

**IMPLEMENTATION OF AN INTEGRATED SENSORY
APPROACH IN THE DESIGN OF A CENTER FOR AUTISM IN
UDU, DELTA STATE**

**OGBONDEMINU, JOY ENIOLA
(16CA021163)**

JULY, 2022

**IMPLEMENTATION OF AN INTEGRATED SENSORY
APPROACH IN THE DESIGN OF A CENTER FOR AUTISM IN
UDU, DELTA STATE**

By

**OGBONDEMINU, JOY ENIOLA
(16CA021163)
B.Sc Architecture, Covenant University, Ota**

**A DISSERTATION SUBMITTED TO THE SCHOOL OF
POSTGRADUATE STUDIES IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE AWARD OF MASTER OF
SCIENCE (M.Sc) DEGREE IN ARCHITECTURE IN THE
DEPARTMENT OF ARCHITECTURE, COLLEGE OF SCIENCE
AND TECHNOLOGY, COVENANT UNIVERSITY**

JULY, 2022

ACCEPTANCE

This is to attest that this dissertation is accepted in partial fulfillment of the requirements for the award of the degree of Master of Sciences (M.Sc) in the Department of Architecture, College of Science and Technology, Covenant University, Ota, Nigeria.

Mr. Taiwo Erewunmi
(Secretary, School of Postgraduate Studies)

Signature and Date

Prof. Akan B. Williams
(Dean, School of Postgraduate Studies)

Signature and Date

DECLARATION

I, **OGBONDEMINU JOY ENIOLA (16CA021163)**, declare that this thesis was conducted entirely by me under the supervision of Dr. Bukola A. Adewale of the Department of Architecture, Covenant University, Ota, Ogun State, Nigeria. I attest that this research has not been presented either wholly or partly for any degree elsewhere before. All scholarly information sources used in this thesis were duly acknowledged and referenced.

OGBONDEMINU JOY ENIOLA

Signature and Date

CERTIFICATION

We certify that this dissertation titled “**IMPLEMENTATION OF AN INTEGRATED SENSORY APPROACH IN THE DESIGN OF A CENTER FOR AUTISM IN UDU, DELTA STATE**” is an original research work carried out by **OGBONDEMINU JOY ENIOLA (16CA021163)**, in the Department of Architecture; College of Science and Technology, Covenant University, Ota, Ogun State, under the supervision of Dr. Bukola A. Adewale. We have examined and found this work acceptable as part of the requirements for the award of Master of Science in Architecture.

Dr. Bukola A. Adewale
(Supervisor)

Signature and Date

Prof. Adedapo. A. Oluwatayo
(Head of Department)

Signature and Date

Dr. Clement O. Folorunso
(External Examiner)

Signature and Date

Prof. Akan B. Williams
(Dean, School of Postgraduate Studies)

Signature and Date

DEDICATION

This thesis is dedicated to God; My Father, Savior, my Lord and the Lover of my Soul and my parents; Pastor and Mrs. Ogbondeminu for their unrelenting love and support.

I am eternally grateful.

ACKNOWLEDGEMENT

My utmost appreciation goes to God Almighty for the life, strength and grace to complete this study.

I want to especially thank Dr. David O. Oyedepo for establishing this great institution, Covenant University. I would also like to appreciate the efforts of the Vice-Chancellor of Covenant University, Professor Abiodun H. Adebayo, the Registrar, Mr. Emmanuel K. Ighan, the Dean, School of Postgraduate Studies, Professor Akan B. Williams, and the Sub-Dean, School of Postgraduate Studies, Dr. Emmanuel O. Amoo for their commitment towards the successful completion of my master's degree program. I am forever grateful.

I would also like to appreciate the following individuals and institutions for their contribution to the successful completion of this research work.

My Supervisor; Dr. Bukola A. Adewale for her immense support, guidance, exceptional academic insight and understanding that enabled the successful completion of this thesis.

My amazing parents, Pastor and Mrs. Ogbondeminu for their consistent financial and emotional support to me throughout my study. I am immensely grateful.

Prof. Adedapo A. Oluwatayo, Dr. Daniel O. Babalola, Dr. Anthony B. Sholanke, Dr. Peter A. Aderonmu, Dr. Isidore C. Ezema, Dr. Omoyeni A. Fulani, Dr. Osahon J. Ediae, Dr. O.N.E. Ekhaese and Arc. Olaniyi Olagunju for the knowledge they imparted and the support they provided to me throughout the duration of my study.

