Instructional Practices and Challenges in Inclusion of Students with Visual Impairment in Selected Government Secondary Schools in Harari Region

Paulos Dea and Dawit Negassa*

Haramaya University, Department of Special Needs and Inclusive Education

Article History: Received: February 8, 2019; Revised: July 7, 2019; Accepted: August 16, 2019

Abstract: The purpose of this study was to examine the instructional practices and challenges teachers face in teaching students with visual impairment in the government secondary schools of Harari regional state. A mixed methods approach with convergent design was employed. The sample consisted of 118 participants selected using simple random and purposive sampling techniques. Data was collected using questionnaire, semi-structured interview and focus group discussion. Mean, standard deviation and one sample t-test were used to analyze quantitative data and thematic analysis was used to analyze qualitative data from interview and FGD. The study revealed that teachers’ collaboration with other professionals, classroom supplies and equipment, and teaching strategies used by teachers were lower than the expected level for successful inclusion of SVI in the selected schools. Moreover, deficits in knowledge and skills, lack of training and budget constraints were found to be the major challenges that prevent teachers from the successful implementation of inclusive education for SVI. The study concluded that the identified instructional practices of SVI were not found at the expected level (average population mean). In addition, the study concluded that professional and logistical gaps were the major challenges for the inclusion of SVI in the government preparatory and secondary schools of Harari regional state. Arranging consultation sessions for collaborative work, strengthening the resource centers, providing professional support for teachers and seeking additional fund from donors were the recommended issues for the successful inclusion of students with visual impairment.

Keywords: Critical disability theory; Inclusive education; Instructional practices; Visual impairment
1. Introduction
The core of inclusion is the principle that students with special educational needs are welcomed and supported in general education schools (McLaughlin & Rouse, 2000). Therefore, to be an inclusive school means that the school accommodates the needs of all students and welcomes diversity as a way to enrich learning for everyone (Putnam, 1998). To exclude a student because of a particular disabling condition is to diminish not only the student but also the enriched learning that can take place within the inclusive schools (Juppe, 1992). Inclusive education demands the class teacher to be flexible, creative, and ready to adapt the instructional or specialized teaching materials for students with visual impairment (SVI).

In this study, the Critical Disability Theory (CDT) was used as a framework. CDT is the synthesis of the medical and social models of disability which the World Health Organization calls the ‘bio-psychosocial model’ (Watermeyer, 2009). This approach balances the contributions of impairment, personal responses to impairment and the barriers imposed by the social environment to the concept of disability (Hosking, 2008). CDT was used as a framework due to its philosophical stance that acknowledges the idea that the school system (e.g. teaching practices and resources) should be changed or modified (social model) without ignoring the impacts of impairment (medical model) for successful inclusion of students with disabilities. Accordingly, CDT recognizes and values diversity by adjusting the concept of equality for accommodating differences among students in schools (Hosking, 2008).

According to the CDT (Hosking, 2008), instructional improvement for inclusive education of SVI depends on collaboration among regular school teachers and other educational professionals such as itinerant teacher and educational assistants or vision specialists. In addition, Florien (2012) explained that disability professionals (vision specialist, itinerant teachers and educational assistants) collaborate with the classroom teacher in planning reasonable adjustments to instructional methods and materials to ensure access to curriculum tasks for students who are blind or with low vision.

As apprehended from communication with the general education teachers during the preliminary visit in the study area, the availability of adequate resources and funds to afford for the resources and equipment is the factor for the success of inclusive teaching practices for SVI. However, these seem a challenge for government secondary school teachers of Harari region. In the Harari regional state, the enrolment of students with special needs at primary and secondary school levels was 1502 (1408, in primary government schools and 34, in secondary schools). This shows that compared to the primary school, the enrolment of students with special needs in secondary schools is very low. Specifically, concerning the SVI, their enrolment at both levels of schooling was 308 (303, in primary schools, 5 in secondary schools).
This indicates that compared to the primary school, the enrolment of SVI in secondary schools in the region is minimal.

During their visit to collect data for the research purpose which was different from the present one in 2016, the researchers experienced government secondary school teachers were complaining about the challenges they faced in teaching SVI. The frequently raised challenges by teachers were lack of knowledge and skill about how to teach SVI. Moreover, they informally discussed about the lack of adequate support in terms of specialized materials, funds and training for teachers on strategies to teach SVI and also how to read and write in Braille. Thus, these constraints and challenges provoked the researchers to examine the existing teaching practices and challenges that hamper teachers from providing the expected and appropriate support for the SVI to reach their optimal academic potential as their sighted peers.

