Learning Styles

 Teachers and course designers should pay closer attention to students’ learning styles: by diagnosing them, by encouraging students to reflect on them and by designing teaching and learning interventions around them (Coffield, Moseley, Hall & Ecclestone, 2004:1). This is an appealing idea. But what are learning styles? What are the theories behind them? How do VET learners and teachers use learning styles? Are all learning style inventories reliable or valid? How do we know? Is the research in learning styles guided by educational or commercial values? These are some of the questions explored in this edition of Research Digest.

What are learning styles?

The terminology associated with this area includes:

- **learning style** – a distinctive and habitual manner of acquiring knowledge, skills or attitudes through study or experience; an individual learner’s style tends to be more stable across different learning tasks and contexts
- **learning preference** – the favouring of one particular mode of teaching over another; an individual learner’s preferences vary across different learning tasks and contexts
- **learning strategies** – the plan of action adopted when acquiring knowledge, skills or attitudes through study or experience; learners choose according to how they believe a learning task can be successfully completed.(Sadler-Smith in Smith & Dalton, 2005:7)

Major theoretical ideas

The following is a brief description of some of the main theoretical ideas involved in learning styles, learning preferences and learning strategies (Smith, P. & Dalton, J. 2005:7-8).

Learning styles

- **Field dependence/independence**: Witkin et.al. (1954) developed this early theory of perception. It proposed that some people were able to analyse and learn things in isolation from surrounding issues, while others needed to learn on a more holistic basis which included the surrounding matters as well.
- **Serialists/holists**: Pask (1976) suggested that some people learn by taking individual items in turn, learning each of them, and then putting them together to form the whole; while others like to learn the whole right from the start.
- **Deep/surface processors**: Marton and Saljo (1976) generated the idea that ‘deep processors’ generally look for meaning, underlying concepts and theories, and connect their new concepts to what they already know. ‘Surface processors’ want to know the facts or techniques without necessarily developing an understanding.
- **Four-stage cycle**: Kolb (1976) suggested that individuals learn and solve problems by progressing through a four-stage cycle:
  - concrete experience
  - reflective observation
  - abstract concepts
  - active experimentation

Kolb viewed concrete experience and abstract concepts as two ends of a single continuum, and active experimentation and reflective observation as two ends of a second continuum. These two continuums intersect and result in four quadrants or learning styles – the accommodator, the assimilator, the diverger and the converger. Accommodators for example, learn by concrete experience and active experimentation, relying on intuition and trial and error methods of problem solving.

- **4MAT system**: McCarthy (1979) developed a system of matching teaching to learning styles, which was based on Kolb’s theory and integrated with left brain-right brain research.
Multiple intelligences: Gardner (1993, 1999) proposed that there are eight intelligences - linguistic, logical-mathematical, spatial, musical, bodily-kinaesthetic, intrapersonal, interpersonal, naturalistic. Individuals possess these intelligences in different quantities and their learning style is expressed as their combination of the intelligences, with their interests and talents being strongly related to the pattern of their intelligences.

Learning preferences

Canfield Learning Styles Inventory: Canfield (1980) developed an inventory of 16 learning preferences in three major categories - conditions of learning, content, mode. The inventory provides a measure for each of these preferences to create a preference profile for any individual learner.

Learning strategies

Domains of learning strategy: Smith (2003), Billet (1996) and Marland, Patching and Putt (1992), have identified sets of strategies around the following three domains:

- metacognitive strategies involving planning, monitoring or evaluating the success of a learning activity
- cognitive strategies that are used to operate directly on information presented, and to organise and process it to effect learning
- social/affective strategies that represent interactions with others

These strategies are used in different combinations and are selected according to the learning task and context.

Learning style families

In their research report, Should we be using learning styles? What research has to say to practice, Coffield, et.al. (2004:22) devised a classification system to impose some order on the particularly confusing and endlessly expanding field of learning styles. They categorised some of the main learning styles into five broad families.

Families of learning styles

Learning styles and preferences are largely constitutionally based including the four modalities: visual, auditory, kinaesthetic and tactile.

Learning styles reflect deep-seated features of the cognitive structure, including 'patterns of ability'.

Learning styles are one component of a relatively stable personality type.

Learning styles are flexibly stable learning preferences.

Move on from learning styles to learning approaches, strategies orientations and conceptions of learning.

