DEVELOPMENTAL STUDIES IN TIMED PERFORMANCE

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SUMMARY

The development of central input processing speed was mapped in the experiments of this thesis within the context of a procedure for measuring Inspection Time (IT). In the first experiment, the central locus of target-mask interaction was verified in a sample composed of 8 and 11 year old children and adults, the results suggesting a developmental increase in processing speed. Experiment 2 replicated this trend, with cross-sectional data confirming a significant decrease in IT between the ages of 6 and 11 years. Developmental change beyond this point was considerably less marked, with some suggestion of an asymptote in rate of processing at the onset of adolescence. These developmental differences were found to be reliable in a test-retest situation, despite a beneficial performance effect associated with practice in all groups. Cross-sequential analyses indicated that IT changes arose independently of cohort (i.e. differences in "life-histories"), while longitudinal change could not be explained purely in terms of practice since improvement over 1 year was significantly greater than improvement over 2 weeks.

Experiments 3, 4 and 5 attempted to ascertain the probable explanation for the developmental trend evidenced in Experiment 2. Experiment 3 indicated that the difference was not attributable to methodological considerations, and that task requirements did not differentially disadvantage younger children. In addition, comparability of performance on random unmasked trials suggested that differences in attention did not appear to significantly influence the results.

Experiments 4 and 5 indicated that at least part of the developmental trend was explicable in terms of age differences in intra-individual variability and, to a lesser extent, registration efficiency. Rate of processing from registration to a central location did not appear to contribute significantly to IT.
differences. In addition, a third factor, not successfully identified, appeared to contribute to age differences in IT, over and above the factors of registration and intra-individual variability. It was hypothesized that this factor represented a general "noise" variable which prevailed over the entire processing mechanism, thereby limiting its efficiency.

The final experiment (Experiment 6) indicated that the development of processing speed in a nonretarded sample related to maturation (as measured by MA) and efficiency in response style. The relationship between IT and Impulsivity was shown to vary with age, only reaching significance in children with a CA less than 8 years where longer ITs were associated with faster mean latency and higher total errors in the MFF. Within MA groups, IT did not correlate significantly with IQ.