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EXPORT DATE:19 Feb 2015

Goulding, J., Syed-Khuzzan, S.

A study on the validity of a four-variant diagnostic learning styles questionnaire

(2014) Education and Training, 56 (2), pp. 141-164.

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AFFILIATIONS: Grenfell-Baines School of Architecture, Construction and Environment University of Central Lancashire, Preston, United Kingdom; Department of Quantity Surveying, International Islamic University of Malaysia, Kuala Lumpur, Malaysia

ABSTRACT: Purpose: The purpose of this paper is to examine the use, construct, and pervasiveness of learning styles theory. Whilst extant literature has provided educational theorists with a temporal landscape for promoting or critiquing the surfeit of "models" and "diagnostic tools", there has been little empirical research evidence undertaken on the adoption and adaptation of learning styles in the e-Learning environment, especially in respect of personalised learning environments (PLEs). In this respect, evidence identifies that the more thoroughly instructors understand the differences in learning styles, the better chance they have of meeting the diverse learning needs of their learners.

Design/methodology/approach: The paper provides a critical review of the development of learning styles inventories and instruments of learning styles. It focuses specifically on the reliability, validity, and rubrics behind these models. A positivist stance was adopted, using a structured case study methodology with learners as the main unit of analysis. This was undertaken to statistically explore and confirm the validity and reliability of a Diagnostic Questionnaire (DQ). Findings: A new Diagnostic Learning Styles Questionnaire was developed based upon the amalgamation of three existing models of learning styles (Kolb; Honey and Mumford; and Felder and Silverman). Research findings identified four principal learning styles categories (A, B, C, D). These are supported by Cronbach's α results ranging from 0.57 to 0.80 for the learning styles within the DQ, which provides new insight into these relationships. Research

limitations/implications: This research suggests that improved construct validity can be achieved if relationships are fully understood. However, research findings need to be countered by extending the embedded case study presented in this paper to include other case studies for comparison

(within this context). Further research is also needed on examining learner traits in more detail with a wider data set. Practical implications: The DQ can be used to explore different approaches to use in learning environments. Specifically, it allows training providers to understand the nuances and dependencies associated with learner styles, behaviour, learner effectiveness, and motivation. Originality/value: This paper uncovers new understanding on the learning process and how this links to pedagogy and learning styles. It presents a mechanism for embedding a DQ into a PLEs. © Emerald Group Publishing Limited.

PUBLISHER: Emerald Group Publishing Ltd.

ISSN: 00400912

DOI: 10.1108/ET-11-2012-0109

DOCUMENT TYPE: Article

SOURCE: Scopus