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AN INDIRECT MEASURE (TIME ESTIMATION) AS A PREDICTOR OF TYPING SKILL

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ABSTRACT

This study investigates the possibility of predicting performance on a complex skill (typing), with an indirect test (time estimation on a card-sorting task). It was hypothesised that typing skill could be predicted from the time subjects estimated they took to perform the card sorting task; independently of the actual time they took to do the task or their achievement motivation.

The various methods of personnel selection are reviewed, as well as the factors influencing time perception.

Sixty adolescents and forty-two adults in beginners' typing classes were administered the time estimation task and an achievement motivation questionnaire. Their typing performance was tested after eight months.

The results did not confirm the hypothesis. No significant relationship was found between time estimation and subsequent typing performance; while achievement motivation was significantly correlated with typing performance.

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CHAPTER 1. INTRODUCTION

Personnel Selection

Personnel selection is an increasingly researched and debated subject area. Psychological literature abounds in opinion and data as to the most efficient, fair and economic means of choosing between people for jobs. The views range from the advocates of random selection such as Fine (1975), through a majority who suggest a varying mixture of psychological testing, interviewing and other procedures; to those who see testing, in itself, as the most objective means available to select personnel (e.g. Ghiselli, 1966).

Arguing rather forcefully against the use of standardised paper and pencil tests, Fine (1975, p.57) states that "effective selection requires the assessment of the whole person in relation to the total job...to overemphasise one category such as mental ability at the expense of another, such as adaptability", is to invite future problems. He argues that selection procedures are frequently used to provide a cover for discrimination so that the organisation may hire the type of worker they want in terms of sex or race and, in this way, it is unlikely that they are hiring the best workers.

Richardson and Spears (1972), together with many other researchers, support this view. They see the "psychometric approach" as discriminating against minority groups in that it fails "to take account of cognitive style, of the social context of testing, of the diversity of human abilities...of the differences of score distributions and trait distributions" (Ash and Kroeker, 1975, p.486).

Fine (1975) in his advocacy of random selection believes in the greater use of differential placement rather than selection. He sees the usual selection strategy of application forms, tests and interviews as screens that penalise people "for being what they are." Differential placement is advocated because it employs people on the basis of their "existing capabilities and potential." (Fine, 1975, p.56). Thus an employer, instead of selecting (by testing or otherwise) one person for

each pre-determined vacancy, would randomly select an appropriate number of people and attempt to match the various tasks required to be done to the abilities which these people possess.

Another criticism advanced against the use of paper and pencil standardised tests is related to their reading difficulty level. Ash and Kroeker (1975) see this as a neglected dimension of test construction. They cite a study by Campbell (1960) demonstrating that reducing the reading level difficulty of tests can increase test-performance criterion correlations in many cases. And, "if the test requires a level of reading comprehension substantially higher than the job qualification calls for, the possibility of unfair discrimination exists" (Ash and Kroeker, 1975, p.493). Ash (1973), using the S.M.O.G. index of readability (McLaughlin, 1969) found that 36 of 76 tests for positions with specified minimum educational requirements had reading level grades significantly higher than the educational requirements, and that of 58 tests for positions with no minimum educational requirement, 25 required a comprehension level beyond high school graduation. But Schoenfeldt, Schoenfeldt, Acker and Perlson (1976) argue that applicants should be screened with respect to reading ability and that the latter, in itself, is an important selection device. They maintain that "the identification of reading as a critical skill was the result of extended discussions with management and operating personnel as well as more formal job analyses." (Schoenfeldt et al., 1976, p.581). They argue that many accidents occur as a result of failure to read and understand job-related instructions and procedures.

Ash and Kroeker (1975, p.482) come to the conclusion, in their review of the literature on testing as used in personnel selection, that the majority of studies demonstrate that tests "do not predict job performance for <u>any</u> group", and they cite Boehm (1972); Lent, Aurbach and Levin (1971); and Smith, Nieedzwiedz, Davis and Kniesner (1973) to support this conclusion.