I would also like to acknowledge the management and staff of Patrick Speech and Languages Centre; Ikeja, Comrade David Ofoeyeno School for Special Children; Udu, Madonna School for Children with Special Needs; Okpanam and Champions Vocational Centre, Ogun state for their participation in the research process.

Lastly, my colleagues from whom I have learnt and who have made this study worthwhile.

I am truly grateful.

TABLE OF CONTENTS

ACCEPTANCE	I
DECLARATION	II
CERTIFICATION	III
DEDICATION	IV
ACKNOWLEDGEMENT	V
TABLE OF CONTENTS	VI
LIST OF TABLES	IX
LIST OF FIGURES	XIII
LIST OF PLATES	XV
LIST OF ABBREVIATIONS	XIX
ABSTRACT	1
CHAPTER ONE: INTRODUCTION	2
1.1. Statement of Research problem	2
1.2. Research Aim and Objectives	3
1.3. Justification for the study	5
1.4. Client/Users	6
1.5. Scope of the study	6
1.6. Operational Definition of Key Terms	7
1.7. Study Area	8
CHAPTER TWO: LITERATURE REVIEW	9
2.0. Neurological Disorders	9
2.1. Autism	10
2.2. Co-morbidities in Autism	12
2.3. Sensory Processing Disorder (SPD) as a Comorbidity in Autism	15
2.4. Intervention measures for Autism	21
2.5. Autism in Nigeria	28
2.6. Designing centers for Autism	31
2.7. Precedent Studies on Designing Centers for Autism	32
2.8. Design Approaches in catering for SPD in centers for Autism	52
2.9. Prospects and Criticism of the Sensory design Approaches	52
2.10. Identified gaps in literature	54

CHAPTER THREE: RESEARCH METHODOLOGY	55
3.0. Overview of Chapter	55
3.1. Research philosophy	55
3.2. Research Approach	56
3.3. Research Design	57
3.4. Data collection instruments	57
3.5. Data Collection Methods	58
3.6. Sampling Method	60
3.7. Method of Data Presentation and Analysis by Research Objectives	62
3.8. Ethical Considerations	63
CHAPTER FOUR: RESULTS AND DISCUSSION	65
4.0. Overview of Chapter	65
4.1. Analysis of Case studies	65
4.2. Analysis of Interviews	120
4.3. Thematic analysis of interview	121
4.4. Presentation of Research Findings by Objectives	129
4.5. Discussion of Research findings	131
4.6. Limitations of the study	133
4.7. Recommendations	133
4.8. Site Description and Analysis	134
CHAPTER FIVE: DESIGN CRITERIA AND APPROACH	137
5.0. Introduction	137
5.1. Design challenge	137
5.2. Project Goals and Objectives	137
5.3. Design considerations	138
5.4. Systems and Technical Requirement	139
5.5. Functional spaces and Requirements	144

CHAPTER SIX: DESIGN PHILOSOPHY, CONCEPTUALISATION AND PROPOSAL	169
6.1. Design Philosophy	169
6.2. Design Concept	169
6.3. Master plan design concept	170
6.4. Education and Therapeutic centre	173
6.5. Vocational Center	175
6.6. Produce market and Vegetable Garden	177
6.7. Residential Buildings	177
REFERENCES	179
APPENDICES	189
APPENDIX A - OBSERVATION GUIDE FOR CASE STUDY	192
APPENDIX B - INTERVIEW GUIDE FOR EDUCATIONAL THERAPISTS AND ADMINISTRATORS	194
APPENDIX C - DISSERTATION TRANSCRIPT	196
APPENDIX D - ARCHITECTURAL DRAWINGS	207

