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Hans Eysenck: Personality theorist

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ABSTRACT

Hans Eysenck was the leading personality and individual differences theorist of the 20th century. His goal was to combine the best theories and practices of experimental psychology with the best measurement techniques of individual differences. From his earliest analyses of the dimensions of individual differences, through multiple iterations at theory building to his lasting achievements in building a paradigm for personality research he left a legacy of broad and rigorous research. He strove to integrate behaviour genetics, psychophysiology, cognitive psychology, aesthetics, and psychometrics into a unified theory of personality and individual differences. Although best known for his biological theory of extraversion, his impact upon the field was much more than that and cannot be summarized in a brief article. I review his major theoretical contributions and relate them to modern personality theory and show how his many contributions continue to shape current personality research.

Personality theory of the mid-to-late twentieth century was dominated by the contributions of three very different people: Gordon Allport, Raymond Cattell and Hans Eysenck. It is the contributions of Eysenck that are the focus of this special issue, but it is worth considering his work in the context of the broader field defined by the other two giants. For all three laid the broad foundations for much of current research in personality and individual differences.

Gordon Allport (November 11, 1897–October 9, 1967) is perhaps best known to personality psychologists for his basic text on personality (Allport, 1937) as well as his classic listing of the 17,953 words associated with personality in the English lexicon, of which 4504 provided "a *minimum* list of trait names" (p. 26, Allport & Odbert, 1936). This list, seen as extension of the original *lexical hypothesis* of Galton (1884), influenced much of the early "Big 5" measures of personality as exemplified in the work of Norman (1967); Goldberg (1992) and Hofstee, de Raad and Goldberg (1992). The lexical hypothesis continues to shape the research of Ashton and Lee (2005a); Ashton and Lee (2005b); Ashton, Lee and Goldberg (2007); Hofstee, Kiers, de Raad, Goldberg and Ostendorf (1997) and Saucier (2009). Allport was also influential in his emphasis upon 'idiographic' rather than 'nomothetic' approaches to personality. Treating each individual as unique continues to appeal to those psychologists involved in treatment or those who prefer to study one's 'life story' (McAdams, 2008).

Raymond Cattell (March 20, 1905–February 2, 1998) was 11 years older than Eysenck (March 4, 1916–September, 4, 1997) and outlived Eysenck by five months. Both Cattell and Eysenck studied at the University of London and both were influenced by the great psychometricians Charles Spearman and Cyril Burt. Throughout their long careers, Cattell and Eysenck showed the power and possibility of mathematical and scientific approaches to the study of personality, ability, and individual differences broadly conceived.

Cattell built upon the lexical studies of Allport and Odbert (1936) and the factor analytic techniques originally developed by Spearman (1904) and Thurstone (1933, 1935) to develop a broad based descriptive theory of personality (Cattell, 1943, 1946a, 1946b, 1946c). The paragraph descriptors in Cattell (1946b) formed the basis of the peer rating studies reported by Tupes and Christal (1961) and then used by Norman (1963) in what might be seen as the first five-factor paper. Among his (at least) 43 books and 500 articles are contributions that include fundamental development in psychometrics (Cattell, 1966a, 1966b, 1978), in the measurement of intelligence (Cattell, 1963; Horn & Cattell, 1966), and some very fundamental work in behaviour genetics. Given Cattell's interest in multivariate approaches to individual differences, it was not surprising that he was the founder of the *Society for Multivariate Experimental Psychology* (SMEP), an organization that allows free flowing exchange and debate between quantitatively oriented personality researchers with their more purely psychometric brethren. Its journal, *Multivariate Behavioral Research* has become one of the top journals in quantitative psychology.

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Eysenck was the youngest of these three personality leaders but had the greatest impact on the current field of personality and individual differences. For he took the study of individual differences beyond description to attempts at causal theories. He attempted to marry the best theories of experimental psychology with the best psychometrics of individual differences. As general psychological theory developed, so did his theories of personality. As was Cattell, Eysenck was amazingly prolific, credited with at least 80–100 books and more than 1600 articles

His early work was not so much developing causal theories as developing descriptive taxonomies. He explicitly rejected Allport's idiographic approach and searched for general laws—in his discussion of Allport's emphasis upon the uniqueness of personality he humorously commented that "It is quite undeniably true that Professor Windelband is absolutely unique. So is my old shoe" (Eysenck, 1952, p. 18). Thus, his early books reported on how myriad individual differences could be organized into a limited number of dimensions (Eysenck, 1947, 1952). To him, science was not just collecting facts, it was the organization of those facts into testable hypotheses.

He considered theory as a cumulative exercise, starting at observation, developing hunches, elaborating these into testable hypotheses, integrating hypotheses into falsifiable theories with the hope of eventually developing lawful descriptions of personality (Eysenck & Eysenck, 1985). His critical approach to psychological theory and his emphasis upon paradigmatic research inspired the many scientists who joined the society that he founded, the *International Society for the Study of Individual Differences* (ISSID). Eysenck was the founding editor of ISSID's journal, *Personality and Individual Differences*, which continues in his tradition of publishing exciting, sometimes controversial, but always rigorous studies of individual differences. As an editor of PAID he was happy to accept articles critical of his theories, for he believed that the process of science was one of winnowing the good from the bad. To Eysenck, theories were meant to be tested; they were meant to be improved.

