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PERSONALITY AND
INDIVIDUAL DIFFERENCES

Book Reviews

Paul Kline, *The New Psychometrics. Science, psychology, and measurement*. Routledge, London & New York, 1998, Hardback: (ISBN 0-415-18751-6). pp. xiv + 224, price £50.00.

This is a remarkable book by a remarkable author. It is also slim, clearly written and presented, but so full of implications for the future continuance of individual differences research, that it is at once mandatory reading for any student or faculty member who claims to be studying individual differences in the manner of an investigative scientist. My hope is that the publishers of this book decide to make it available as a paperback. Its current price puts it out of the reach of many students.

There are two major sections within the book. The first, entitled 'Scientific method, scientific measurement, and psychometrics', contains five chapters. Chapter 1 addresses the issues of scientific method, realism, truth and psychology. This chapter sets out to demonstrate the sound basis for an external reality, which is independent of the observer, which is not socially constructed and which is there to be discovered using the tools of science (not that the use of these tools guarantees the discovery of such facts that define reality, but that history has demonstrated that these tools are the best we have). The logic and arguments of Searle (1995) are used with particular skill in what, for me, is a tour de force of reasoned and clear argument. The second chapter is concerned with the constituent properties of measurement in psychometrics, such as test theory, reliability and validity. The author then outlines the properties of measurement within the natural sciences. Here, Kline describes the substantive work of Michell (1990, 1997) on the elucidation of the constituent properties and axioms of measurement within the natural sciences. He closes this chapter with a comparison between psychological measurement (in the form of psychometrics) and scientific measurement and concludes in agreement with Michell, that psychometric measurement currently does not meet the necessary conditions required for scientific measurement and research. The third and fourth chapters are very useful overviews of the role of factor analysis and other multivariate techniques in the design, construction and analysis of tests of personality, intelligence, motivation and interests. However, in the second part of chapter 4, after a review of Rasch measurement principles, Kline introduces a concept so profound, yet so simple, that it almost escapes the reader's attention. It is a concept largely ignored by all psychologists, yet is the key to all scientific measurement... *the unit of measurement*. Without a meaningful unit, measurement can only ever be approximate (ordinal), and deductive inference correspondingly vague. Chapter 5 is a summary and conclusions of the preceding four chapters, in bullet-point format.

The second section is entitled 'The new psychometrics: the scientific measurement of personality and ability', again containing five chapters. Chapter 6 is an overview of the psychometric model of cognitive intelligence and ability, drawing upon the work of Cattell, Carroll and Horn. Chapter 7 extends this discussion to include the concepts of 'cognitive speed', elementary cognitive processing tasks, the Erlangen work on information processing and the area of chronometric tasks such as inspection time and reaction time. Chapter 8 looks at the major problems in the measurement of personality and motivation, examining projective tests, objective tests and questionnaires, as methods of assessment. In this chapter, Kline notes a fundamental distinction between personality and ability test items. That is, ability items reflect actual performance, whereas personality items reflect introspection and beliefs about behaviours. Introspection about behaviours or dispositions is not the same as observing performance of such behaviours, a point also made most eloquently by Jackson and Maraun (1996a, 1996b). In chapter 9, the reader is introduced to major theories of personality that have been put forward by investigators such as Cattell, Eysenck and Costa and McCrae. In addition, the distinction between traits, states, moods and motivation is evaluated. Finally, in chapter 10, Kline summarises the most promising

new measures that might be used within a new kind of paradigm for psychometric measurement of abilities and personality. This paradigm requires that any hypothesised explanatory/causal variables possess a quantitative structure and a unit of measurement that is deduced to represent a 'standard unit' for that variable's structure. To conclude this part of my review, it is apposite to quote the last paragraph of this book . . . Of course, as is obvious, the development of such measures will be difficult. It may be that the task of the new psychometrics is impossible; that fundamental measures will never be constructed. If this is the case, then the truth must be faced that perhaps psychology can never be a science, that the subject matter is not suited to the scientific method. In fields of this kind, powerful thinking and speculation will be more effective than poor measurement. In these circumstances, what is now psychology will be divided up: the scientific aspects will be taken up by physiologists and biochemists, the speculative aspects will fall again to philosophy. The remains, atheoretical response counting, the province of clerks, can go without regret and fittingly to the social sciences.

The book contains few formulae. It is not a cookbook of psychometrics — rather, it is a book that is very much about the philosophy that lies behind much of the development of psychometrics in the last 100 years or so. One particularly useful feature of the book is the summary and conclusions sections that accompany each chapter. These serve to assist the reader to appreciate the key features that are discussed within each chapter. This is a book that should be read and digested before any course in test design and construction. It is a book that challenges the very basis of the use of conventional psychometric indices. Michell issued the challenge to psychology in 1997, when he deduced that the vast majority of psychologists were 'methodologically thought disordered' and engaging in a 'pretence at science'. Kline has carefully picked his way through Michell's arguments and found they are indeed justified. He then proceeds to outline how an investigator might begin to engage in axiomatic measurement within the area of individual differences research. There are going to be many debates in many universities about this book, and its implications not just for psychometrics but for much of what currently constitutes psychological measurement in diverse areas. For some, this book will be the foundation for an approach to individual differences science for the 21st century (a perusal of the presentations page on my website (<http://www.liv.ac.uk/~pbarrett/present.htm>) demonstrates the extent to which I myself have begun to accept Kline's challenge, and what this has meant to my own research ethos). I recommend this book to anyone who professes to have an interest in individual differences research and psychometrics — you will not be disappointed.

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