Dunn and Dunn
Gregorc
Bartlett
Bettes
Gordon
Marks
Paivio
Richardson
Sheehan
Torrance

Riding
Broverman
Cooper
Gardner et al.
Guilford
Holzman & Klein
Hudson
Hunt
Kagan
Kogan
Messick
Petitgrew
Witkin

Apter
Jackson
Myers-Briggs
Epstein & Meier
Harrison-Branson
Miller

Allinson & Heyes
Herrmann
Honey & Mumford
Kolb
Felder & Silverman
Hermanussen, Wierstra, de Jong & Thijsen
Kaufmann
Kirtton
McCarthy

Entwistle
Stenberg
Vermunt
Biggs
Conti & Kolody
Grasha-Riechmann
Hill
Marton & Saljo
McKenney & Keen
Pask
Pintrich, Smith, Garcia & McEachie
Schmeck
Weinstein, Zimmerman & Palmer
Whetton & Cameron

1 - The theorists in bold type are those chosen for in-depth evaluation
Source: Coffield, F, Moseley, D, Hall, E & Ecclestone, K, 2004:20
How VET learners and teachers use learning styles?

Learners

Warner, Christie and Choy (1998); Smith (2000); and Brennan (2003) identify the following characteristics as typical of the Australian VET learner:

- visual rather than verbal learners like to watch and see rather than read and listen
- hands-on learners prefer to learn by doing and by practising
- socially contextualised learners learn in groups
- dependent learners need instructor guidance and a clear understanding of what is required of them (Smith, P. & Dalton, J. 2005:12)

Teachers/trainers

Smith and Dalton (2005) investigated how teachers/trainers view differences in their learners and what they do about it. The research identified the methods VET practitioners use to identify learner group and individual styles; the responses made to those identified styles; and the professional development VET practitioners require to identify and accommodate the learning styles of their students.

The research took place in five TAFE institutes and one professional network of trainers in private and public RTOs across Victoria, South Australia and Western Australia. Data was collected from teaching staff, students and management via questionnaire, focus groups and case studies of exemplary practice. The following points list the key findings from the research.

- VET teachers were generally aware of group and individual learning style differences of their students.
- Teachers rely strongly on previous experience and have developed a variety of personal methods to identify and respond to the different learning styles of their students. These methods are interactive and based on observation rather than on the application of particular learning theories.
- Professional development in learning styles is likely to be best achieved through practical examples of good practice and practical teaching settings, rather than through the study of learning style theory.
- Teachers need professional development that clearly indicates how training packages can be used to accommodate learning styles.
- Students had limited knowledge of their learning style and need effective learning-to-learn training.

What are the issues in learning styles research?

Research into learning styles can be characterised as small-scale, non-cumulative, uncritical and inward-looking. It has been carried out largely by cognitive and educational psychologists, and by researchers in business schools and has not benefited from much interdisciplinary research (Coffield, et.al., 2004:2,53)

In their report, Coffield et.al. point out many issues that plague research into learning styles:

- the endlessly expanding body of theoretical and empirical research on learning styles
- learning style researchers are from the diverse fields of psychology, sociology, business studies, management and education; they value and interpret their research in different ways and from different perspectives
- no direct or easy comparability between approaches and no agreed core technical vocabulary
- the increasing number of learning style models of variable quality
- a lack of dialogue between the leading proponents of individual models
- the overblown claims of some learning style developers
- the commercial industry that has grown around particular models has inhibited independent critical analysis of these models

Evaluating learning styles

Coffield, et.al.’s report (2004:2,22-35) identified 71 models of learning styles and evaluated 13 of the most influential models to better understand their merits and deficiencies. The models were evaluated in terms of their design, reliability, validity, implications for pedagogy, evidence of pedagogical impact and overall assessment.
Some of the findings on specific models were:

- Allinson and Hayes: internal consistency and test-retest reliability are high, according to both internal and external evaluations
- Dunn and Griggs: there is a serious lack of independent evaluation of the learning styles instrument
- Gregorc: theoretically and psychometrically flawed; not suitable for the assessment of individuals
- Honey and Mumford: danger of labelling people as ‘theorists’ or ‘pragmatists’, when most people exhibit more than one strong preference
- Kolb: long, public dispute over reliability of learning style inventory
- Myers-Briggs: there is no evidence to suggest that matching teacher and learner types has any positive effects on achievement
- Vermunt: it provides a common language for teachers and learners to discuss and promote changes in learning and teaching

**What does the research tell us?**

Coffield et.al. (2004:36,53) point out the real dangers in recommending detailed strategies to practitioners because of the varied quality of theories and models and the lack of consensus about their use. They advise practitioners and policy makers to be selective in their use of learning styles and to reflect on the possible drawbacks of using learning styles.

However, Coffield et.al. (2004:37,50) also encourages the use of learning styles to support the development of students’ self-awareness and metacognition skills. Smith and Dalton agree by pointing out that learners who are aware of their own learning styles and preferences make more informed choices about how to engage with in learning (2005:13). In addition, Coffield et.al. suggest that current research into metacognition and formative assessment is more robust and extensive than the research in learning styles (2004:52,53). Should, therefore, the next research dollar, pound or euro be redirected to help students learn more about how they learn rather than adding yet another model to the ever proliferating pile?

**References**


**Further Information**

For more information and further references, contact Sarah Sutcliffe on 74983 at CURVE.

You can also access reference material at the Education Resource Centre at Southside Campus.