In Ethiopia, though some studies were conducted focusing on the attitudes of teachers towards inclusive education (Beyene & Tizazu 2010), the needs of SVI in learning English subject (Shifere, 2013), challenges and opportunities to implement inclusive education (Mitiku, Alemu, & Mengistu, 2014), psychosocial and educational challenges and opportunities of SVI (Hadgu, 2015), they were far from addressing the teaching practices and challenges teachers face in government secondary schools. Thus, the present study intended to examine the existing instructional practices and challenges that teachers face toward inclusion of SVI in the government secondary schools of Harari region. The following basic research questions were posed to guide the present study: (1) what are the existing instructional practices for inclusion of SVI in the government secondary schools of Harari region?; (2) what are the barriers in inclusion of SVI in the selected government secondary schools?; and (3) is there statistically significant difference between the observed mean score and expected mean score on the existing instructional practices and challenges of teachers in inclusion of SVI in the selected government secondary schools?

2. Research Methods

2.1. Research Design

A concurrent triangulation design (convergence model) was employed in the current research. Accordingly, in this study it was attempted to merge the two data sets, typically by bringing the separate results together in the analysis and interpretation of the results. In view of that, a combination of quantitative and qualitative techniques was used in various stages (during data collection, analysis and interpretation) of the study.

In the present research, the use of convergence concurrent triangulation design is appropriate since the researchers collected and analyzed both quantitative and qualitative data in the same time frame with equal weight. According to Gall, Gall and Borg (2007), the convergence triangulation design is a one-phase design in which researchers implement the quantitative and qualitative methods at the same time and with equal weight. The single-phase timing of this design is the reason it has also been referred to as the concurrent triangulation design (Creswell, Plano Clark,
According to Morse (1991), the single-phase timing generally involves the concurrent (at the same time), but separate collection and analysis of quantitative and qualitative data so that the researchers may best understand the research problem.

2.2. Participants

The target population of this study was teachers, special needs educators and SVI. The study used simple random and purposive sampling techniques to select the schools and respondents. Harari region has seven government secondary schools, constituting six (6) general secondary schools and one (1) preparatory school, namely Hamaresa, Harar, Erer Woldiya, Aw Abdal, Shekib Abdulahi, Abadir, and Aboker respectively (Harari Regional Education Bureau [HREB], 2015).

The study was conducted in one preparatory (Aboker) and two general secondary schools (Abadir & Harar) which were selected purposively. Out of 215 teachers in the three government secondary schools (excluding those participated in FGD), 105 were selected using a simple random sampling technique and a questionnaire was administered face-to-face by the researchers. Purposive sampling technique was used to select seven teachers (for whom the questionnaire was not administered) for FGD, three special needs educators and three SVI for semi-structured interview to generate qualitative data. Thus, in combination, 118 individuals participated in this study out of 228.

In this study, a purposive sampling technique was used to select the three schools, 7 general education teachers, three SVI and three special needs educators. From the total general secondary and preparatory schools in the region, the selected schools were the only schools representing the region in enrolling SVI during the time of the study. Furthermore, purposive sampling technique was used as more appropriate for this study since it enabled the researchers to select SVI, special needs educators and general educators who could share relevant information related to their experience in the inclusion process. A simple random sampling technique was used to select representative sample from the target population of the general education teachers.

2.3. Instruments

Three instruments, namely questionnaire, semi-structured interview and focus group discussion were used for data collection. A Likert scale type questionnaire ranging from ‘strongly agree’ to ‘strongly disagree’ with 30 items clustered under four thematic areas including teachers’ collaboration with other professionals (5 items), classroom supplies and equipment (12 items), teaching strategies (8 items) and instructional barriers (5 items) were constructed. Content validity of the items was checked by the subject experts in the Department of Special Needs and Inclusive Education at Haramaya University.

Internal-reliability coefficients were computed for the items in the sub-scales based on the pilot data from 30 general education teachers which were not included in the main study. The pilot study result showed for items of teachers’ collaboration with other professionals ($\alpha = 0.83$), classroom supplies and equipment ($\alpha = 0.95$), teaching
strategies ($\alpha=0.90$) and instructional barriers ($\alpha=0.86$). Finally, all the 30 items that fulfilled the reliability and validity criteria were administered to 105 randomly selected teachers in the three sampled schools.

A focus group discussion (FGD) was held with a group of seven teachers. FGD was an essential data gathering tool in this mixed methods design as it enabled to acquire in-depth information from purposively selected teachers about the existing practices and challenges in inclusion of SVI in the sampled government secondary schools. In addition, interview was conducted with the three purposively selected SNE teachers and three purposively selected SVI by using a semi-structured interview guide for 30 to 40 minutes each.

