

**Expanded Core Curricular Skills and Academic  
Achievement of Students with Visual Impairment  
in Inclusive Education for the Disabled  
at Secondary Stage**

*By*

**Nirupalini.D**

(Reg. No. 12PHEDP001)

*Supervisor*

**Dr.G.Victoria Naomi**

A thesis submitted to  
Avinashilingam Institute for Home Science and  
Higher Education for Women  
Coimbatore - 641 043.

In Partial Fulfillment of the Requirements for the Degree of  
**Doctor of Philosophy in Education**

**FEBRUARY, 2016**

## DECLARATION

I declare that the thesis entitled "**Expanded Core Curricular Skills and Academic Achievement of Students with Visual Impairment in Inclusive Education for the Disabled at Secondary Stage**" submitted by me for the degree of **Doctor of Philosophy in Education** is the record of work carried out by me during the period from **2012 to 2016** under the guidance of **Dr.(Mrs.)G.Victoria Naomi**, M.A., M.Ed., Ph.D, Professor, Department of Special Education, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore - 641 043, and has not formed the basis for the award of any Degree, Diploma, Associateship, Fellowship, Titles in this University or any other University or other similar institution of Higher Learning.



**Signature of the Candidate**

## CERTIFICATE

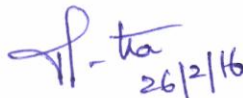
I certify that the thesis entitled “**Expanded Core Curricular Skills and Academic Achievement of Students with Visual Impairment in Inclusive Education for the Disabled at Secondary Stage**” submitted for the degree of Doctor of Philosophy by **Nirupalini.D** is the record of research work carried out by her during the period from **2012** to **2016** under my guidance and supervision, and that this work has not formed the basis for the award of any Degree, Diploma, Associateship, Fellowship or other Titles in this University or any other University or institution of Higher Learning.



**Signature of the H.O.D**



**Signature of the Supervisor**



**Signature of the Dean**

## **ACKNOWLEDGEMENT**

With the great humility, I owe and place this thesis at the feet of **Almighty God** for granting me the wisdom, health and strength to undertake this research task and enabling me to its completion.

The research scholar expresses her deep sense of gratitude to Former Chancellor **Dr.(Thiru).T.S.K.Meenakshisundaram**, Chancellor **Dr.(Thiru). Krishna Kumar**, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore for granting permission to undergo this course in this highly esteemed University.

The research scholar expresses her boundless thanks to **Dr.(Mrs).Premavathy Vijayan**, Vice Chancellor (i/c), for granting permission to pursue this research and **Dr.(Mrs).A.Venmathi**, Registrar (i/c), Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore for providing the opportunity to conduct my thesis work in Ph.D in Education.

The research scholar acknowledges her warm gratitude to **Dr.(Mrs).Geetha**, HOD of Special Education and Dean (i/c), Faculty of Special Education, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore for her continuous encouragement and for her suggestion.

The research scholar extends her warm gratitude to **Dr.(Mrs).Vasuki**, HOD of Education, Department of Education, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore for her wonderful support and suggestion throughout the study.

The research scholar expresses her immense gratitude to her guide **Dr.(Mrs).G.Victoria Naomi**, Professor, Department of Special Education, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore for her esteemed guidance, tireless support, long

lasting encouragement and invoking insight for constructive strides from the beginning till the end of the doctoral research in spite of her hectic schedules. This feat was possible only because of the unconditional support provided by madam, a person with an amicable and positive disposition and the researcher considers it as a great opportunity to do her doctoral programme under her guidance and to learn from her research expertise.

The research scholar expresses her sincere thanks to the faculty members of **Department of Education and Department of Special Education**, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore for their constant encouragement, valuable support and comments given to bring out this successful research work.

The research scholar extends her warm gratitude to all the Visually Impaired children, who participated enthusiastically in the study and for extending their wonderful support throughout the study.

The research scholar expresses her deep indebtedness to her **husband, Mr.S.Muthusamy, her daughter and her parents** for their continued motivation, tireless support and affectionate encouragement from the beginning, till the completion of this doctoral research.

