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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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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 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.

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