Criticism is also levelled at the use of self-report measures, such as the 16 PF (Catell, Eber and Tatsuoka, 1970), in personnel selection, in that they are often easily faked. Meredith (1968) clearly

established the effect of negative and positive social desirability on the 16 PF. So, in order to detect faking and to apply correction, a motivational distortion scale was built into Forms C and D. But studies by Braun and La Faro (1968) and Jeske and Whitten (1975) found that this scale had limited usefulness in discriminating between control and faked protocols. As Jeske and Whitten (1975, p.379) point out, the job applicant may not be "as much concerned with presenting a favourable picture of his total personality as with demonstrating that he possesses the personality characteristics required for the particular job." A study by Bull (1974) also considers the 16 PF unsuitable for selection decisions because of problems of factorial validity and item-factor relationships.

Arguing for the use of standardised testing in personnel selection, Ghiselli (1966, p.4) maintains that although tests should often be used in conjunction with other devices "...as compared with those other devices, such as the employment interview, the application blank, references from previous employers...tests in general are more objective, they give more reliable quantitative assessments, and more is known about them." But Ghiselli (1966, p.127) also cautions that tests cannot be claimed to predict occupational success "with what might be termed a high degree of accuracy. Nevertheless in most situations tests can have a sufficiently high degree of predictive power to be of considerable practical value in the selection of personnel." Lawshe and Balma (1966, p.16) share this opinion. They state: "The adequacy of a test or testing program is evaluated not in terms of perfection but of average success."

Schneider's (1976, p.141) conclusion is that "it is an uncontrovertible fact, that we can...predict behaviour based on the assessment of an individual's traits [by tests] at the time of hire." But he cites no data to support this statement.

Brenner (1968) points out that one factor frequently considered important is "attitude to work". This factor is not commonly used because of the difficulty in measuring it. Brenner's study compared teachers' ratings of individuals' work habits and co-operation behaviour, at high

school, with later job performances as evaluated by work supervisors. He found that "the degree of relationship...is greater than that normally obtained with aptitude tests" (Brenner, 1968, p.30). This supports an argument put forward by Seashore (1939) that favourable work methods may account for a greater proportion of individual differences than any combination of basic motor abilities.

Cohen (1973) advocates using training time as a selection criterion. Each trainee would proceed at his own pace in the training programme and the fastest learners would be selected. This appears to have several disadvantages in that it is wasteful of time and resources for both the individual and the organisation and it assumes that the fastest learners will continue to be the most productive. In fact, these people may become bored quickly and contribute to a high turnover rate.

Analysis of personal history items - found on standard application forms - is advocated by some researchers. (England, 1971; Fleishman and Berniger, 1960; Owens and Henry, 1966). They argue that the "accuracy of biographical data as a predictor of future work behaviour is superior to any known alternatives" (Cascio, 1976, p.576). The legality and fairness of using biographical data has frequently been questioned and legislation in the United States specifies that personal history items must be job related and not unfairly discriminatory against either minority or non-minority sub-groups. Cascio (1976, p.579) found that even after satisfying legal requirements for using biographical data, "turnover [his criterion of success] can still be predicted with an appreciable degree of accuracy."

The selection interview has been the target of a large amount of research. According to Schneider (1976, p.194) the pre-employment interview is an "unreliable, time-consuming, expensive and inefficient means of collecting information, and decisions based on the collected information are generally unreliable (across judges) and thus non-valid." Schneider (1976) cites several sources of support for this statement (e.g. Carlson, Thayer, Mayfield and Peterson, 1971; Downs, 1968; Ulrich and Trumbo, 1965; and Wright, 1969). Studies by Leonard (1974), and

Weiner and Schneiderman (1974) show that the reliability of the interview can be increased by providing interviewers with a set of objective job requirements. This serves to limit the amount of irrelevant discussion, focuses attention on job-relevant questions and reduces reliance on personal theories and stereotypes. A study by Langdale and Weitz (1973) also supports this finding.

Schneider (1976) suggests retaining the interview as a communication process rather than as a process leading to a decision and Ulrich and Trumbo (1965) suggest limiting interviews to the assessment of such applicant characteristics as motivation to work and ability to adjust socially on the job. No data appears to be available to demonstrate whether this latter assessment will have any more inter-interviewer reliability than assessments of any other abilities.

Ash and Kroeker (1975, p.500) conclude that "as the standards for the use of more elaborate psychometric devices are raised by government regulation it is likely that the role of the interview will increase even more." But they stress that increasing interviewer effectiveness requires both training and the imposition of structure through the use of guides and rating scales.