2.4. Data Analysis
Mean and standard deviation were computed to examine the existing practices and challenges of inclusive teaching for SVI. One sample t-test was used to find the significant difference between the observed or the actual mean score of the collected data and the population mean scores (the theoretical or the expected mean scores) among the teachers on the existing practices and challenges in inclusion of SVI. Skewness values less than two indicate that data are normally distributed (Raykov & Marcoulides, 2011). Regarding this, assumption of the normality of the data was fulfilled as the skewness values for the teachers’ collaboration with other professionals (.09), classroom supplies and equipment (.82), teaching strategies (.36) and instructional barrier (.55) were found to be less than two. Samples of general education teachers were also selected by using a simple random sampling technique and the data was considered to be continuous. Furthermore, data from interviews and focus group discussion were coded and analyzed thematically.

3. Results
This section is dedicated to present and analyze the data obtained through questionnaire from 100 teacher participants with the response rate of 95.24%, focus group discussions and interviews. Specifically, it presents the data and results regarding the teachers’ collaboration with other professionals, classroom supplies and equipment, teaching strategies and instructional barriers to inclusion of SVI.

3.1. General Education Teachers’ Collaboration with Other Professionals
According to Table 1, the observed mean scores for the familiarity of general education teachers with the other professionals who work with them and SVI (m=2.42, SD=1.25) and consult or support on how and when SVI uses sighted guide/sighted peers, long cane, etc. for travel (m=2.20, SD=1.14) were found to be lower than the expected mean value (M=3). This was also determined to be statistically significant at the $t (99) = -4.65$ and $-7.04$ with $p<0.05$ respectively. This implies that general education teachers and SVI did not have adequate professionals who had the required experience or qualification in the areas of special needs or inclusive education that could provide support or consult teachers for the successful inclusion of SVI. Moreover, it implies that teachers were not in a position to support SVI on how and when to use sighted guide/sighted peers, long cane, etc. for travel.
Table 1. One sample t-test results for teachers’ collaboration with other professionals

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>EM</th>
<th>t-value</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familiar with professionals who might work with you or student with visual impairments (e.g., orientation and mobility specialists, itinerant/vision educator, occupational therapist, etc.)</td>
<td>100</td>
<td>2.42</td>
<td>1.25</td>
<td>3</td>
<td>-4.645</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Consulted on how and when student with visual impairments uses sighted guide/sighted peers, long cane, etc. for travel</td>
<td>100</td>
<td>2.20</td>
<td>1.14</td>
<td>3</td>
<td>-7.036</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Consulted about magnification/enlargement devices, Braille, and other equipment available to and used, by student with visual impairment</td>
<td>100</td>
<td>2.15</td>
<td>1.05</td>
<td>3</td>
<td>-8.110</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Consulted about strengths/weaknesses, academic needs of students with VI and develop appropriate strategies for them</td>
<td>100</td>
<td>2.34</td>
<td>1.19</td>
<td>3</td>
<td>-5.541</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Familiar with individualized education program (IEP) goals and objectives and other services specified to be provided to students with low vision and blind.</td>
<td>100</td>
<td>2.26</td>
<td>1.13</td>
<td>3</td>
<td>-6.527</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Overall</td>
<td>100</td>
<td>11.37</td>
<td>4.36</td>
<td>15</td>
<td>-8.32</td>
<td>99</td>
<td>.000</td>
</tr>
</tbody>
</table>

*P < 0.05, Expected Mean (M): the expected average middle value in the scale for each item and sum of items

Source: Computed by the researchers based on survey data collected from teachers

Table 1 reveals the level of teachers’ agreement with the observed mean scores for the insufficiency of professionals’ support of teachers in adapting assistive materials such as magnifiers, Braille and other equipment available (m=2.15, SD=1.05) and identifying about strengths or weaknesses and academic needs of SVI and developing appropriate strategies for these students (m=2.34, SD=1.19) since the observed means were discovered to be below the expected level (M=3). This was also found to
be statistically significant as \( t(99) = -8.11 \) and \( -5.54 \) respectively with \( P<.05 \). In addition, teachers reported that they were not familiar with Individualized Education Program (IEP) goals or objectives and other services to be provided to SVI since the observed mean score (\( m=2.26, SD=1.13 \)) was found to be less than the expected mean value (\( M=3 \)). This was also found to be statistically significant as \( t(99) = -6.53, \ p<.05 \). This implies that teachers were not adequately prepared to support SVI due to lack of sufficient cooperation and collaboration from special need education professionals in magnifying devices and Braille, academic needs of SVI and Individualized Education Program (IEP).

During the interviews on consultation practices, it emerged clearly that adequate collaboration and support was not provided by the special need educators or other professionals due to lack of awareness about special needs and inclusive education among education leaders at different levels. In relation to this, one of the special needs educators said:

At the secondary school level, psychologists and special needs educators should work together to support teachers and SVI. However, this is not happening in reality. We do not have adequate professionals in special needs or inclusive education who can serve and consult large number of teachers and students with special needs including SVI in our school. In this school, now we are two including me, one special needs educator and one psychologist. I am serving as a unit leader due to lack of awareness among the school principals or leaders and even the regional education bureau teacher development program facilitators (SNE2 March 24, 2017).

