ResearchSpace@auckland

Copyright Statement

The digital copy of this thesis is protected by the Copyright Act 1994 (New Zealand).

This thesis may be consulted by you, provided you comply with the provisions of the Act and the following conditions of use:

- Any use you make of these documents or images must be for research or private study purposes only, and you may not make them available to any other person.
- Authors control the copyright of their thesis. You will recognise the author’s right to be identified as the author of this thesis, and due acknowledgement will be made to the author where appropriate.
- You will obtain the author's permission before publishing any material from their thesis.

To request permissions please use the Feedback form on our webpage. http://researchspace.auckland.ac.nz/feedback

General copyright and disclaimer

In addition to the above conditions, authors give their consent for the digital copy of their work to be used subject to the conditions specified on the Library Thesis Consent Form.
ATTENTIONAL RESPONSES DURING DISCRIMINATION LEARNING BY RETARDED CHILDREN

A thesis submitted to the University of Auckland in partial fulfilment of the requirements for the degree of Doctor of Philosophy

by

Nirbhay Nand Singh

(April 1978)
ACKNOWLEDGMENTS

This research was carried out while the author was in receipt of the Winifred Gimblett Scholarship and a Postgraduate Scholarship from the Medical Research Council of New Zealand. Further support was provided by equipment grants from the Golden Kiwi Medical Research Distribution Committee and the University of Auckland Research Committee to Dr I L Beale. I am grateful for this financial assistance.

Office space and other facilities used during the conduct of this research were provided by Mangere Hospital and Training School. I am especially grateful to Mr John Zaadstra and Dr Cecil Lewis for arranging these. I would like to express my appreciation to Dr D J Woods, the medical superintendent of Mangere Hospital and Training School, for his interest and encouragement and to Mr Michael Ahrens and his staff at the training centre who generously provided the subjects.

My intellectual debts to Dr Ivan L Beale, my thesis supervisor, are considerable and without his assistance, encouragement, and criticism, this dissertation would never have been completed. I am also indebted to my wife, Judy, who arranged the references, read the proofs of the typed script, and offered many helpful suggestions. Finally, I would like to acknowledge the supportive efforts of my young son, Ashvind, who broke the monotony of writing and typing by his humourous antics.
ABSTRACT

In Experiment I, eight mentally retarded children were trained on a simultaneous two-choice discrimination problem and a series of discrimination-shift problems. Subjects performed overt observing responses to produce elements of the discriminative stimuli, making it possible to measure directly changes in attention to different aspects of stimuli during learning. The patterns of change in observing responses were generally in line with descriptions of attentional changes derived from two-process theories of discrimination learning; for example, the frequency of irrelevant observing responses was high during the presolution period during extradimensional shifts but was low during intradimensional shifts. Contrary to current theories, extradimensional shifts caused an immediate increase in irrelevant responses, and intradimensional shifts caused an increase in relevant observing responses. Subjects responded to later shift problems by initially increasing both relevant and irrelevant observing responses, then withholding irrelevant observing responses. Experiment II examined the effects of three variables, the provision and non-provision of a mechanical observing response, the stimulus dimensionality, and degrees of relevance of the irrelevant stimuli, on the discrimination learning and transfer performance of sixteen mentally retarded children. The subjects were trained on simultaneous two-choice discrimination problems using complex stimuli containing either dimensional stimuli or mixed-dimensional stimuli. Subjects were then tested on either intradimensional or extradimensional shifts. When dimensional stimuli were used, intradimensional shifts were easier than extradimensional shifts but when mixed-dimensional stimuli
were used, the relative difficulty of the intradimensional and extradimensional shifts depended on whether observing-response buttons were provided. When observing-response buttons were provided, intradimensional shifts were again easier than extradimensional shifts but when these buttons were not provided, intradimensional shifts were harder than extradimensional shifts. The relative ease of intradimensional over extradimensional shifts was found to be further affected by the degree of relevance of the less-relevant dimension. The superiority of the intradimensional over extradimensional shift performance was progressively reduced and then eliminated as the degree of relevance of the irrelevant dimension was gradually increased. Subproblem analysis showed that subjects typically treated subproblems independently, even though there was some degree of dimensional analysis of stimuli, and intradimensional shifts were usually easier than extradimensional shifts. This finding is inconsistent with the usual interpretation of the relative ease of intradimensional over extradimensional shifts as an indication of non independence of subproblems.