

Supplementary Materials for Unit 5.1

Table 5.1.3 and the accompanying text are concerned with individual development from the point of view of personality and motivation studies, psychometrically assessed traits and cognitive/thinking/learning styles research. These approaches have all been found to be of varying relevance to learning and teaching.

Table 5.1.3: Psychometric, personality and cognitive /thinking /learning style research

Theories	Key Propositions/Ideas	Implications for Learning	Main Theorists
Self – perception/Self-actualisation Theory	Socially interactive nature of self-perception - ‘looking-glass self’; critical role of significant others in developing self-concept; need to reach potential - ‘self-actualise’	Manage impact of peer and teacher approval on self-construct; reinforce positive self-esteem, eg. Circle Time	Cooley (1902) Carl Rogers’ (1983)
Psycho-Metric and Personality Trait Theories	Innate traits, tendencies and abilities; self-testing of traits on polar opposite continuums, eg. extravert – introvert	Respond to individual differences; encourage pupil understanding of individuality in PSE	Cattell (1946) Eysenck (1947)

Motivation Theories: Needs Theory	5 levels of need have to be met in order from basic physical needs to high-level cognitive ‘self-actualisation’.	Meet lower levels of learner need, eg. breakfast club, to enable higher-order functioning.	Maslow (1954)
:Locus of Control Theory/ Attribution Theory	People with strong internal control believe success is due to their own efforts and talents; those with strong external control believe their success or progress is down to luck or other external factors such as task difficulty.	Develop interaction between intrinsic and extrinsic influences on learning to generate greater internal locus of control, eg. by rewarding effort <i>and</i> outcomes.	Rotter (1966) Weiner (1972)
Thinking Style Theories: Dual Coding Theory	Image and verbal memory codes evolved as independent systems of mind; their interaction aids recall.	Combine images and verbal representations within tasks to extend cognitive development.	Paivio (1971; 2007)
Cognitive Processing/ Learning Style	Innate approach to thinking and processing information; often tested on polar opposite continuums, eg. field-dependent /independent or verbaliser/ imager.	Match learning tasks to ‘preferred’ processing style. Danger of pigeonholing pupils and limiting learning opportunities.	Witkin et al (1977) Riding and Dyer (1980)
Learning Strategy	Processing and perceiving dimensions intersect creating 4 learning quadrants; learners have a dominant quadrant.	Experiential learning develops non-dominant strategies.	Kolb (1976; 2015)
Approach/Orientation	Dominant orientations: deep versus surface; achieving versus meaning.	Create context and task expectations that encourage deep and meaning approaches.	Biggs (1978; 2001) Entwistle (1981)

Cognitive (or thinking) styles

Research into thinking styles and learning strategies and approaches has both fascinated and frustrated many educators. We consider just a few of the huge proliferation of constructs that exists. Essentially this research is based on the idea that individuals are unique and bring their own ways of thinking and approaching tasks to their learning. Many researchers believe these are innate whilst others feel learners can be trained to work with their non-dominant style or approach. Before we go further there is a fundamental question to consider in Task 5.1.4.

Task 5.1.4 Reconciling universal cognitive processes with individual learning style

Cognitive psychology tells us that cognition (thinking) is a set of processes that everybody uses to attend to stimuli (information), analyse it in short term memory and then store in and retrieve from long term (working) memory.

How, then, can this be reconciled with the notion of unique processing styles? Take each step in the process of cognition - attending/perceiving; analysing; memorising; retrieval - and write a report which describes these processes and considers ways each process may differ for individual learners. Use research to support your points and file your report in your professional portfolio.

You will no doubt encounter popularised systems for categorising pupils' 'learning styles'. The VAK (visual, auditory, kinaesthetic) modal discriminator (Barbe et al, 1979; Fleming and Mills, 1992) was one such heavily over-used scheme. VAK became synonymous with learning style but was only one of a huge number of constructs researched since the mid 19th century. The professional development programme, Accelerated Learning (Smith, 1996) was largely

responsible for VAK's widespread uptake in schools but it has subsequently fallen from grace as teachers found its rigid application could strait-jacket learners and limit their opportunities.

