

A comparison of the rate and accuracy
of symbol location on visual displays
using colour-coded alphabetic and categorisation strategies
in Grade 1 to 3 children

by

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Table of contents

Acknowledgements	i
Table of contents	ii
List of tables	vii
List of figures	ix
List of appendices	x
Abstract – English	xii
Abstract – Afrikaans	xiii

Chapter 1: Introduction

1.1	Problem statement	1
1.2	Outline of the chapters	3
1.3	Abbreviations	3
1.4	Definition of terms	3
1.5	Summary	5

Chapter 2: Literature overview

2.1	Introduction	6
2.2	AAC strategies for enhancing symbol location	7
2.2.1	Display design	7
2.2.2	Symbol characteristics	8
2.2.3	User skills	9
2.2.4	Instruction and experience	10
2.3	Visual search theory	11
2.3.1	Visual processing	12
2.3.2	Factors influencing visual search	14
2.3.2.1	Bottom-up factors	14
2.3.2.1.1	Symbol perceptual features	14
2.3.2.1.2	Display factors	16

2.3.2.1.3	User factors	18
2.3.2.2	Top-down factors	20
2.3.2.2.1	Symbol semantic factors	21
2.3.2.2.2	Working memory	22
2.3.2.2.3	Task demands	24
2.3.2.2.4	User factors	25
2.3.3	Visual search research and its application to AAC	25
2.4	Developmental issues in children in Grade 1 to 3	28
2.4.1	Categorisation development	28
2.4.2	Alphabetical order development	30
2.5	Concluding remarks	31
2.6	Summary	33

Chapter 3: Research Methodology

3.1	Introduction	34
3.2	Research question	35
3.3	Research design	35
3.4	Phase 1: Pre-experimental phase	35
3.4.1	Selection of graphic symbols	35
3.4.2	Development of the visual displays	38
3.4.3	Development of the computer program	40
3.4.4	Development of the participant instruction program	41
3.4.5	Development of the research assistant test protocol	42
3.4.6	Analysis of grid and symbol features	42
3.5	Phase 2: Pilot study	44
3.5.1	Participants	44
3.5.2	Aims, problems and recommendations	45
3.5.3	Discussion of results of the pilot study	46
3.6	Phase 3: Main study	47
3.6.1	Introduction	47
3.6.2	Participant selection criteria	47

3.6.3	Participant description criteria	49
3.6.4	Distribution of sample into two groups	50
3.6.5	Materials and equipment used in the study	51
3.6.6	Data collection procedures	52
3.6.7	Data analysis	55
3.7	Summary	56

Chapter 4: Results

4.1	Introduction	58
4.2	Overview of variables	59
4.3	Research question 1	61
4.4	Subquestion: Grade and gender differences	61
4.4.1	Grade and Gender differences within the tests	62
4.4.1.1	Grade differences within the tests	63
4.4.1.2	Gender differences within the tests	64
4.4.2	Grade and Gender differences between the tests	64
4.4.2.1	Grade differences between the tests	65
4.4.2.2	Gender differences between the tests	65
4.4.3	Errors	66
4.4.3.1	Grade	66
4.4.3.2	Gender	67
4.4.4	Variability of performance within Grade and Gender	68
4.5	Research question 2 : Influence of bottom-up factors	69
4.5.1	Vigilance	71
4.5.2	Position in Display	71
4.5.3	Symbol features	72
4.5.3.1	Size	72
4.5.3.2	Colour	73
4.5.3.3	Visual Complexity	74
4.6	Summary	74

Chapter 5: Discussion and clinical implications

5.1	Introduction	76
5.2	Factors influencing rate and accuracy in ALP and SUB	77
5.2.1	Structure of the displays	77
5.2.1.1	Colour-coding	78
5.2.1.2	The gloss	80
5.2.2	Task requirements	80
5.2.2.1	Search strategy	80
5.2.2.2	Mental representations	82
5.2.2.3	Working memory	82
5.3	Developmental factors	84
5.3.1	Alphabetical order development	85
5.3.2	Categorisation development	86
5.3.3	Working memory and attention development	88
5.4	Gender factors	88
5.5	The impact of bottom-up influences	89
5.5.1	Vigilance	90
5.5.2	Position in display	91
5.5.3	Symbol features	92
5.5.3.1	Size	92
5.5.3.2	Colour	92
5.5.3.3	Visual complexity	93
5.6	Clinical implications	94
5.6.1	Variability between performance of individuals	94
5.6.2	Errors	94
5.6.3	Implications for display design	95
5.6.3.1	Alphabetical versus taxonomic organization strategies	96
5.6.3.2	Symbol features	98
5.6.3.3	Colour-coding	98
5.6.3.4	The gloss	99
5.7	Summary	100