LIST OF TABLES

Table 3.1. Showing a list of the study population consisting of documented Autism Centers in Delta state, Nigeria	61
Table 3.2. Showing the sample size of Autism Centers used for the study	61
Table 3.6.1. Showing the Data analysis and Presentation Methodology for Research Objective 1	62
Table 3.6.2. Showing the Data analysis and Presentation Methodology for Research Objective 2	62
Table 3.6.3. Showing the Data analysis and Presentation Methodology for Research Objective 3	63
Table 3.6.4. Showing the Data analysis and Presentation Methodology for Research Objective 4	63
Table 4.1.1. Showing the Acoustic rating of the Patrick Speech and Languages Centre	74
Table 4.1.2. Showing the SPatial Sequencing rating of the Patrick Speech and Languages Centre	75
Table 4.1.3. Showing the Escape spaces rating of the Patrick Speech and Languages Centre	75
Table 4.1.4. Showing the Compartmentalization rating of the Patrick Speech and Languages Centre	76
Table 4.1.5. Table showing the Transition zone rating of the Patrick Speech and Languages Centre	76
Table 4.1.6. Table showing the Safety rating of the Patrick Speech and Languages Centre	77
Table 4.1.7. Table showing the Sensory Zoning rating of the Patrick Speech and Languages Centre	77
Table 4.2.1. Table showing the Acoustic rating of the Comrade David Ofoeyeno School for Autism	83
Table 4.2.2. Table showing the SPatial Sequencing rating of the Comrade David Ofoeyeno School for Autism	84
Table 4.2.3. Table showing the Escape space rating of the Comrade David Ofoeyeno School for Autism	84
Table 4.2.4. Table showing the Compartmentalization rating of the Comrade David Ofoeyeno School for Autism	85
Table 4.2.5. Table showing the Transition space rating of the Comrade David Ofoeyeno School for Autism	85

Table 4.2.6. Table showing the Safety rating of the Comrade David Ofoeyeno School for Autism	86
Table 4.2.7. Table showing the Acoustic rating of the Comrade David Ofoeyeno School for Autism	86
Table 4.3.1. Table showing the Acoustic rating of the Champions Vocational centre for Autism	91
Table 4.3.2. Table showing the SPatial sequencing rating of the Champions Vocational centre for Autism	91
Table 4.3.3. Table showing the Escape space rating of the Champions Vocational centre for Autism	92
Table 4.3.4. Table showing the Compartmentalization rating of the Champions Vocational centre for Autism	92
Table 4.3.5. Table showing the Transition space rating of the Champions Vocational centre for Autism	92
Table 4.3.6. Table showing the Safety rating of the Champions Vocational centre for Autism	93
Table 4.3.7. Table showing the Sensory zoning rating of the Champions Vocational centre for Autism	93
Table 4.4.1. Table showing the Acoustic rating of the Madonna School for Special Children	97
Table 4.4.2. Table showing the SPatial sequencing rating of the Madonna School for Special Children	98
Table 4.4.3. Table showing the provision of Escape spaces rating of the Madonna School for Special Children	98
Table 4.4.4. Table showing the Compartmentalization rating of the Madonna School for Special Children	99
Table 4.4.5. Table showing the provision of Transition space rating of the Madonna School for Special Children	99
Table 4.4.6. Table showing the provision of Safety rating of the Madonna School for Special Children, Okpanam	100
Table 4.4.7. Table showing the provision of Sensory Zoning rating of the Madonna School for Special Children, Okpanam	100
Table 4.5.1. Table showing the Acoustics rating of the Advance school, Egypt	106
Table 4.5.2. Table showing the SPatial sequencing rating of the Advance school, Egypt	106
Table 4.5.3. Table showing the Escape space rating of the Advance school, Egypt	107

Table 4.5.4. Table showing the Compartmentalization rating of the Advance school, Egypt	107
Table 4.5.5. Table showing the Transition space rating of the Advance school, Egypt	108
Table 4.5.6. Table showing the Safety rating of the Advance school, Egypt	108
Table 4.5.7. Table showing the Sensory Zoning rating of the Advance school, Egypt	109
Table 4.6.1. Table showing the Acoustics rating of the Caudwell Children centre, UK	115
Table 4.6.2. Table showing the SPatial sequencing rating of the Caudwell Children centre, UK	116
Table 4.6.3. Table showing the Escape space rating of the Caudwell Children centre, UK	117
Table 4.6.4. Table showing the Compartmentalization rating of the Caudwell Children centre, UK	117
Table 4.6.5. Table showing the Transition space rating of the Caudwell Children centre, UK	118
Table 4.6.6. Table showing the Safety rating of the Caudwell Children centre, UK	119
Table 4.6.7. Table showing the Sensory Zoning rating of the Caudwell International Children Centre	119
Table 4.7. Table showing data on the demographics of the research participants	121
Table 4.8.1.1. Table showing the identification of Themes for Interview Question 1	122
Table 4.8.1.2. Table showing the components of Theme 1	123
Table 4.8.2.1. Table showing the identification of Themes for Interview Question 2	124
Table 4.8.2.2. Table showing the components of Theme 2	124
Table 4.8.3.1. Table showing the identification of Themes for Interview Question 3-5	125
Table 4.8.3.2. Table showing the components of Theme 3	126
Table 4.8.4. Table showing the response of the interview participants to Interview Question 4	127
Table 4.8.5. Table showing the response of the interview participants to Interview Question 6	128
Table 4.8.6. Table showing the response of the interview participants to Interview Question 8	128
Table 4.9.1. Table showing data on the sensory design theories adopted in centers for Autism	129
Table 4.9.2. Showing the environmental adaptations measures adopted in the selected case studies based on the ASPECTSSTM design guidelines	130
Table 4.8.4. Table showing the response of the interview participants to Interview Question	