During focus group discussions, teachers were also asked about other professionals’ support and collaboration on areas of adapting instructional strategies and resources for the successful inclusion of students with visual impairments. Accordingly, most of the teachers said that this was not adequately done due to insufficient support and collaboration of special need educators. One of the teachers said:

We have to prepare a plan to help the SVI at the classroom level. For instance, when other students are copying the note from the blackboard, we are free to support the SVI, but due to gaps in knowledge and skill to prepare a plan based on the needs of SVI, we are not able to support them. To me, special needs educators have not been playing their role in working and collaborating with us and minimizing the mentioned gaps (March 19, 2017, FGD3).

### 3.2. Classroom Supplies and Equipment

In relation to classroom supplies and equipment, 12 items were prepared and administered to teachers. Accessibility to and availability of instructional materials are important for the successful teaching and learning and leading to successful inclusion of SVI. Table 2 shows that the modified resources such as the raised-line paper (\( m=2.08, SD=1.05, \ t(99) = -8.75, \ p<0.05 \)), soft lead pencils (\( m=2.12, SD=1.03, \ t(99) = -8.56, \ p<0.05 \)), felt-tip pens (\( m=2.12, SD=1.08, \ t(99) = -8.18, \ p<0.05 \)) and supplementary light source (\( m=2.14, SD=1.11, \ t(99) = -7.75, \ p<0.05 \)) were not sufficiently supplied in inclusive schools or classrooms since all the observed mean scores for these items were found to be significantly less than the
expected mean value (M=3). In addition, as revealed in Table 2, Braille writer; slate and stylus (m= 2.27, SD= 1.09, t (99) = -6.7, p<0.05), magnification device (m=2.26, SD= 1.06, t (99) = -6.98, p<0.05), book stand/tilt-top desk (m=2.25, SD= 1, t (99) = -7.51, p<0.05) and cassette tape recorder/player (m=2.36, SD= 1.12, t (99) = -5.7, p<0.05) were found to be not sufficiently accessible and supplied in the study schools for the successful inclusion of SVI as the observed means were found to be significantly lower than the expected mean score(M=3). This also means that SVI were merely integrated to inclusive classroom or schools without adequate modification or accommodations and availability of resources to access the core or academic curriculum.

The one sample t-test result in Table 2 revealed that for classroom supplies and equipment, the overall observed mean score with the standard deviation (m=26.47, SD=10.79) was found to be less than the expected mean score (M=36) with statistically significant difference at t (99) = -8.84, p<.05. In this case teachers seemed to report that the classroom or school they were teaching in was not sufficiently supplied and equipped with necessaries for the successful inclusion of SVI.

Table 2. One sample t-test results for classroom supplies and equipment

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>EM</th>
<th>t-value</th>
<th>df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raised-line or bold-line paper, templates, and/or writing guides</td>
<td>100</td>
<td>2.08</td>
<td>1.05</td>
<td>3</td>
<td>-8.753</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Soft lead pencils</td>
<td>100</td>
<td>2.12</td>
<td>1.03</td>
<td>3</td>
<td>-8.563</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Felt-tip pens (various widths; high-contrast colors)</td>
<td>100</td>
<td>2.12</td>
<td>1.08</td>
<td>3</td>
<td>-8.181</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Supplementary light source (e.g. desk lamp)</td>
<td>100</td>
<td>2.14</td>
<td>1.11</td>
<td>3</td>
<td>-7.746</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Braille writer; slate and stylus</td>
<td>100</td>
<td>2.27</td>
<td>1.09</td>
<td>3</td>
<td>-6.695</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Magnification device</td>
<td>100</td>
<td>2.26</td>
<td>1.06</td>
<td>3</td>
<td>-6.981</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Book stand/tilt-top desk</td>
<td>100</td>
<td>2.25</td>
<td>1.00</td>
<td>3</td>
<td>-7.509</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Cassette tape recorder/player</td>
<td>100</td>
<td>2.36</td>
<td>1.12</td>
<td>3</td>
<td>-5.695</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Sun visor/shade or light shield/protect to reduce glare</td>
<td>100</td>
<td>2.20</td>
<td>1.01</td>
<td>3</td>
<td>-7.960</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Large print reading materials (preprinted or produced using computer technology)</td>
<td>100</td>
<td>2.15</td>
<td>1.02</td>
<td>3</td>
<td>-8.343</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Abacus for mathematics</td>
<td>100</td>
<td>2.23</td>
<td>1.02</td>
<td>3</td>
<td>-7.523</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Tactile globe or drawings</td>
<td>100</td>
<td>2.29</td>
<td>1.08</td>
<td>3</td>
<td>-6.599</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Overall</td>
<td>100</td>
<td>26.47</td>
<td>10.79</td>
<td>36</td>
<td>-8.84</td>
<td>99</td>
<td>.000</td>
</tr>
</tbody>
</table>

