

Learning Styles for Post 16 Learners

What Do We Know?

**A summary of the report to the
Learning and Skills Research Centre from the School of Education,
Communication and Language Sciences, University of Newcastle**

February 2004

Introduction

This is a summary of two reports on learning styles for post 16 learners, commissioned by the Learning and Skills Research Centre (LSRC), and produced by the School of Education, Communication and Language Sciences at the University of Newcastle. The first report is a systematic and critical review of the literature on learning styles and pedagogy in post 16 learning. The second report considers what research has to say to practice on the question 'Should we be using Learning Styles?'

Section 3 of this summary is written by Professor Frank Coffield, formerly of the University of Newcastle and now of the Institute of Education, University of London.

Contact details and further information

The full reports can be found on the LSRC website at: <http://www.lsrc.ac.uk>. For hard copies and further information please contact Sally Faraday, quoting reference number LSRC 477a for the systematic and critical review of the literature, and reference number LSRC 478b for the report on what research has to say to practice:

Sally Faraday
Learning and Skills Development Agency
Regent Arcade House
19-25 Argyll Street
London
W1F 7LS
Tel: 020 7297 9098
E-mail: sfaraday@lsda.org.uk

Contact details for the authors:

Frank Coffield:
Professor of Education, Room 701,
Lifelong Education and International Development, Institute of Education,
University of London, 20 Bedford Way, London, WC1H 0AL.
Email: F.Coffield@ioe.ac.uk

David Moseley/Elaine Hall:
Joseph Cowan House, School of Education,
Communication and Language Sciences, University of Newcastle upon Tyne
St Thomas' Street, Newcastle upon Tyne, NE1 7RU.
Email: D.V.Moseley@ncl.ac.uk; elaine.hall@ncl.ac.uk

Kathryn Ecclestone:
School of Education and Lifelong Learning, University of Exeter,
Heavitree Road, Exeter, Devon EX1 2LU.
Email: K.Ecclestone@exeter.ac.uk

Learning styles: what do we know?

The Questions

How can we teach students if we do not know how they learn? How can we improve the performance of our employees if we do not know how we ourselves learn or how to enhance the learning of others? These are just some of the critical questions raised by those researchers who for the last 40-50 years have been studying the learning styles of individuals.

Method

For the past 16 months a team of researchers at Newcastle University (Frank Coffield, David Moseley, Elaine Hall and Kathryn Ecclestone) have been carrying out a systematic and critical review of learning styles and their implications for pedagogy in post-16 learning for the Learning and Skills Research Centre. The extensive nature of the field surprised us and we seriously underestimated the volume of research which has been carried out on learning styles; for example, the bibliography on research conducted between 1971 and 2000 on David Kolb's experiential learning theory and his Learning Styles Inventory contains 1004 entries.

From this vast literature we selected 13 of the most influential (or potentially influential) models of learning styles from the total of 71 we identified. We grouped all these models along a continuum according to the extent to which their authors claim that learning styles are either constitutionally based and relatively fixed or more flexible and open to change. In this way we created five 'families' of learning styles from, at one end, Gregorc and Dunn and Dunn, who claim that styles are largely constitutionally based to, at the other end, theorists like Entwistle and Vermunt who have moved from a narrow concentration on learning styles to the general approaches, strategies, orientations and conceptions of learning, adopted by students in Higher Education.

To ensure comparability between our evaluations of the 13 models, we analysed each one according to the same framework which included: origin, definition of terms, measurement by the author(s), external evaluation of reliability and validity, implications for pedagogy and empirical evidence for pedagogical impact.

Findings

A number of valuable features emerged from our close reading of the literature, but there is space to mention only two. First, a reliable and valid instrument which measures learning styles could be used as a tool to encourage self-development, but not only diagnosing how people learn, but by showing them how to enhance their learning e.g. by becoming aware of the strengths and weaknesses of different models and by extending their repertoire of styles.

Second, learning styles can provide learners with a much needed 'lexicon of learning' – a language with which to discuss their own learning preferences and those of others, how people learn or fail to learn, and how tutors can facilitate or hinder these processes. Our review, however, also drew attention to a set of problems which continue to beset the research field of learning styles and, again, two will be mentioned here.

Research into learning styles can be characterised as small scale, non-cumulative, uncritical and inward-looking. Our review provides detailed evidence of a proliferation of concepts, instruments and pedagogical strategies; for instance, we listed no less than 31 different dichotomies (verbalisers v imagers; activists v reflectors; left brainers v right brainers). This proliferation is a clear symptom of the current conceptual confusion, the serious failure of accumulated theoretical coherence and the absence of well-grounded findings, tested through replication.

Moreover, most of the 13 models we studied closely exhibited serious psychometric weaknesses. Each model was examined for evidence, provided by independent researchers, that the instrument could demonstrate *both* internal consistency and test-retest reliability *and* construct and predictive validity. These are the minimum standards for any instrument which is to be used to redesign pedagogy. Three of our 13 models met none of these criteria, four met one, four met two, one met three and only one met all four. It also needs to be remembered that these self-report inventories are not sampling the behaviour of learners but only their impressions of how they learn, impressions which may be inaccurate, self-deluding or influenced by what the respondent thinks the psychologist wants to hear.

Implications for practice

Despite the serious weaknesses noted above, these instruments are currently being used very widely in Higher and Further Education by tutors keen to differentiate student learners; and they are encouraged to do so by their initial training and by the inspectorate. Some of the best known and widely used instrument have such low reliability, poor validity and negligible impact on pedagogy that we recommend in our review that their use in research and in practice should be discontinued. On the other hand, one of our clearest conclusions is the marked variability in quality among the leading learning styles; they are not all alike and it matters fundamentally which instrument is chosen. Some inventories, which emerged with fewer defects from our rigorous evaluation, deserve to be researched further.

For example, the models and inventories of Noel Entwistle and Jan Vermunt have been developed over many years with higher degree students and can safely be used to discuss with students changes in both teaching and learning. They would, however, need to be redesigned and revalidated for use in other post-16 learning contexts such as adult learning, work-based training and 14-19 provision in Further Education Colleges.

A number of researchers have spotted the potential of learning styles to act as an agent for broader change. Open-ended dialogue between tutor and students may begin by identifying forms of support (e.g. study skills) and could lead on to a discussion of curriculum and assessment. If this encourages tutors to discuss among themselves how they can improve students' approaches to learning, then the door is open for course teams, initial teacher trainers and continuing professional developers to use the topic of learning as a springboard for broader cultural change within the organisation.

Tutors, trainers and managers are not, however, faced with the simple choice of accepting or rejecting learning styles; they are confronted by a panoply of possible interventions. In making their professional choice, tutors should be aware of the meta-analyses of educational interventions conducted by Hattie and by Marzano. For example, the initiative which is currently close to the hearts of government ministers, namely individualisation, has an effect size of 0.14, while providing feedback or reinforcement has an effect size of 1.13. It seems sensible to concentrate limited resources and staff efforts on those interventions which have been shown to have the largest effect sizes. In this way policy and practice would be informed by research rather than personal preference or political dogma.