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Psychometric properties of Honey & Mumford's Learning Styles Questionnaire (LSQ)

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Abstract

Honey and Mumford's Learning Style Questionnaire (LSQ) has been proposed as an alternative for Kolb's Learning Style Inventory (LSI) and a later refined version (LSI-1985). The LSQ has been widely applied in the fields of management training and education. Limited evidence exists concerning the psychometric properties of the LSQ. Participants were 224 undergraduates enrolled in business courses and 164 undergraduates in health studies. Exploratory and confirmatory factor analysis failed to support the existence of the two bipolar dimensions proposed by Kolb, and four learning styles hypothesised by Honey and Mumford. An item analysis and pruning exercise failed to raise the internal consistency reliability to a satisfactory level, or provide adequate model fit to the data. The results of a structural equation model finds no consistent relationship between scores on the four learning style scales, two bipolar dimensions and academic performance between the two samples. The tests of factorial invariance provide no support for the stability or generalizability of the model. It is concluded: the LSQ is not a suitable alternative to the LSI and LSI-1985; and its use in applied research considering higher education students is premature. © 2002 Elsevier Science Ltd. All rights reserved.

Keywords: Learning Style Questionnaire; Reliability; Validity; Academic performance

1. Introduction

A learning style is described as being:

... a description of the attitudes and behaviour which determine an individual's preferred way of learning. (Honey & Mumford, 1992, p. 1)

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Learning style is the composite of characteristic cognitive, affective, and psychological factors that serves as an indicator of how an individual interacts with and responds to the learning environment. The study of learning style involves the investigation of individual differences: people perceive and gain knowledge differently, they form ideas and think differently, and they act differently. Research on style as an individual trait has been of interest to psychologists for many years (Jung, 1921; Myers & Briggs, 1962). Kolb's (1976) Experiential Learning Model (ELM) is a well-established model that has attracted much interest and application. The ELM consists of a hypothesised four-stage learning cycle and is based on the work of Lewin (1936). The hypothesised learning cycle can be entered at any stage but must be followed in sequence. According to the theory, different individuals may cope better with, or prefer, some parts of the learning cycle to others. In the learning cycle, or process, learners acquire information by concrete experience in the new experience. Second, a stage of reflective observation on the experience occurs whereby the learner organises the experiential data from a number of perspectives. Third, a stage of abstract conceptualisation occurs, whereby the learner develops generalisations from which to assist them integrate their observations into sound theories or principles. Finally, through active conceptualisation, learners use these generalisations as guides to action in new and more complex situations. This process explains individual differences in learning style in terms of relative abilities (i.e. level) for performing well (or less well) at various stages of the learning cycle. That is, the ideal learner will possess maximum abilities for all four stages.

Since Kolb developed his concept of a four-stage process, the process has been developed further as two orthogonal dimensions of learning derived from the Learning Style Inventory (LSI; Kolb, 1976). These two dimensions are labelled prehension, grasping information from experience (Concrete Experience-Abstract Conceptualisation); and transformation, that is the processing of information grasped (Reflective Observation-Active Experimentation). This concept explains differences in terms of two bipolar styles (i.e. the manner) by which each stage in the learning process is approached and operationalised. These bipolar dimensions are sometimes described as learning types.

Kolb's 12-item LSI has been widely applied to measure learning style. Twelve short statements concerning learning situations are presented and respondents are required to rank-order four sentence endings that correspond to the four learning styles. Later research finds little factor analytic support for the four styles and two independent dimensions (Freedman & Stumpf, 1978, 1980; Geller, 1979; Newstead, 1992; Stout & Ruble, 1991a; 1991b). Notably, the ipsative scoring method guarantees that some scales must be negatively correlated. Similar psychometric problems exist with a refined version of the instrument, the LSI-1985. These problems are summarised in: Geiger, Boyle, and Pinto (1992, 1993); Loo (1999); Ruble and Stout (1993); Willcoxon and Prosser (1996); Yahya (1998). Critics of the application of Kolb's LSI maintain that its use for education research purposes was premature in the sense that the instrument's psychometric properties had not been sufficiently assessed.

Honey and Mumford's (1992) Learning Style Questionnaire (LSQ) has been proposed as an alternative to Kolb's LSI. The LSQ was developed to report management trainees' learning style preferences and has subsequently been applied to a wide range of subjects, including students in higher education. Prudent scholarship requires that the LSQ be subjected to critical analysis before it is used for applied research and correlation studies (Schwab, 1980). The LSQ is a self-administered inventory consisting of 80 individually rated (1 or 0) items, differing in this respect

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