*P < 0.05, Expected Mean (M): the expected average middle value in the scale for each item and sum of items
Source: Computed by the researchers based on survey data collected from teachers
The teachers in FGD disclosed that SVI were not provided with adequate adapted materials for their successful inclusion. Based on the teachers' responses during FGD, it was found that SVI were facing challenges to use the non-adapted materials such as plasma-based lessons and student text books in their respective schools. Teachers also indicated that SVI were provided with few adapted materials such as audio recorder and Braille thus the classroom environment was not conducive to use these devices or they did not have skills to use the devices. Three of the teachers had the following to say respectively: "I expect that an SVI has a Braille material at hand and use it for writing and reading purposes during my presentation to the class. However, I did not observe the student doing this" (March 19, 2017, FGD6).

Concerning the availability of resources to be used by the SVI, as I know, usually plasma is available which is used similarly by both the SVI and sighted peers. Moreover, sometimes I observe audio record in the hand of SVI. However, due to disturbances in the classroom and latecomers, he is always complaining to me that he is not able to record the sound of plasma instruction and teacher’s presentation of the lesson (March 19, 2017, FGD7).

She takes the student text book as other students do. These materials have not been adapted in line with her need. At the end of the year, she gives back the text books which she did not use for her learning (March 19, 2017, FGD5).

During interviews, special needs educators and SVI also pointed out that SVI were not assigned to the academic streams of their interest, particularly to natural sciences, and were forced to join social sciences due to shortage or lack of adapted materials. They also indicated that general education teachers in natural science stream and special needs educators have no experience/exposure and skill to use available materials in the natural sciences which contributes to the exclusion of SVI from subjects such as Biology, Physics and Chemistry. Regarding this, both the special needs educator and a student with visual impairment had reported the following:

In our school, we have abacus which is meant for teaching SVI about basic concepts of math. However, this material does not give any function for our blind students. Even, I do not have any knowledge and skill on how to use it (March 24, 2017, ISNE2).

It is very difficult to do calculations by using Braille. For instance, I had great interest to learn Chemistry when I was in elementary school. But due to lack of adapted materials in science areas, I was forced to join social sciences (March 16, 2017, ISVI1).

3.3. Teaching Strategies

As shown in Table 3, for the items 'Have student with low vision sit closer to chalk board, videos, demonstration for clear vision' (m=2.92, SD=1.29) and 'Read notes aloud while writing them on board' (m=3.01, SD=1.25), the observed means were found to be not significantly different from the expected mean (M=3) as the t (99) = - .62 and .08, p>.05 respectively. This implies that teachers were found to support SVI to take convenient seats/locations in the classroom. In addition, they speak clearly so that they are audible; read and explain written information from the board to SVI.

However, for items 'Provide students with low vision and blind with audio tape instructions of reading material' (m=2.44, SD=1.23), 'Allow student with low vision and blind to turn in tape records rather than written responses' (m=2.43, SD=1.19) and 'Use relevant real-life examples and concrete materials whenever possible for
students with low vision and blind' (m=2.55, SD=1.10), the observed means were found to be less than the expected mean (M=3). These mean differences were also found to be statistically significant as \( t(99) = -4.54, -4.79, \) and \(-4.08, p<.05\) respectively. This shows that teachers were not in a position to provide audio tape instructions of reading materials, encourage the use of tape records for assignment, and use relevant real-life examples for the successful inclusion of SVI.

Table 3. One sample t-test results for teaching strategies (TS)

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>EM</th>
<th>t-value</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have student with low vision sit closer to see board, videos,</td>
<td>100</td>
<td>2.92</td>
<td>1.29</td>
<td>3</td>
<td>-0.619</td>
<td>99</td>
<td>.537</td>
</tr>
<tr>
<td>demonstrations, etc. Read notes aloud while writing them on board.</td>
<td>100</td>
<td>3.01</td>
<td>1.25</td>
<td>3</td>
<td>.080</td>
<td>99</td>
<td>.936</td>
</tr>
<tr>
<td>Provide students with low vision and blind with audio tape</td>
<td>100</td>
<td>2.44</td>
<td>1.23</td>
<td>3</td>
<td>-4.540</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>instructions of reading material (e.g. tape recorded books).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allow student with low vision and blind to turn in tape records rather</td>
<td>100</td>
<td>2.43</td>
<td>1.19</td>
<td>3</td>
<td>-4.785</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>than written responses (e.g. submitting their assignment through recorded cassette than print/hand written material).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use relevant real-life examples and concrete materials whenever</td>
<td>100</td>
<td>2.55</td>
<td>1.10</td>
<td>3</td>
<td>-4.075</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>possible for students with low vision and blind.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide students with low vision and blind sufficient books and other instructional materials in Braille format.</td>
<td>100</td>
<td>2.44</td>
<td>1.23</td>
<td>3</td>
<td>-4.540</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Provide students with low vision and blind with materials in large print format (e.g., enlarged books, worksheets, etc)</td>
<td>100</td>
<td>2.49</td>
<td>1.23</td>
<td>3</td>
<td>-4.157</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>Provide a special tilt-top desk or book stand to hold materials for easier reading. Overall</td>
<td>100</td>
<td>2.38</td>
<td>1.17</td>
<td>3</td>
<td>-5.298</td>
<td>99</td>
<td>.000</td>
</tr>
</tbody>
</table>