4	131
Table 5.2. Spatial requirement for Research facilities	150
Table 5.3. Spatial requirement for Education and Therapy facilities	153
Table 5.4. Spatial requirement for Vocational facilities	161
Table 5.5. Spatial requirement for Residential facilities	163
Table 5.6. Spatial requirement for Produce market and Vegetable garden	164
Table 5.7. Spatial requirement for the sporting facilities	164
Table 5.8. Spatial requirement for Ancillary facilities	168

LIST OF FIGURES

Figure 4.1. Showing the location and surrounding features of the Patrick Speech and Languages Centre; Ikeja	67
Figure 4.1.1. Image showing the site layout of the Patrick Speech and Languages Centre, Ikeja	68
Figure 4.1.2. Illustration showing the ground floor layout of main block in the Patrick Speech and Languages Centre, Ikeja	73
Figure 4.1.3. Illustration showing the first floor layout of main block in the Patrick Speech and Languages Centre, Ikeja	73
Figure 4.2.1. Image showing the site layout for the Champions Vocational Centre, Ogun state	88
Figure 4.2.2. Illustration showing the ground floor layout for the Champions Vocational Centre, Ogun state	89
Figure 4.3.1. Showing the location and surrounding features of the Madonna School for Children with special needs	95
Figure 4.3.2. Illustration showing the layout of the Madonna School for children with special needs	95
Figure 4.3.3. Illustration showing the spatial layout of the Madonna School for Special children, Okpanam	97
Figure 4.4.1. Location map showing the site for the Advance Autism centre and its surrounding functions	102
Figure 6.1. Image (a) showing a hand sketch of master plan design option A and Image (b) showing a hand sketch of master plan design option B	170
Figure 6.2. Image showing the conceptual functional zoning on the proposed site	170
Figure 6.3. Image showing a hand sketch of the privacy zoning in master plan design	171
Figure 6.4. Image showing the conceptual privacy zoning	171
Figure 6.5. Image showing the hand sketch of the sensory/acoustical zoning in master plan design	172
Figure 6.6. Image showing sensory zoning in the proposed development	172
Figure 6.7. Image showing the conceptual design for the Educational and therapeutic centre	173
Figure 6.8. Image showing the general building layout for the education and therapeutic centre	174
Figure 6.9. Image showing ground floor layout	174

Figure 6.10. Image showing first floor layout	174
Figure 6.11. Image showing second and third floor layout	175
Figure 6.12. Image showing the conceptual design for the Vocational centre	175
Figure 6.13. Image showing the general building layout for the vocational centre	176
Figure 6.14. Image showing the ground floor layout for the vocational centre	176
Figure 6.15. Image showing the first floor layout for the vocational centre	177
Figure 6.16. Image showing the conceptual design for the Produce Market centre	177
Figure 6.17. Image showing the schematic model for greenhouse for Vegetable farm	177
Figure 6.18. Image showing the floor layout of the students' residences	178