In the 1990s and 2000s, personalising learning was increasingly valued so learning style assessment was readily embraced as a way of understanding pupils' individual differences and matching teaching to them. Whilst it is accepted that learners do have preferences for receiving information and approaching tasks, most categorisations have been heavily critiqued because the sweeping nature of their claims, particularly for innateness, is contestable. In many cases they have been found to be not well researched or countered by other studies (see Coffield et al, 2004a and 2004b for a systematic review of 71 different constructs).

There is often confusion about what constitutes learning style as distinct from learning strategy or approach. The *cognitive* or *learning style* is thought to be an innate characteristic of an individual which is static and habitual. In contrast, *learning strategies* are the ways learners cope with situations and tasks. Strategies may vary from time to time and may be learned and developed. Research into *learning approaches* describes the habitual motivational position of the learner.

Learning style

Riding and Cheema (1991) claimed that the vast array of cognitive and learning style constructs could be grouped into two principal cognitive styles: *wholist-analytic* - tendency to process information in wholes or in parts; *verbal-imagery* - tendency to represent information during thinking verbally or in (mental) pictures. The two styles were thought to operate as dimensions so that a person may be at either end of the dimension or somewhere along it. You are asked to consider your own learning style in Task 5.1.5.

Task 5.1.5 Considering your own learning style

Do you:

- Approach essay writing incrementally, step by step, piecing together the various parts, or do you like to have a broad idea of the whole essay before you start writing?
- Experience lots of imagery when you are thinking about something or do you find yourself thinking in words?

Consider whether your style on a different type of task would be any different?

Is your style consistent or context-dependent?

Discuss your views about your style with other beginning teachers.

In doing so you are developing your metacognitive knowledge about your own way of learning.

For Witkin et al (1977) and Riding (2002) cognitive styles are involuntary, so pupils' habitual learning styles will vary within every class. Riding (2002) suggests it would not be sensible to present information only in written form; if illustrations are added, this allows both 'Verbalisers' and 'Imagers' easier access to it. Similarly, 'wholist' pupils are assisted by having an overview of the topic before starting while 'analytics' benefit from summaries after they have been working on information. Whilst these researchers may argue the key to success is in allowing learners to use their natural processing style it is unrealistic to think we can assess the style of every pupil and teach to it. Indeed a learning preference might actually indicate the learner has a skill deficit and needs to be encouraged to use their non-habitual processing mode. To focus on strong processing abilities and ignore those that need development makes no sense (An and Carr, 2017).

Dual coding theory

In contrast to the idea that people have a predominant mode as a verbaliser or an imager, Paivio's (1971) dual coding theory suggested that human brains had evolved to use two separate but potentially interconnected systems of both verbal and non-verbal modes of representation. He claimed that if these two systems were integrated within activities, cognitive advances (or learning) would be greater, which chimes with the instructional guidance of cognitive load theory considered earlier. Alive to the potential dangers of assigning pupils a dominant learning style which could limit the use of their full cognitive abilities (Kuepper-Tetzel, 2017), teachers are recognising the instructional value of Paivio's dual coding theory (see Pascall, 2022, for ideas on applying dual coding in practice).

An and Carr (2017) found substantial research showing that pupils are often skilled at both verbal and visual processing and that both types of processing are important for learning and can be improved through instruction as opposed to gearing instruction to a dominant learning style. They point to evidence that people encode and represent information in multiple ways which increases memory, learning and achievement. They cite Lyman and McDaniel (1990) who found that the memory of a smell improved when other sensory processing, such as verbal (naming the smell) or visual (mental picturing of the smell) was activated. They cite other studies that show the activation of multiple representations including visual and verbal representations is linked to better learning in mathematics and reading. This is because these linked sensory representations are constructed together and linked in long term memory producing better learning. They conclude that it is therefore the activation of multiple representations not the matching of instruction to a learning style that produces better learning.

It is clear to see why categorising pupils into fixed learning approaches or styles and then teaching to a formula that such a categorisation suggests might be attractive. Unlike the way in

which intelligence quotient (IQ) is used (the higher the IQ score the better the performance is expected), the determination of learning style does not imply that one way of processing is better than the other. However, research shows us that thinking and learning are complex and findings are still emerging so it is important to avoid pigeonholing pupils via popular learning style assessments. What this research tells us is NOT that you need to identify every pupil's distinctive profile but that you should endeavour to maintain variety and choice in the learning experiences you design for pupils: in the ways you present information, in the resources pupils use and the tasks they undertake, and in the ways you assess their progress. Your experience will already have revealed how context-dependent learning is, with your pupils employing different approaches in different settings. Ensuring diversity in your teaching will maximise access for all pupils to the curriculum.