*P < 0.05, Expected Mean (M): the expected average middle value in the scale for each item and sum of items.
Source: Computed by the researchers based on survey data generated from teachers
Moreover, Table 3 indicates that for items 'Provide students with low vision and blind sufficient books and other instructional materials in Braille format' (m=2.44, SD=1.23), 'Provide students with low vision and blind with materials in large print format' (m=2.49, SD=1.23), and 'Provide a special tilt-top desk or book stand to hold materials for easier reading' (m=2.38, SD=1.17), the observed mean scores were determined to be lower than the expected mean score (M=3). The mean differences were also found to be statistically significant as \( t(99) = -4.54, -4.16 \) and \(-5.3\), \( p<.05 \) respectively. This implies that teachers were found to be not regularly using sufficient books and other instructional materials in Braille and large print format and book stand to hold materials for easier reading for the successful inclusion of SVI.

Interview data from the special needs educators showed that teachers were not using adapted teaching strategies for SVI. As the finding indicated, rather than supporting SVI with appropriate and relevant teaching approaches, teachers were using conventional strategies in inclusive classrooms and employing free promotion as a strategy to support these students.

Concerning this, one of the special needs educators said the following:

Teachers are willing to support SVI. However, their support is usually 'traditional' due to gaps in knowledge and skills to use the adapted teaching strategies. Therefore, most of the teachers in our school use the usual teaching strategies which are common for both SVI and others. They also usually use free promotion for SVI (March 26, 2017, SNE3).

In line with this, a student with visual impairment said "some teachers help me in reading handouts. Beyond that no other strategies are being used to support me. Most of them support me in providing marks" (March 17, 2017, ISVI2).

3.4. Instructional Barriers to Inclusion for Students with Visual Impairment
According to Table 4, for the items related to teacher’s knowledge in adapting teaching strategies and materials (m= 2.43, SD=1.21), about the nature of visual impairments (m=2.59, SD=1.18) and status of training on Braille reading and writing or use of specialized equipment for SVI (m=2.24, 1.22), the observed mean values were found to be lower than the expected mean (M=3). And also, statistically significant as \( t(99) = -4.72, -3.47 \) and \(-6.21\) respectively with \( p<0.05 \). This implies that the implementation of inclusive education by teachers for the successful inclusion of SVI were found to encounter challenges due to limited knowledge of teachers in adapting teaching strategies and materials, limited knowledge about the nature of visual impairment, and limited training on Braille reading and writing or use of specialized equipment for SVI.

As indicated in Table 4, limited knowledge to link the expanded core curriculum (for instance, use of Braille, audio materials or tactile aids) with what the subject teachers teach (m= 2.3, SD= 1.24) and lack of budget or fund for resources or special equipment to help SVI in academic or core subjects (m=2.13, MD=1.13) were found to be additional barriers for inclusion practices by teachers. This was justified with the observed mean scores less than the expected mean value (M=3) and statistically significant as \( t(99)= -5.67 \) and \(-7.67 \) with \( p<.05 \) respectively. Thus, gaps in
knowledge, lack of budget (fund) and limited training were found to be challenges which prevented teachers from the successful inclusion practices of SVI.

The one sample t-test revealed that there was a statistically significant mean difference between the overall observed and expected mean scores for instructional barriers to teaching SVI $t(99)=-7.14$, $P<.05$ indicating that the observed mean score for instructional barriers ($m=11.69$, $SD=4.64$) was less than the expected mean score ($M=15$). This implies that in implementing inclusive education for SVI, teachers seem to face problems such as lack of adequate knowledge in adapting teaching strategies and materials, or limited knowledge about the nature of visual impairments and about how to link the expanded core curriculum with the subject they teach. Teachers were also found to report that they had limited training on Braille reading and writing or limited training on the use (adaptation) of specialized equipment for SVI due to lack of budget or fund.

