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
Chapter 3: Research Methodology

3.1 Introduction
3.2 Research question
3.3 Research design
3.4 Phase 1: Pre-experimental phase
3.4.1 Selection of graphic symbols
3.4.2 Development of the visual displays
3.4.3 Development of the computer program
3.4.4 Development of the participant instruction program
3.4.5 Development of the research assistant test protocol
3.4.6 Analysis of grid and symbol features
3.5 Phase 2: Pilot study
3.5.1 Participants
3.5.2 Aims, problems and recommendations
3.5.3 Discussion of results of the pilot study
3.6 Phase 3: Main study
3.6.1 Introduction
3.6.2 Participant selection criteria
Chapter 4: Results

4.1 Introduction

4.2 Overview of variables

4.3 Research question 1

4.4 Subquestion: Grade and gender differences

4.4.1 Grade and Gender differences within the tests

4.4.1.1 Grade differences within the tests

4.4.1.2 Gender differences within the tests

4.4.2 Grade and Gender differences between the tests

4.4.2.1 Grade differences between the tests

4.4.2.2 Gender differences between the tests

4.4.3 Errors

4.4.3.1 Grade

4.4.3.2 Gender

4.4.4 Variability of performance within Grade and Gender

4.5 Research question 2: Influence of bottom-up factors

4.5.1 Vigilance

4.5.2 Position in Display

4.5.3 Symbol features

4.5.3.1 Size

4.5.3.2 Colour

4.5.3.3 Visual Complexity

4.6 Summary
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 Time and Score 59
Table 12 Means and Standard Deviations of all Variables 60
Table 13 Means and Standard Deviations for Time and Score Within Grade and Gender 62
Table 14 Analysis of Variance on Grade and Gender 63
Table 15 Post-Hoc Duncan Test Applied to Grade Within the Tests 64
Table 16 Comparison of ALP and SUB per Grade and Gender 65
Table 17 Percentage of Correct, Escape and Error Selections across Grade 66
Table 18 Mean Time for Escape and Error Selections 67
Table 19 Percentage of Correct, Escape and Error Selections across Gender 68
Table 20 Means and Standard Deviations for Time and Score across all Test Items 69
Table 21 The Relationship between Time and Score across all Test Items 70
Table 22 Spearman Correlation between Time and Item Number 71
Table 23 Friedman Analysis of Variance for Time with respect to Position in display 72
Table 24  Pearson Correlation between *Time* and *Size*  73
Table 25  Friedman Analysis of Variance for *Time* with respect to *Colour*  73
Table 25  Pearson Correlation between *Time* and *Visual Complexity*  74
List of figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Overview of Chapter 2</td>
<td>6</td>
</tr>
<tr>
<td>Figure 2</td>
<td>Active attention switches</td>
<td>23</td>
</tr>
<tr>
<td>Figure 3</td>
<td>The phases of the study</td>
<td>33</td>
</tr>
<tr>
<td>Figure 4</td>
<td>Screen view of the ALP display</td>
<td>38</td>
</tr>
<tr>
<td>Figure 5</td>
<td>Screen view of the SUB display</td>
<td>38</td>
</tr>
<tr>
<td>Figure 6</td>
<td>Position in display</td>
<td>42</td>
</tr>
<tr>
<td>Figure 7</td>
<td>Pixel count of total area</td>
<td>42</td>
</tr>
<tr>
<td>Figure 8</td>
<td>Pixel count of symbol area</td>
<td>42</td>
</tr>
<tr>
<td>Figure 9</td>
<td>Overview of Chapter 4</td>
<td>56</td>
</tr>
<tr>
<td>Figure 10</td>
<td>Overview of Chapter 5</td>
<td>74</td>
</tr>
<tr>
<td>Figure 11</td>
<td>ALP visual display with phonic groups</td>
<td>76</td>
</tr>
<tr>
<td>Figure 12</td>
<td>SUB visual display with category groups</td>
<td>76</td>
</tr>
<tr>
<td>Figure 13</td>
<td>Active attention switches in ALP and SUB</td>
<td>81</td>
</tr>
</tbody>
</table>
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 organisasiestrategieë (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 organisasiemetodes, naamlik alfabeties en kategorisering behels. Die data van die navorsingstaak is versamel deur rekenaar-invoering van alle muis-keuses.

Bevindinge het getoon dat die lokaliserings van simbole op ‘n rekenaarskerm met ‘n kategoriseringsstrategie beduidend vinniger en meer akkuraat as ‘n alfabetiese strategie vir die Graad 1 tot 3 deelnemers was. Die verskil tussen die spoed van die lokaliserings en die akkuraatheid van die lokaliserings 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.

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