Chapter 6: Conclusion and critical reflection on the study

6.1	Introduction	101
6.2	Summary of results	101
6.3	Critical evaluation of the study	102
6.3.1	Strengths of the study	102
6.3.2	Limitations to this study	104
6.4	Recommendations for further research	106
6.5	Summary	109

References

Appendices

List of tables

Table 1	Visual Processing	12
Table 2	Refining the Symbol List	37
Table 3	Distribution of Symbols into Colour Groups	44
Table 4	Participant Selection Criteria	47
Table 5	Summary of the Number of Participants Qualifying for the Study	49
Table 6	Participant Description Criteria	50
Table 7	Analysis of Group by Grade	51
Table 8	Analysis of Group by Gender	51
Table 9	Sequence of Events and Time Requirements	52
Table 10	Data Analysis Procedures	56
Table 11	Overall Analysis of Variance on <i>Time</i> and <i>Score</i>	59
Table 12	Means and Standard Deviations of all Variables	60
Table 13	Means and Standard Deviations for <i>Time</i> and <i>Score</i> Within <i>Grade</i> and <i>Gender</i>	62
Table 14	Analysis of Variance on <i>Grade</i> and <i>Gender</i>	63
Table 15	Post-Hoc Duncan Test Applied to <i>Grade</i> Within the Tests	64
Table 16	Comparison of ALP and SUB per <i>Grade</i> and <i>Gender</i>	65
Table 17	Percentage of <i>Correct</i> , <i>Escape</i> and <i>Error</i> Selections across Grade	66
Table 18	Mean <i>Time</i> for <i>Escape</i> and <i>Error</i> Selections	67
Table 19	Percentage of <i>Correct</i> , <i>Escape</i> and <i>Error</i> Selections across Gender	68
Table 20	Means and Standard Deviations for <i>Time</i> and <i>Score</i> across all Test Items	69
Table 21	The Relationship between <i>Time</i> and <i>Score</i> across all Test Items	70
Table 22	Spearman Correlation between <i>Time</i> and <i>Item Number</i>	71
Table 23	Friedman Analysis of Variance for <i>Time</i> with respect to <i>Position in display</i>	72

Table 24	Pearson Correlation between <i>Time</i> and <i>Size</i>	73
Table 25	Friedman Analysis of Variance for <i>Time</i> with respect to <i>Colour</i>	73
Table 25	Pearson Correlation between <i>Time</i> and <i>Visual Complexity</i>	74

List of figures

Figure 1	Overview of Chapter 2	6
Figure 2	Active attention switches	23
Figure 3	The phases of the study	33
Figure 4	Screen view of the ALP display	38
Figure 5	Screen view of the SUB display	38
Figure 6	Position in display	42
Figure 7	Pixel count of total area	42
Figure 8	Pixel count of symbol area	42
Figure 9	Overview of Chapter 4	56
Figure 10	Overview of Chapter 5	74
Figure 11	ALP visual display with phonic groups	76
Figure 12	SUB visual display with category groups	76
Figure 13	Active attention switches in ALP and SUB	81

List of appendices

Appendix A	Animal symbols available, used and rejected
Appendix B	Development of a symbol list - scoring sheet
Appendix C	Name and category placement scores
Appendix D	Reworked PCS category group identifying symbols
Appendix E	Changes to PCS animal symbols
Appendix F	Layout of symbols across the ALP and SUB visual displays
Appendix G	The ALP and SUB tests and pre-tests
Appendix H	Mouse Control Screening
Appendix I	Overview of administration process
Appendix J	Workbook instructions
Appendix K	Participant instruction workbook
Appendix L	Research assistant procedural cards – Group A
Appendix M	Various ratings of symbols used in the tests
Appendix N	Pilot study – problems and solutions
Appendix O	Pilot study data
Appendix P	Ethical clearance
Appendix Q	Teacher’s form – participant selection criteria
Appendix R	Participant numbers and groups
Appendix S	Example of registration slips
Appendix T	Processing of log files
Appendix U	Procedural integrity check for participant instruction
Appendix V	Procedural integrity check for testing
Appendix W	Summary of all data collected
Appendix X	Participant data