Table 4. One sample $t$-test results for instructional barriers

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>EM</th>
<th>t-value</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>You lack adequate knowledge in adapting teaching strategies and</td>
<td>100</td>
<td>2.43</td>
<td>1.21</td>
<td>3</td>
<td>-4.718</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>materials for students with visual impairment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>You lack adequate knowledge about the nature of visual impairments</td>
<td>100</td>
<td>2.59</td>
<td>1.18</td>
<td>3</td>
<td>-3.470</td>
<td>99</td>
<td>.001</td>
</tr>
<tr>
<td>or the needs of students with visual impairment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>You have limited training on Braille reading and writing or use of</td>
<td>100</td>
<td>2.24</td>
<td>1.22</td>
<td>3</td>
<td>-6.211</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>specialized equipments for students with visual impairments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>You have limited knowledge to teach (link) the expanded core</td>
<td>100</td>
<td>2.30</td>
<td>1.24</td>
<td>3</td>
<td>-5.668</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>curriculum (for instance, use of Braille, audio materials or tactile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>aids) with the subject you teach</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of budget or fund for resources or special equipments to help</td>
<td>100</td>
<td>2.13</td>
<td>1.13</td>
<td>3</td>
<td>-7.672</td>
<td>99</td>
<td>.000</td>
</tr>
<tr>
<td>students with visual impairments in academic subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>100</td>
<td>11.69</td>
<td>4.64</td>
<td>15</td>
<td>-3.31</td>
<td>99</td>
<td>.000</td>
</tr>
</tbody>
</table>

* .05, Expected Mean (M): the expected average middle value in the scale for each item and sum of items

Source: Computed by the researchers based on survey data collected from teachers
Interviews conducted with special needs educators indicated that lack of budget for resources and training of teachers were found to be serious challenges that teachers faced to successfully implement the inclusive education for SVI. Concerning this, one of the special needs educators had stated the following:

The school grant has one percent for special needs education (about 1000 birr) annually and this is assigned and used for all students with special needs. This is in terms of our school and if you take other schools it is below this. Moreover, teachers need per-diem for training but the school does not afford this (March 24, 2017, SNE2).

Teachers in FGD also disclosed that SVI were not receiving adequate support from their teachers due to budget related factors. Accordingly, teachers have indicated that no one in the schools has made an effort to solve the fund or budget problem. This was supported by one of the teachers in FGD who had reported the following:

All of us including the school management, special need educators and others are responsible to support SVI and solve the related problems. We are always talking about the shortage of budget for supporting these students rather than planning and designing the means to participate other donor organizations working with and supporting schools in areas of special needs education (March 19, 2017, FGDT6).

Interviews conducted with SVI also showed that there were definite weaknesses on the part of the teachers in teaching and linking the expanded core curriculum with the subjects they taught. From focus group discussion, the study found that teachers did not have adequate trainings for implementing inclusive education to successfully accommodate students with visual impairments. In relation to this, one of the teachers in the FGD had complained as "We hear that there are different workshops, seminars and short-term trainings are organized for teachers. However, we do not know who participate in those trainings while we are the appropriate ones for the training" (March 19, 2017, FGDT4).

4. Discussion
In relation to the findings in this research, previous studies (Bayram, 2014; Mittal & Khanna, 2010; Sahin & Yorek, 2009) indicated that the collaboration of many different people in the school plays a significant role in developing teaching and learning strategies to SVI. These studies indicated that the general education teachers were in need of collaboration among themselves, specialist teachers and other stakeholders. The argument is that when collaboration is in place, expertise is shared in various areas, planning and evaluation in cooperation with the team members is enriching in comparison to doing the job alone.

Previous research studies in Ethiopia (Hadgu, 2015; Abebe, 2014; Mitiku et al., 2014) also indicated that collaboration has the potential to promote greater confidence, competence, and professional relationship and communication in general education teachers as well as enhance the planning and delivery of inclusive education for SVI. According to the Critical Disability Theory principles (Hosking, 2008), instructional improvement for inclusive education of SVI depends on the regular school teachers’ collaboration with other educational professionals such as special needs educators.
In line with the present findings, previous researches showed that most of the time, SVI depend solely on printed textbooks which are distributed to each student and these students were frequently forced to depend on others for reading which was not possible and convenient all the time (Hadgu, 2015; Shifere, 2013; Bantiyrgu, 2014). This is also in line with the research of Sorlie and Torsheim (2011) who found that when there was shortage of adapted teaching and learning materials in inclusive classrooms or schools, this would demoralize and reduce the confidence of teachers to accommodate students with special needs such as SVI.

Other studies also reported that teachers felt supported through the provision of the resources required to carry out their expected roles. But the practical ways in which these resources were utilized to support students with VI in inclusive classrooms need to be better understood (Giangreco, Suter & Hurley, 2011). In agreement with the present study, Agesa (2014) also found that both SVI and their teachers in the general education classroom lacked Braille papers and low vision materials which would create difficulty in their academic achievement. The Critical Disability Theory by Hosking (2008) indicated that whenever teachers use manipulative, models, or other equipment, SVI need the opportunity to use their tactile and kinesthetic senses to become familiar with the objects to benefit from their use in lessons.