## **CONTENTS**

<b>Chapter</b>	<b>Title</b>	<b>Page No.</b>
I	Introduction	1-39
II	Review of Related Literature	40-113
III	Method	114-130
IV	Data Analysis and Interpretation	131-169
V	Summary and Conclusion	170-179
	Bibliography	180-207
	Appendices	208-219

## LIST OF TABLES

<b>Table No.</b>	<b>Title</b>	<b>Page No.</b>
3.1	Grade and Gender-wise distribution of sample	115
3.2	Variables Selected for the Study	116
4.1	Expanded Core Curricular Skills among Blind Students	132
4.1.a	Level of Expanded Core Curricular Skills among Blind Students	133
4.2	Expanded Core Curricular Skills among Low Vision Students	133
4.2a	Level of Expanded Core Curricular Skills among Low Vision Students	134
4.3	Sub Skills of Expanded Core Curriculum among Blind Students	135
4.3.a	Level of Acquisition of Different Sub Skills of Expanded Core Curriculum among blind students	136
4.4	Sub Skills of Expanded Core Curriculum among Low Vision Students	137
4.4a	Level of Acquisition of Different Sub Skills of Expanded Core Curriculum among Low Vision Students	138
4.5	Academic Skills of Blind Students	139
4.6	Orientation and Mobility Skills of Blind Students	141
4.7	Application of Technology among Blind Students	143
4.8	Academic Skills of Low Vision Students	145
4.9	Application of Technology among Low Vision Students	147
4.10	Comparison between Blind and Low Vision Students with respect to Application of Technology	149

<b>Table No.</b>	<b>Title</b>	<b>Page No.</b>
4.11	Testing-wise Mean, SD and t-value for Expanded Core Curricular Skills among Blind Boys and Girls	151
4.12	Testing-wise Mean, SD and t-value for different Sub Skills of Expanded Core Curriculum among blind boys and girls	152
4.13	Testing-wise Mean, SD and t-value for Expanded Core Curricular Skills among Low Vision Boys and Girls	154
4.14	Testing-wise Mean, SD and t-value for Different Sub Skills of Expanded Core Curriculum among Low Vision Boys and Girls	154
4.15	Testing-wise Mean, SD and t-value for Expanded Core Curricular Skills among Different Grades of Blind Students	156
4.16	Testing-wise Mean, SD and t-value for Different Sub Skills of Expanded Core Curriculum among Different Grades of Blind Students	157
4.17	Testing-wise Mean, SD and t-value for Expanded Core Curricular Skills among Different Grades of Low Vision Students	159
4.18	Testing-wise Mean, SD and t-value for Different Sub Skills of Expanded Core Curriculum among Different Grades of Low Vision Students	160
4.19	Summary of One Way ANCOVA for Expanded Core Curricular Skills with respect to Grade among Blind Students	162
4.20	Summary of One Way ANCOVA for Expanded Core Curricular Skills with respect to Grade among Low Vision Students	163
4.21	Correlation between Expanded Core Curricular Skills and Academic Achievement among Blind Students	164

<b>Table No.</b>	<b>Title</b>	<b>Page No.</b>
4.22	Correlation between Academic Skills and Application of Technology among Blind Students	165
4.23	Correlation between Career Education and Orientation and Mobility Skills among Blind Students	166
4.24	Correlation between Braille Reading Fluency and Abacus Usage among Blind Students	166
4.25	Correlation between Independent Living Skills and Orientation and Mobility Skills among Blind Students	167
4.26	Correlation between Expanded Core Curricular Skills and Academic Achievement among Low Vision Students	167
4.27	Correlation between Academic Skills and Application of Technology among Low Vision Students	168
4.28	Regression Analysis of Expanded Core Curricular Skills among Blind Students on Academic Achievement	169
4.29	Regression Analysis of Expanded Core Curricular Skills among Low Vision Students on Academic Achievement	169

## LIST OF FIGURES

Figure No.	Title	Page No.
4.1	Academic Skills of Blind Students	140
4.2	Orientation and Mobility Skills of Blind Students	142
4.3	Application of Technology among Blind Students	144
4.4	Academic Skills of Low Vision Students	146
4.5	Application of Technology among Low Vision Students	148
4.6	Comparison between Blind and Low Vision Students with respect to Application of Technology	150

## LIST OF PLATES

<b>Plate No.</b>	<b>Title</b>	<b>Page No.</b>
3.1	Finger position while reading Braille	120
3.2	Punching dots in braille cells	121
3.3	Place value in Abacus	123
3.4	Tactile graph	123
3.5	Tactile map	123
3.6	Chemical Equations	124
3.7	Chemical Bond	124
3.8	Upper body protective technique	126
3.9	Lower body protective technique	126
3.10	Holding sighted person for mobility	126
3.11	Use of cane for mobility	126
3.12	Keyboard use with screen reader software	127

## **LIST OF APPENDICES**

<b>Appendix No.</b>	<b>Title</b>	<b>Page No.</b>
I	Personal Data Sheet	208
II	Assessment Schedule for Expanded Core Curricular Skills of Blind Students	209
III	Assessment Schedule for Expanded Core Curricular Skills of Low Vision Students	213
IVa	Passage for Assessment of Braille Reading in English	217
IVb	Passage for Assessment of Braille Reading in Tamil	218
IVc	Sentence for Assessment of Braille Writing in Tamil	219