Appendix Y	Item data
Appendix Z	Mean time for ALP and SUB items
Appendix AA	Error symbols
Appendix AB	Comparison between experimental research, this study and AAC usage

Abstract

The ability to locate symbols on a visual display forms an integral part of the effective use of AAC systems. Characteristics of display design and perceptual features of symbols have been shown to influence rate and accuracy of symbol location (Thistle & Wilkinson, 2009; Wilkinson, Carlin, & Jagaroo, 2006). The current study endeavoured to compare the use of two colour-coded organisational strategies (alphabetical order and categorisation) for their effectiveness in symbol location and to investigate if some bottom-up features influenced the performance of the participants in these tasks.

114 learners in Grade 1 to 3 in a mainstream school were randomly divided into two groups. Both of the groups were exposed to two visual search tests in alternating order. The tests involved searching for 36 visual targets amongst 81 coloured Picture Communication Symbols on a computer screen in one of two colour-coded organizational methods, namely alphabetical order or categorisation. The data from the research task was collected through computer logging of all mouse selections.

Findings showed that locating symbols on a computer screen with a categorisation strategy was significantly faster and more accurate than with an alphabetical strategy for the Grade 1 to 3 participants. The rate and accuracy of target symbol location in both the strategies decreased significantly as grade increased, as did the differences between rate and accuracy of target location when using the two strategies.

It was also found that although the tests in this study placed heavy top-down processing demands on the participants, there was still evidence of bottom-up factors influencing their performance.

Implications for display design in AAC clinical practice were discussed.

Key words: Visual search; Rate; Accuracy; Location; Alphabetical order; Categorisation; Top-down processing; Bottom-up processing; AAC display design

Opsomming

Die vermoë om simbole op 'n visuele vertoon te lokaliseer vorm 'n integrale deel van AAK-sisteme. Daar is gevind dat die kenmerkende eienskappe van die vertoonontwerp en die perseptuele kenmerke van simbole die spoed en akkuraatheid van simboollokalisering beïnvloed (Thistle & Wilkinson, 2009; Wilkinson, Carlin, & Jagaroo, 2006). Die huidige studie het gepoog om 'n vergelyking te tref tussen die gebruik van twee kleur-gekodeerde organisasie-strategieë (alfabeties en kategorisering) in terme van hul doeltreffendheid ten opsigte van simboollokalisering en om te ondersoek of sommige onder-na-bo kenmerke die prestasie van deelnemers aan hierdie take beïnvloed het.

114 van Graad 1 tot 3 in 'n hoofstroomskool is lukraak in twee groepe verdeel. Albei die groepe is blootgestel aan twee visuele soektoetse in alternerende orde. Die toetse het die soek na 36 visuele teikens tussen 81 gekleurde "Picture Communication Symbols" op 'n rekenaarskerm in twee kleur-gekodeerde organisasie-metodes, naamlik alfabeties en kategorisering behels. Die data van die navorsingstaak is versamel deur rekenaar-invoering van alle muis-keuses.

Bevindinge het getoon dat die lokalisering van simbole op 'n rekenaarskerm met 'n kategoriseringstrategie beduidend vinniger en meer akkuraat as 'n alfabetiese strategie vir die Graad 1 tot 3 deelnemers was. Die verskil tussen die spoed van die lokalisering en die akkuraatheid van die lokalisering van teikensimbole met gebruik van die twee strategieë het beduidend afgeneem na mate graad toegeneem het.

Daar is ook gevind dat, alhoewel die toetse in hierdie studie 'n hoë bo-na-onder eis aan die deelnemers gestel het, daar steeds bewyse van onder-na-bo faktore was wat hulle prestasies beïnvloed het.

Implikasies vir vertoonontwerp in AAK is bespreek.

Slutelwoorde: Visuele soek; Spoed; Akkuraatheid; Lokalisering; Alfabetiese orde; Kategorisering; Bo-na-onder prosessering; Onder-na-bo prosessering; AAK-vertoonontwerp