

CHAPTER - V

SUMMARY AND CONCLUSION

5.0 Introduction

This chapter gives the major findings emerged out of the study, and concluding remarks based on the findings of the study. It also points out some of the recommendations and suggestions for further research followed with conclusion.

5.1 Major Findings

The major findings of the study are presented as below:

1. Among the sample selected, 58% were Blind and 42% with Low vision.
2. In the level of acquisition of Expanded Core Curricular Skills, 29.6% of blind students were at lower and the same percentage was acquired at higher level; and nearly 41% were at moderate level.
3. In the level of acquisition of Expanded Core Curricular Skills, 34.7% and 22.4% of low vision students were at lower and higher level respectively and 43% were at moderate level.
4. Pertaining to the skills of acquisition by blind students, the results indicate that a majority of students were at moderate level. In Academic Skills 24% at lower level but 37% at higher level; in Career Education 31% at higher level and 27% at lower level. But in Independent Living Skills, only 18% at higher level and 35% at lower level; Orientation and Mobility Skills, 25% of the students were at lower level and 30% at higher level. And in Application of Technology, only 32% secured higher score and 23% at lower level.
5. Pertaining to the skills of acquisition by low vision students, the results indicate that a majority of students were at moderate level. In Academic Skills 27% were at lower level and the same percentage

was acquired at higher level; in Career Education 22% at higher level and only 18% at lower level. But in Independent Living Skills, 39% at higher level and 25% at lower level. And in Application of Technology, only 22% secured higher score and 35% at lower level.

6. Pertaining to the Academic skills of blind students, 90% of students were able to write in slate and stylus, whereas only 25% used Nemeth code in Mathematics and 5% of students used scientific codes to learn Science subject. Though students scored 72% in reading Braille fluently only 17% of students used Abacus for doing Mathematical calculations.
7. Pertaining to the skill of Orientation and Mobility, blind students scored 61% in protective techniques which included upper, lower arm techniques and 57% in sighted guide techniques. But only 30% of students were able to use cane techniques.
8. With regard to Application of Technology, 61% of blind students used tape recorder for learning. Whereas only 4% of students have the knowledge of keyboarding and 9% could operate computer independently. Thus it shows that only 25% of blind students use Technology for their Education.
9. The study indicated 68% of low vision students used print material with magnifier for learning, 69% of students used large print and 34% used Braille for learning.
10. The study results regarding Application of Technology, 33% of low vision students used tape recorder for learning. Whereas only 12% of students had the knowledge of keyboarding and 23% could operate computer independently. Thus it shows that only 23% of low vision students use Technology for their Education.
11. Pertaining to the comparison between blind and low vision students with respect to Application of Technology, 61% of blind students used tape recorder for learning compared to low vision students who used

only 33%. Whereas 12% of low vision students had the knowledge of keyboarding compared to blind students with only 4% and 23% could operate computer independently compared to blind students with only 9%.

12. There is no significant influence between Gender and Grade with respect to Expanded Core Curricular Skills acquisition. Both blind and low vision boys and girls were found to be acquired skills at the same level.
13. Grade did not influence the acquisition of Expanded Core Curricular Skills as per the ANCOVA summary when considering Grade as covariate.
14. The correlation coefficient results showed that there is significant negative correlation between Expanded Core Curricular Skills and Academic Achievement of blind students. Whereas, Expanded Core Curricular Skills has no correlation with the Academic Achievement of low vision students.
15. Pertaining to the analysis made to find correlation coefficient of Academic skills and Application of Technology, Career Education and Orientation and Mobility Skills, Braille reading fluency and Abacus usage, the results indicated that there was no correlation between each skill among blind students. But there is significant correlation between Independent Living Skills and Orientation and Mobility Skills.
16. Considering the correlation coefficient of Academic skills and Application of Technology, there is significant correlation between them among low vision students.
17. With regard to regression analysis, there is significant influence between expanded core curricular skills and academic achievement among blind students. Whereas, there is no significant influence between expanded core curricular skills and academic achievement among low vision students.

