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REVERSAL SHIFT PERFORMANCE AND THE ABILITY
TO REPRESENT STIMULUS FEATURES

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

by

Peter Vincent Horne

Australian National University

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This thesis describes original research
carried out by the author in the Department
of Psychology of the Australian National
University from January, 1969 to June, 1972.

A handwritten signature in dark ink, appearing to be 'P. H. Jones', written diagonally across the page.

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ABSTRACT

This thesis is concerned with the developmental trends in reversal shift performance demonstrated by the Kendlers. Chapter 1 presents the early evidence for the developmental trend together with the "pre-theoretical" model proposed by the Kendlers to deal with the phenomenon. Chapters 2, 3, 4 and 5 attempt to summarize recent evidence which, it is felt, generally confirms the early findings of the Kendlers and their colleagues with the reversal shift problem. Chapter 6 presents a more detailed account of the Kendlers' theory and attempts to make clear the implicit assumptions underlying their position. Chapters 7, 8 and 9 review the findings of studies with animals and young children which demonstrate attentional phenomena in paradigms other than the reversal shift, and thus cast serious doubt on the Kendlers' model.

In Chapter 10 the Tighes' perceptual differentiation theory of age related changes in the reversal shift paradigm is presented. Evidence pertinent to the theory is reviewed, and it is concluded that this model does not provide a satisfactory account of the data available.

In Chapter 11 the extinction rate theory is described. This theory deals with developmental trends in the reversal shift by postulating age-related changes in the relative difficulty of extinguishing attentional and instrumental responses. It is concluded that the theory provides the best explanation of evidence previously reviewed. Chapter 12 links the change in relative extinction rates of the two types of learning (attentional and instrumental) with developments in the child's ability to *represent* the relevant cues in a discrimination problem. Evidence supporting developmental

changes in the child's representational skill is cited, together with some evidence linking this skill with performance in discrimination problems.

In Chapter 13 a recognition test is developed as a measure of a child's ability to represent a particular class of cues - shapes made up of four lines meeting at a common centre. Marked developmental trends - and individual differences - are demonstrated in performance on the recognition test and on a matching test using the same stimuli. Chapter 14 attempts to relate scores on the recognition test to the learning performance of 6 and 7 year olds in reversal shift problems - involving the class of stimuli employed in the recognition test. Level of recognition score is found to be unrelated to either the initial or reversal learning if the relevant stimuli are reasonably different. However if the learning tasks that make up the reversal shift involve stimuli that are difficult to discriminate then recognition level is strongly related to performance in the initial learning task but rather weakly related to reversal learning ability. Possible reasons for this pattern of results are discussed.

In Chapter 15, 7 year olds' ability to cross-classify shape and colour is related to their learning ability in reversal shift problems made up of paired associate learning tasks (PAL.s). The stimuli for the PAL.s are colour form compounds. It is found that a child's classificatory ability is strongly related to learning performance in both initial and reversal PAL.s. The results are interpreted within the framework of a two stage model of the learning tasks and the extinction rate theory.

DEFINITIONS

1. Discriminandum (stimulus): The description (list of attribute values) which the investigator applies to a pattern of physical energies (corresponding to an object) which he supposes to impinge on the subject's sensorium during a discrimination learning trial.
2. Attribute value (cue): Class of stimuli e.g. all red things regardless of shape, size, etc.
3. Attribute (dimension): A class of the stimulus classes of definition 2 e.g. shape, colour, number etc.