005). English language learners' writing practices and Attitudes. *Journal of Written communication*, 36-75.
- Meyer, C. (2007). What really matters in the early literacy development of deaf children? *Journal of Deaf Studies and Deaf Education*, 12, 411-431.
- Mulugeta, K. (2019), *A study on teaching of reading and writing to deaf learners in primary schools in some part of Ethiopia* [unpublished MA Thesis]. Jimma University.
- Ramsey, C. L. (1997). *Deaf children in public schools: Placement, context, and consequences*. Gallaudet University
- Richards, J. C. & Renandya, W. A. (2002). *Methodology in language teaching: An anthology of current practice*. Cambridge University Press.
- Robin, B. (2009). *Research methods and experimental Design: A set of notes suitable for seminar use Cambridge*. CUP.
- Robson, C. (2015). *Real world research: A resource for social scientists and practitioner Researchers*. Blackwell.
- Safitri, D., & Ma'rifah, U. (2021). The effectiveness of interactive writing instruction toward hearing impaired students' ability in writing skill at SMALB-B Kemala Bhayangkari 2 Gresik. *Journal of English Teaching, Literature, and Applied Linguistics*, 3(2), 24-33. <https://doi.org/10.30587/jetlal.v3i2.2256>
- Schirmer, B. R., & McGough, S. M. (2005). Teaching reading to children who are deaf: Do the conclusions of the national reading panel apply? *Review of Educational Research*, 75(1), 83-117. <https://doi.org/10.3102/00346543075001083>
- Smith, S. (2007). Using action research to evaluate the use of brain based teaching strategies in the classroom. *International Journal of Learning*, 13(9), 121-126.
- Sousa, D. A. (2009). *How the brain influences behavior: Management strategies for every classroom*. Corwin Press.
- Spencer, L., & Brunce, T. (2008). Evaluating phonological processing skills in children with prelingual deafness who use cochlear implant. *Journal of Deaf Studies and Deaf Education* 14(1):1-21. [10.1093/deafed/enn013](https://doi.org/10.1093/deafed/enn013)
- Tesfaye, B. (2014). Signed language proficiency and reading comprehension skill of deaf children in special and integrated primary schools in Addis Ababa. *Turkish International Journal of Special Education and Guidance & Counseling*, 13, 1300-7432.
- Tirussew, Savola inen, H. Agedew, R., & Daniel, D. (1995). *Base line survey on disabilities in Ethiopia*. Institute of Educational Research, Addis Ababa University.
- Wolbers, K. A. (2008). Using balanced and interactive writing instruction to improve the higher order and lower order writing skills of deaf students. *Journal of Deaf Studies and Deaf Education*, 13(2), 257-277. <https://doi.org/10.1093/deafed/enm052>
- Wolbers, K., Dostal, H. & Stephenson, B. (2012). *Strategic and interactive writing instruction (SIWI): A two-year focus on the language and literacy development of deaf and linguistically diverse students*. Tennessee Higher Education Commission.

- Wolbers, K., Dostal, H., Graham, S, Branum M. L., Kilpatrick, J. & Saulsburry, R. (2018). *Strategic and interactive writing instruction: An efficacy study in Grades 3-5*. Exceptional, deaf, and interpreter education Faculty Publications.
- Wormelli, R. (2007). *Differentiation: From planning to practice grades 6-12*. Stenhouse Publishers.
- Wudnesh, Tilaye. (2023). *Education of students with hearing impairments in regular classrooms at Yekatit 23 primary school in Bahir Dar town* [Unpublished Master's Thesis]. Addis Ababa University.