References

- An, D. and Carr, M. (2017) 'Learning styles theory fails to explain learning and achievement: recommendations for alternative approaches', *Personality and Individual Differences*, 116, 410–416.
- Barbe, W.B., Swassing, R.H. and Milone, M.N. (1979) *Teaching Through Modality Strengths: Concepts and Practices*, Columbus, Ohio: Zaner-Bloser.
- Biggs, J. B. (1978) 'Individual and group differences in study processes', *British Journal of Educational Psychology*, 48, 266–279.
- Biggs, J. B. (2001) 'Enhancing learning: a matter of style or approach?', in R.J. Sternberg and L.F. Zhang (eds) *Perspectives on Thinking, Learning and Cognitive Styles*, Mahwah, NJ: Lawrence Erlbaum Associates.
- Cattell, R.B. (1946) 'Personality structure and measurement. I. The operational determination of trait unities', *British Journal of Psychology*, 36 (2), 88–103.
- Coffield, F., Moseley, D., Hall, E. and Ecclestone, K. (2004a) *Learning Styles and Pedagogy in Post-16 Learning: A Systematic and Critical Review, Report no. 041543*. London: Learning and Skills Research Centre, Learning and Skills Development Agency.

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Coffield, F., Moseley, D., Hall, E. and Ecclestone, K. (2004b) *Should we be Using Learning Styles? What Research has to Say to Practice*, London: Learning and Skills Research Centre, Learning and Skills Development Agency.

Cooley, C.H. (1902) *Human Nature and the Social Order*, New York: Scribner.

Entwistle, N.J. (1981) *Styles of Learning and Teaching*, Chichester: Wiley.

Eysenck, H.J. (1947) *Dimensions of Personality*, London: Routledge.

Fleming, N.D. and Mills, C. (1992) 'Not another inventory, rather a catalyst for reflection', *To Improve the Academy: A Journal of Educational Development*, 11 (1), 137–155.

Kolb, D. A. (1976) *The Learning Style Inventory: Technical Manual*. Boston: McBer & Co.

Kolb, D. A. (2015) *Experiential learning: experience as the source of learning and development*, 2nd edition. New Jersey: Pearson Education.

Kuepper-Tetzel, C. (2017) 'Learning styles: a misguided attempt to highlight individual differences in learners', *The Learning Scientists*, accessed 250318, learningscientists.org/blog/2017/5/25-1?rq=Kuepper-Tetzel%20

Lyman, B.J. and McDaniel, M.A. (1990) 'Memory for odors and odor names: modalities of elaboration and imagery', *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 16, 656–664.

Maslow, A.H. (1954) *Motivation and Personality*, New York: Harper.

Paivio, A. (1971) *Imagery and Verbal Processes*, New York: Holt, Rinehart and Winston.

Paivio, A. (2007) *Mind and its Evolution: A Dual Coding Theoretical Approach*, Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Pascall, L. (2022) *Learning to Teach Business: A Companion to School Experience*, Abingdon: Routledge.

Riding, R.J. (2002) *School Learning and Cognitive Styles*, London: David Fulton.

Riding, R.J. and Cheema, I. (1991) 'Cognitive styles: an overview and integration', *Educational Psychology*, 11, 193–215.

Riding, R.J. and Dyer, V.A. (1980) 'The relationship between extraversion and verbal-imagery learning style in twelve-year-old children', *Personality and Individual Differences*, 1, 273–279.

Rogers, C.R. (1983) *Freedom to Learn for the 80s*, New York: Macmillan.

Rotter, J.B. (1966) 'Generalised expectancies for internal versus external control of reinforcement', *Psychological Monographs*, 80, 609.

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Smith, A. (1996) *Accelerated Learning in the Classroom*, London: Network Educational Press.

Weiner, B. (1972) *Theories of Motivation: From Mechanism to Cognition*, Chicago, IL: Markham.

Witkin, T., Moore, C.A., Goodenough, D.R. and Cox, P.W. (1977) 'Field-dependent and field-independent cognitive styles and their educational implications', *Review of Educational Research*, 47 (1), 1–64.