5.2 Discussion

The discussion pertaining to the above findings are presented as follows:

i) Learning medium in Academic Skill acquisition of Expanded Core Curricular Skills of Low Vision Students

Lusk and Corn (2006) in their study “Learning and Using Print and Braille: A Study of Dual-media Learners” explored the instructional methods and curricular decisions of teaching dual media to students with low vision. The study showed only 15% used standard print with optical devices as their primary reading medium. In addition, 49% used large print, 9% used Braille, and 18% used standard print without optical devices as their primary reading medium. This study vary with the present study in such a way that 68% of low vision students use print material with magnifier for learning, 69% of students use large print and only 34% use Braille for learning.

The above finding is inconsistent with results of the study conducted by Ndung’U (2011) who investigated the literacy medium used by secondary school learners with low vision. The study further aimed at investigating the factors that influence the learner’s choice of literacy medium. Findings of the study indicated that majority of learners with low vision use Braille as their primary medium of reading and writing, although a relatively significant percentage also use print with and without aid of low vision devices. The learners’ choice of the literacy medium was influenced by mechanical and social factor. Mechanical factors included quantity and quality of assignments, ability to take notes in a chosen medium, reading rate, comprehension and accuracy, fatigue, physical dexterity and working distance from the page. Social factors included portability, availability and the family’s or teacher’s perception of the learners needs.

ii) Effect of Sub Skills of Expanded Core Curricular Skills on Academic Achievement of Blind students with respect to Grade and Gender

The present study in Academic skills of blind students with respect to Grade showed that there is no significant difference in the acquisition of the skill. The result is substantiated with Klingenberg & Augestad (2012) who estimated the occurrence of braille-reading students in Norway who were educated according to their grade-level progression in mathematics from 1967 to 2007. It also analyzed the association among these students' progression in mathematics and the causes of visual impairment, the age at which the diagnosis was established, the students' gender, and the students' use of reading media. There were no statistically significant associations between gender and the abstracted variables or between mathematics education and reading media.

iii) Acquisition of Expanded Core Curricular Skills among Blind Students

In the present study, the Academic skills of blind students showed that students scored 71% in reading Braille fluently whereas only 25% used Nemeth code in Mathematics. This indicated that learning Mathematics are slower than reading Braille. This finding is also in line with Wetzel & Knowlton (2006), who collected reading rate data from both print and braille readers in the areas of mathematics and literary braille. No significant differences were found between grade 2 and grade 1 braille reading rates or between print and Nemeth oral reading rates. Reading rates in cells per second for mathematics were slower than for literary material in both print and braille.

Lewis (2002) in the study "Teachers of students with visual impairments: What are they teaching?" reported that the parents of children with visual impairments and the parents of their same-age sighted peers were interviewed to determine their children's mastery of 101 daily living skills. As a whole, the children with visual impairments performed only 44% of the tasks

independently, while the sighted children performed 84% of them independently. However the findings of the present study also exhibited similar finding that only 18% of them acquired independent living skills.

iv) Acquisition of Career Education and Orientation and Mobility Skills of Blind Students

Pertaining to the analysis made to find correlation coefficient of Career Education and Orientation and Mobility, the results indicated that there was no correlation between them among blind students. The finding is inconsistent with the study carried out by Cmar (2015) who revealed in a secondary analysis of data from the National Longitudinal Transition Study-2, multivariate logistic regression analyses were conducted to investigate employment outcomes for youths with visual impairments based on orientation and mobility skills and outcome expectations. Results suggested that independently traveling to places outside the home, using public transportation, and arranging airplane or train trips predict post-school employment for youths with visual impairments. Positive self-beliefs about work for pay, financial self-support, and independent living were also associated with employment.

v) Application of Technology by Visually Impaired Students

The study conducted by Kelly (2009) investigated the use of assistive technology by students in the United States who are visually impaired through a secondary analysis of a nationally representative database. It was found that the majority of students were not using assistive technology. The present study also reflects the same. The study revealed that only 25% of blind students and 16% of low vision students used Technology for their Education.

The result of the study is also in line with Siu & Lam (2012) who examined that although computer assisted learning (CAL) is becoming increasingly popular; people with visual impairment face greater difficulty in accessing computer-assisted learning facilities. The design inclusiveness of the CAL facilities is low because children with visual impairment may find it difficult to approach, reach, manipulate and use the facilities.