1. Dimensions of personality

As a German national studying and then receiving his Ph.D. in the United Kingdom during the Second World War, Eysenck was not allowed to join the Royal Air Force or other military branch and after a brief stint spotting airplanes with the Air Raid Precautions Service, he was appointed to the position of research officer at the Mill Hill Emergency Hospital (on the outer reaches of north London). (Eysenck reported that his colleagues in the Air Raid Precautions Service assumed from his obvious foreign accent that he was Welsh and therefore relatively acceptable!) The Mill Hill experience led to his first major book, *Dimensions of Personality* (Eysenck, 1947) which introduced his fundamental dimensional analysis of personality as representing Neuroticism–Stability and Introversion–Extraversion. His subjects were 700 soldiers admitted to Mill Hill on the recommendation of a psychiatrist and all had primarily neurotic symptomatology. What makes the study so unusual was that the data were not the standard personality questionnaires used by others, but rather actual behaviour or behavioural ratings on a psychiatrists intake rating scale. That is, the variables included age, employment status, type of job (skilled versus unskilled), psychological abnormality of parents or siblings, level of alcohol consumption, etc. (Table 1, p. 853, Eysenck, 1944).

Given that the current consensual dimensions of the "The Big 5" are based upon Galton's lexical hypothesis (Galton, 1884) and the structure of adjectives (Goldberg, 1992) from self report or peer ratings and that the "Five Factor Model" (McCrae & Costa, 2008) comes from the structure of self reported responses to short sentence fragments, it is easy to forget that the fundamental descriptions of Neuroticism-Stability and Introversion-Extraversion from Eysenck (1947) were based on an analysis of actual behaviour. That is, these dimensions were not just how people described themselves, nor how others described them, but how people behave—a statistically pleasing feature of these ratings is that they were aggregated over multiple occasions. That the factor loadings on the first factor of these behavioural measures were strongly correlated with psychiatric ratings of neuroticism gave credence to the identification of the neuroticism dimension. Equating this dimension with Wundt's dimension of excitability, it was reasonable to equate the second dimension with that of Wundt's changeability. (Wundt, 1897, postulated these two dimensions to account for the four types of Hippocrates and Galen).

This volume showed the quintessential Eysenck for it was an attempt to integrate experimental psychological phenomena such as salivary output, night vision, and suggestibility with individual differences in the factor structure of the clinicians rating scale. This theme, of integrating experimental with correlational techniques, would be central to much of Eysenck's later writings (e.g., Eysenck, 1966, 1988, 1997; Eysenck & Eysenck, 1985).

2. The scientific study of personality

In a follow on to *Dimensions of Personality* the *Scientific Study of Personality* (Eysenck, 1952) tried to make the study of personality respectable to experimental psychologists. Thus, Eysenck adopted the language of the *null hypothesis* and *operational definitions* of his phenomena. Although quaint to those brought up thinking of latent variables, hypothetical constructs, and Bayesian analysis, this was written in the best spirit of behaviorism: "the subject matter of a science of personality must be human behaviour" (Eysenck, 1952, p. 37). Thus, he wanted to show that self report questionnaires (the *Maudsley Medical Questionnaire*, a precursor the *Maudsley Personality Inventory* (Eysenck, 1959) and eventually the *Eysenck Personality Inventory* (Eysenck & Eysenck, 1964) and its successors could in fact be shown to relate to the incidence or risk of neurotic diagnoses and psychiatric breakdown.

Following a brief introduction to the methodology of factor analysis, he considered its use in measuring personality constructs. Contrasting the long history of the factor analysis of cognitive abilities (Spearman, 1904; Thurstone, 1935) with that of non-cognitive studies using self report and ratings, Eysenck discussed the arbitrariness of factor rotation procedures and advocated the use of "criterion rotations". That is, rather than search for simple structure in the self report or peer ratings of Cattell (1946a), Eysenck suggested rotating to specific external criteria. This "criterion analysis" might use diagnoses of neuroticism as defining one axis in the factor analytic solution to the structure of various behavioral measures that would have no obvious relationship to neuroticism (e.g., manual dexterity, personal tempo, speeded performance, persistence holding a leg in the air, etc.). The subsequent factors would be orthogonal to this criterion. Although other, automatic, rotation criteria were developed later (Browne, 2001; Carroll, 1953; Kaiser, 1958) Eysenck's emphasis upon rotating factors to externally meaningful solutions should not be forgotten for it gives a sense of the validity of what are otherwise (useful) mathematical fictions (Revelle, 1983).

Perhaps completely obvious to many modern clinicians and researchers, Eysenck's "dimensional hypothesis" that psychopathological diagnoses were merely extreme values of normal personality dimensions (Eysenck, 1952) was a break from the categorical diagnoses of psychopathology of the time. If dimensional, then scores on his measure should show monotonic relationships with criteria that distinguish neurotic patients from controls. If categorical, then the scores should show no such relationship within diagnostic groups. Similar arguments have been made by Grayson (1987) who shows that even bimodal distributions do not imply types. The types versus dimensions debate continues, with some (e.g., Meehl, 1992; Waller, 2006) making a strong case for a taxometric approach and proposing a number of useful algorithms for detecting taxons (Cole, 2004). Indeed, as Meehl (1992, p. 121) put it: "There are chipmunks and gophers, there are no gophmunks." Useful overviews of the taxometric versus dimensional approach include Ruscio and Ruscio (2000, 2008) and an interesting demonstration that except for a few physical measures, indices showing sex differences are best described as dimensional rather than taxonomic (Carothers &