# CHAPTER - I

## INTRODUCTION

1.0	Introduction	1
1.1	Inclusive Education: Meaning and Concept	1
1.2	Current trends in Inclusive Education	5
1.3	Out of school children in Indian Context	7
1.4	Conceptual understandings of Inclusive Education in India	7
1.5	Sarva Shiksha Abhiyan: <i>Education for All</i>	9
1.6	Current educational status of children with disabilities	10
1.7	Education of Children with Special Needs	13
1.7.1	Physical and Social Access	14
1.7.2	Special Training for School Readiness	14
1.7.3	Entitlements and Support Services	14
1.7.4	Architectural Barrier	15
1.7.5	Convergence for comprehensive coverage of CWSN	15
1.7.6	Engagement of Special Educators / Resource Teachers	16
1.7.7	Teachers' Orientation and Training	16
1.7.8	Quality of Access to CWSN	16
1.7.9	Curricular Areas	17
1.7.10	School Management Committee and Parental Support	17
1.7.11	Interventions in the 12 <sup>th</sup> plan	18
1.8	Visual impairment: Meaning and Concept	19
1.9	Curriculum: Meaning	20
1.10	Concept of Core Curriculum	21
1.11	An alternative mode: Compensatory Skills	22
1.12	Expanded Core Curriculum: Meaning and Concept	23
1.12.1	Academic Skills vs. Functional Skills	24
1.12.2	Social Interaction Skills	25

1.12.3	Recreation and Leisure Skills	25
1.12.4	Technology (Assistive)	26
1.12.5	Orientation and Mobility	27
1.12.6	Independent Living Skills	27
1.12.7	Career Education	28
1.12.8	Visual Efficiency Skills	29
1.13	Rationale for the study	30
1.14	Statement of the Problem	36
1.15	Operational Definition	36
1.15.1	Expanded Core Curriculum (ECC)	36
1.15.2	Academic Achievement	37
1.15.3	Visual Impairment	37
1.15.4	Inclusive Education for the Disabled	37
1.16	Objectives	37
1.17	Hypotheses	38
1.18	Delimitation of the study	38
1.19	Organization of the thesis	38

## **CHAPTER - II**

### **REVIEW OF RELATED LITERATURE**

2.0	Introduction	40
2.1	Expanded Core Curriculum for Visually Impaired Children	40
2.2	Academic Skills	45
2.2.1	Braille Reading Skills & Fluency	45
2.2.2	Use of Slate & Stylus and Braille Writing	63
2.2.3	Application of Nemeth Code	64
2.2.4	Abacus Usage	67
2.2.5	Study & Reference Skills	69
2.2.6	Use of Tactual or Printed Charts, Graphs & Maps	71
2.3	Career Education	76
2.3.1	Resources Available for Blind and Low Vision	76
2.3.2	Career Decision	78
2.4	Independent Living Skills	83
2.5	Knowledge of Orientation & Mobility	86
2.6	Application of Technology	91
2.7	Academic Achievement of Visually Impaired Students	103
2.8	Academic Skills of Low Vision	108
2.9	Conclusion	113

## **CHAPTER - III**

### **METHOD**

3.0	Introduction	114
3.1	Site Description	114
3.2	Selection of the Sample	116
3.3	Design of the Study	116
3.4	Variables	116
3.5	Tools Selected for the Study	117
3.6	Pilot Study	119
3.7	Reliability of the tool	119
3.8	Validity of the tool	119
3.9	Data Collection Procedure	120
3.10	Data Analysis Procedure	129
3.11	Conclusion	130

## **CHAPTER - IV**

### **DATA ANALYSIS AND INTERPRETATION**

4.0	Introduction	131
4.1	Qualitative Analysis	132
4.1.1	Presents the level of acquisition of Expanded Core Curriculum among blind and low vision students separately	132
4.2	Quantitative Analysis	151
4.2.1	Effect of Expanded Core Curricular Skills on Academic Achievement of blind and low vision students with respect to Gender and Grade	151
4.2.2	Influence of Expanded Core Curricular Skills on Academic Achievement by considering Grade as covariate among blind and low vision students separately	162
4.2.3	Relationship between Expanded Core Curricular Skills and Academic Achievement	164
4.2.4	Regression Analysis between Academic Achievement and Expanded Core Curricular Skills among blind and low vision students separately	169

**CHAPTER - V**  
**SUMMARY AND CONCLUSION**

5.0	Introduction	170
5.1	Major Findings	170
5.2	Discussion	173
5.3	Recommendation	177
5.4	Suggestion for further research	177
5.5	Conclusion	178