LIST OF PLATES

Plate 2.1. Image (a) showing the physical structure of the sensory play-scape, Image (b) showing a sensory play-scape with interactive fibre membrane	25
Plate 2.2. Image showing a dimly illuminated sensory play-scape	25
Plate 2.3. Image (a) showing a touch-interactive LED wall; Image (b) showing a photo-sensitive LED interactive wall	26
Plate 2.4. Image (a) showing fiber optic strands and Image (b) showing a child holding UV fiber optic strands	27
Plate 2.5. Image(a) showing water bubble tubes and Image (b) showing a child interacting with the bubble tubes	27
Plate 2.6. An image showing floor plan arrangement depicting clarity, simplicity and orderliness	39
Plate 2.7. Image showing the purpose and strategies of Acoustic treatment	43
Plate 2.8. Image (a) showing the use of Acoustic foam as Acoustic treatment for a wall, Image (b) showing Acoustic ceiling tiles and Image (c) showing a free-standing Acoustical Pod	44
Plate 2.9. Image (a) illustrating the concept of spatial sequencing and Image (b) showing Spatial sequencing in a space with illustrative text and directional arrows	45
Plate 2.10. Image with Illustrative text depicting the concept of provision of Escape spaces	46
Plate 2.11. Image showing an Igloo-themed Escape space occupied by two Children	46
Plate 2.12. Image with illustrative text depicting spatial compartmentalization using furniture and function in a space	47
Plate 4.1.1. Image showing the Approach view to the Patrick Speech and Languages Centre, Ikeja	66
Plate 4.1.2. Image showing the reception and waiting lounge of the Patrick Speech and Languages Centre, Ikeja.	69
Plate 4.1.3. Image showing the interior of the green room in the Patrick Speech and Languages Centre, Ikeja	70
Plate 4.1.4. Image showing the general sensory room in the Patrick Speech and Languages Centre, Ikeja.	71
Plate 4.1.4. Image (a) showing the Approach view to the Vocational centre under renovation and Image (b) showing the interior of the vocational centre before renovation	71
Plate 4.1.5. Image showing the interior of the Fashion design centre in the make-shift Vocational Centre	72

Plate 4.1.6. Illustration showing spatial sequencing in the Patrick Speech and Languages Centre, Ikeja	74
Plate 4.1.7. Illustration showing compartmentalization in the Patrick Speech and Languages Centre, Ikeja	76
Plate 4.2.1. Image showing Entrance to the Comrade David Ofoeyeno School for Special Children	78
Plate 4.2.2. Image showing the Approach view to the Comrade David Ofoeyeno School for Special Children	80
Plate 4.2.1. Image showing the Students' clinic in the Comrade David Ofoeyeno School for Special Children	81
Plate 4.2.4. Image showing the Approach view to the Comrade David Ofoeyeno School for Special Children	82
Plate 4.2.5. Image showing the Courtyard as a sensory neutral transition corridor in the Comrade David Ofoeyeno School for Special Children	85
Plate 4.3.1. Image showing the approach view for the Champions Vocational Centre, Ogun state	87
Plate 4.3.2. Image showing the produce farm in the Champions Vocational Centre, Ogun state	90
Plate 4.3.3. Image showing the residential facility at the Champions Vocational Centre, Ogun state	90
Plate 4.4.1. Image showing the approach view of the Madonna School for Special Children, Okpanam	94
Plate 4.4.3. Showing the facilities in the Madonna School for Children with Special Needs, Okpanam	97
Plate 4.5.1. Image showing the Approach View of the Advance school, Egypt	101
Plate 4.5.3. Image showing Site plan and floor layout of the Advance school, New Cairo, Egypt	104
Plate 4.5.4. Image showing 3d-visualization of the sensory transition space (sensory garden) in the Advance school, Egypt	108
Plate 4.6.1. Exterior view from the Wing A of the Caudwell International children center, New castle, UK.	110
Plate 4.6.2. Site location plan for Caudwell International children center, New castle, UK	111
Plate 4.6.3. Site plan of the Caudwell International children center, New castle, UK	112
Plate 4.6.4. Image of Ground floor plan showing Wing A to the Right and Wing B to the left	113