Diana & Brent (2000) in their study “Technologies of Resistance/Resisting Technology: Braille, Computers, and Literacy for the Visually Impaired” compared students who used primarily oral media for reading and writing with those who use braille. The author found that one can read them quickly or slowly, stop and back up, and follow a developed argument in ways that are difficult when listening to words flow by on a tape." The present study is in line with the above stated findings that 61% of blind students found tape recorder to be easy for learning.

The study is also substantiated with Adetoro (2012) who investigated alternative format preferences among secondary school visually impaired students, focusing on Southwestern Nigeria. The study found that talking books/audio recordings were the most preferred format (53%)-51% for blind and 55% for partially sighted students respectively. Reasons for talking book preference included ease of understanding and playback, time savings, teacher's ineptitude, difficulty and volume of Braille materials.

vi) Correlation Coefficient of Academic Skills and Technology for Blind Students

On analysing the data related to find correlation coefficient of Academic skills and Technology, the results indicated that there was no significant correlation between them for blind students. This finding is supported by Zhou et al. (2012) who explored the relationship between computer and the performance on standardized tests by secondary school students with visual impairments. The relationships between using a computer for homework and students' performance on standardized tests on synonyms and antonyms, comprehension of passages, calculation, applied problems, science, and social studies were investigated using multiple regression analyses, with other variables held constant, including gender, severity of vision loss, household income, multiple disability status, and race or ethnicity. Results showed however, using a computer for homework had no significant relationship with students' performances in any of the six tests that were examined.

5.3 Recommendation

1. The lack of teaching and learning materials for use in inclusive classroom was mentioned by teachers to support the visually impaired students. The study may recommend the educational personnel to provide enough teaching and learning resources to inclusive schools and to students with visual impairments in particular. Materials like tactual models, Braille books, tape recorder, computer, printers, and photocopiers etc., should be made available.
2. Special teachers to ensure the importance of using long cane to visually impaired students.
3. The training institute may provide training to teachers in expanded core curricular skills and Information & Communication technology (ICT) for the blind and low vision students.
4. The teachers and parents should give more attention to students who lack skills in expanded core curriculum.
5. In the inclusive classroom, teachers should involve peers for the development of the expanded core curriculum.
6. Core curriculum should be designed in such a way that suits the disability specific needs.
7. An awareness programme should be organised to heads of institutions regarding environmental modifications and adaptations for effective learning and placement of the children.

5.4 Suggestion for Further Research

1. Effect of expanded core curriculum on academic achievement of visually impaired students at primary level.
2. Intervention strategies for students with visual impairment in expanded core curriculum.

3. A comparative research on expanded core curricular skills for special needs students versus sighted.
4. A study on expanded core curriculum for multi disabled children.
5. Further studies should focus on other disabilities with regard to expanded core curricular skills.
6. Impact of application of technology for career success of visually impaired persons.
7. Curriculum adaptations to teach expanded core curricular skills for the visually impaired children.

5.5 Conclusion

In today's school students with disabilities who receive special education services are typically included in general education classrooms with their peers. Special education is not a place, but rather a set of instructional services. In addition inclusion is not just a place or a classroom setting but it is a philosophy of education that integrates children with disabilities into educational settings in which meaningful learning occurs. Evidence based researches suggest that visually impaired students are successful in inclusive set up provided the right type of instruction coupled with compensatory skills to cope with or get along with the sighted peers. In this thesis, the researcher set out to explore and assess the expanded core curricular skills of visually impaired students. Because the expanded core curriculum covers the unique, and specialized needs of visually impaired students, the subjects included within it have to be taught by a teacher who specializes in working with students who have visual impairments. Hence the special teacher in inclusive set up needs to be considered as a crucial professional but the present scenario indicates that the special teacher role is more of a facilitator than a teacher. The presence of visual impairment requires thorough evaluation of the expanded core curricular skills of the students and should be systematically taught by the teachers with the specialized expertise. But this area is yet to be given attention by the educators. Various results of the study

show that the visually impaired students need improvement in many skills. But in order to master general curricular subjects, and to eventually live and work independently, students who are blind or low vision must learn an additional set of skills known as expanded curricular skills. The research stands evidence that expanded curricular skills are pivotal for learning of general education curriculum. Further the study identified the expanded core curricular areas and assessment protocol suiting to Indian context. Nevertheless, the study is an attempt in this direction but a long way to go for setting the domains of skills, instructional and evaluation team to provide a realistic and need based educational service which is their right!