From the results obtained from both the quantitative and qualitative data, it is possible to deduce that teachers had limitations to use the appropriate teaching strategies for the successful accommodations of SVI in their classrooms. This might be due to lack of specialized equipment, or lack of knowledge and skills about how to use the few available resources. Regarding this, previous studies have showed similar results indicating that many general education teachers were aware of their limited skills and knowledge regarding inclusion and this appeared to make teachers fearful of change and hesitant in accepting the new educational agenda of inclusion (Sorlie & Torsheim, 2011).

Previous studies also indicate that SVI use tactile and kinesthetic input to learn about their environments. Thus, any visual materials used in the classrooms need to be adapted by general education teachers for use by students who do not have the visual skills required for the task (Giangreco et al., 2011; Sahin & Yorek, 2009). Furthermore, the Critical Disability Theory (Hosking, 2008) clearly suggests that for the successful inclusion of SVI, teachers’ commitment together with adequate and appropriate knowledge and skills in adapting the learning environments is essential.

In line with this study, previous research findings by Sorlie and Torsheim (2011) reported lack of training as a challenge to teachers and suggested that teachers in inclusive schools need specific workshops that will make them become more skillful to work with children with disabilities in their classroom. Others found that, while teachers agreed with the general concept of inclusion and regarded it as an ideal to be striven after, the majority of them felt that they lacked sufficient knowledge, skills and training, and had no sufficient resources available due to lack of budget (Avramidis, Bayliss & Burden, 2000; Hofman & Kilimo, 2014). Consistent with the current study, previous research findings in Ethiopia (Hadgu, 2015; Shifere, 2013; Bantiyrgu, 2014) found that lack of knowledge in adapting materials, limited
understanding about the nature of VI and lack of adequate budget to purchase the materials were major challenges for inclusion practices. According to the Critical Disability Theory (Hosking, 2008), to improve instructional practices for SVI within inclusive education framework, adequate training should be offered to school teachers to raise awareness of disability issues.

5. Conclusion and Recommendations

5.1. Conclusion

Regarding teachers’ collaboration with the other professionals for support, the study concluded that teachers have not been receiving support from other professionals who might work directly with SVI or with general classroom teachers particularly in the adaptation of teaching strategies and specialized equipment to make it suitable for SVI. From the findings in relation to the classroom supplies and resources, it is possible to conclude that SVI have not been successfully included due to insufficient teaching materials and resources.

This study concluded that teachers have not been regularly using appropriate teaching strategies for effective and successful inclusion of SVI. It is also concluded that limited knowledge in adapting teaching materials, gaps in understanding the nature of visual impairments, lack of training on Braille reading and writing or on individualized teaching strategies have been major challenges for inclusion. Furthermore, limited knowledge to link the expanded core curriculum with what the subject teachers teach and lack of adequate budget have been identified as challenges that teachers have faced to successfully accommodate SVI in inclusive classrooms.

5.2. Recommendations

On the basis of the findings and conclusions of the study, the following are suggested to improve the inclusive instructional practices and reduce the challenges for the SVI in the government preparatory and general secondary schools of Harari region:

It is suggested that school management at general secondary and preparatory school levels is capable of and well committed in arranging regular consultation sessions in which the school teachers and special needs educators should work collaboratively to address the needs of SVI. The school management is also recommended to seek additional fund from donors and allocate adequate budget to train teachers and purchase materials such as Braille paper, slate, stylus, white cane, and other relevant resources for SVI.

It is better if the special needs educators work together with the school management and regional education bureau to strengthen the resource centers at the school level so as to meet the material needs of SVI. The special needs educators should also provide professional support and training for regular class teachers on adapting and using appropriate teaching strategies to SVI and the school management on how to identify and address the needs of SVI.

The Harari Regional Education Bureau is suggested to seek additional fund from donors to support and strengthen the inclusive instructional practices through
adequate resources to be used by SVI and teachers, offer training to special needs educators and teachers on adaptations of teaching strategies and materials. It is also better if the Harari Regional Education Bureau works in partnership with Haramaya University to get access to professional support and expertise in special needs and inclusive education who can give training to teachers and special needs educators Braille reading and writing skills and adaptations of resources for SVI.

Further research should focus on instructional practices and challenges of students with other types of disabilities particularly those with hearing impairments, emotional and behavioral difficulties and learning disabilities attending secondary schools in the region. Since the current study was carried out in government school, future research should be planned with private schools in the region as a comparative study and this may yield a more in-depth understanding of the problem.

6. References