Plate 4.6.5. Image of First floor plan showing Wing A to the Right and Wing B to the left	114
Plate 4.6.6. Image of Second floor plan showing Wing A to the Right and Wing B to the left	114
Plate 4.6.7. Image of Third floor plan showing Wing A to the Right and Wing B to the left	114
Plate 4.6.8. Image showing the conceptual development of form of the Caudwell Children	114
Plate 4.6.9. Image showing choice of furniture and carpeted floor finishing aiding acoustical comfort	115
Plate 4.6.10. Image (a) showing an escape area in the building interior, (b) Transition zone and (c) On the site	117
Plate 4.6.11. Image showing a curvilinear transition zone (circulation lobby)	118
Plate 5.1. An Image showing a terracotta rain-screen wall cladding system	140
Plate 5.2. An image showing the components of the terracotta rain-screen system	141
Plate 5.3. An Image showing a curtain wall panel	141
Plate 5.4. Image showing Waffle floor slab system	142
Plate 5.5. Image showing details of a suspended (drop-ceiling) system	143
Plate 5.6. An image showing an inviting waiting area	145
Plate 5.7. Image showing shared office space with visual barrier	146
Plate 5.8. An image showing a private conference room model	146
Plate 5.9. Image showing the interior of an ultramodern library	147
Plate 5.10. Image showing a collaborative meeting space which can be used for staff-parent meeting	148
Plate 5.11. Image showing a genetic research laboratory	150
Plate 5.12. Image of a sensory integrated classroom at Caudwell International Children's centre	151
Plate 5.13. An image showing a computer controlled (sensory) hydrotherapy pool	152
Plate 5.14. Image of the craft room at Caudwell International Children's centre	153
Plate 5.15. Image (a) showing the seating configuration of a seminar hall and Image (b) showing seating configuration for a classroom	154
Plate 5.16. Image showing Work-flow within the crockery wash-up region	156
Plate 5.18. Image showing the work spaces for a culinary centre	157
Plate 5.17. Image showing the typical work-flow pattern in a catering facility	158
Plate 5.19. An image showing a fashion design studio	159

Plate 5.20. An image showing a modern shared hostel interior design	162
Plate 5.21. An image showing a modern twin hostel room	163
Plate 5.22. An image showing accessible design guidelines for a parking area	165
Plate 5.23. Image (a) showing a Purple coneflower, (<i>Echinacea purpurea</i>) and Image (b) showing a White Swan (<i>Echinacea purpurea</i>) flower	166
Plate 5.24. Image (a) showing a Rosemary in the Mediterranean Garden and Image (b) showing a Lavender flower	166
Plate 5.25. Image showing the floral and hydrological components of a therapeutic sensory garden	167
Plate 5.26. An Accessible W.C. at Caudwell International Children's school, New castle, Uk	168
Plate 5.27. An Accessible W.H.B. at Caudwell International Children's school, New castle, Uk	168

LIST OF ABBREVIATIONS

ADLs -Activities of Daily Living
ADHD - Attention Deficiency/Hyper-activity Disorder
ASD - Autism Spectrum Disorder
CDC - Center for Disease Control
CNS - Central Nervous System
DSC - Delta Steel Company
ICT - Information and Communication Technology
ID - Intellectual Disability
LED - Light Emitting Diode
NDD - Neuro-Developmental Disorder
NGOs - Non Governmental Organizations
PDD - Pervasive Developmental Disorder
PNS - Peripheral Nervous System
SDD - Sensory Discrimination Disorder
SI-Sensory Integration
SMD - Sensory Modulation Disorder
SP-Sensory Processing
SPD - Sensory Processing Disorder
TCA - Thematic Content Analysis
TS - Tourette's' Syndrome
WC - Water Closet
WHB. - Wash Hand Basin
WHO - World Health Organization

ABSTRACT

Sensory Processing Disorder (SPD) is a co-morbidity with Autism that makes varied and complex its symptoms. Its presence has also been noted to impair skill acquisition and generalization for individuals with Autism. In catering for this, intervention measures; which may be therapeutic and/or environmental, are applied to mitigate its impact. The environmental intervention measures are based on two major design approaches; the sensory sensitive approach and the neurotypical approach; each with its own benefits and shortcomings. This study integrates and implements the two design approaches in the design of a center for Autism in Udu, Delta state to create a more holistic design approach in view of improving skill acquisition and generalization. The objectives of this study include the identification of the sensory design approaches adopted in centers for autism, determination of the effectiveness of approaches adopted and identification of the limitations of the measures. The research method is both qualitative and quantitative employing observation guides and interview guides as data collection instruments. The quantitative data collected was analyzed using the descriptive statistical tools for frequency and percentage for Statistical Product for Services and Solutions (SPSS) and was presented using tables while the qualitative data was analyzed using Thematic Content Analysis (TCA) with the data presented using text and tables. The results of the study showed a correlation between SPD and academic difficulties. The environmental interventions adopted, their effectiveness and limitations were identified; which formed the background from which the recommendations were provided. To this end, recommendations were given to serve as guidelines in adopting the integrated sensory approach in achieving the aim of this study.

Keywords: Autism, Neuro-Developmental disorder, Sensory design, Design Integration, Inclusive Design, Delta state, Nigeria.