

The trouble with VAK

John G. Sharp¹, Jenny Byrne², Rob Bowker³

¹Bishop Grosseteste University College Lincoln

²University of Southampton

³University of Exeter

Corresponding author: john.sharp@bishopg.ac.uk

Abstract

Learning styles is arguably the most talked about phenomenon in schools at the present time. Here, we explore learning styles popularised as VAK and begin to interrogate some of the more unusual claims used to lend support to its credibility. Concerns are raised over the apparent rush to adopt VAK in an evidence-based profession which prides itself on critical reflection and analysis.

Introduction

Learning styles research has a history that can be traced back some 100 years. Learning styles essentially concerns itself with identifying and categorising the habits and other behaviours of individuals as they approach different tasks rather than how well they complete them (Pask, 1976; Entwistle, 1981; Keefe, 1982; Curry, 1990). For primary teachers and other educators, the notion of being able to use learning styles as a diagnostic or pedagogical tool is appealing. Our interest in learning styles was stimulated by the appearance and apparent increase in popularity of something referred to as VAK. This was largely brought about by a growing awareness of children being labelled as visual, auditory or kinaesthetic learners in many of the primary schools known to us, VAK cropping up in conversation with colleagues and an apparent endorsement of VAK by the Department of Education and Skills. What perplexed us from the outset, however, was that no one we spoke to seemed to have any idea about where the VAK they were familiar with actually came from. We also quickly established that in terms of learning styles instrumentation, the VAK questionnaires being used in schools bore little resemblance to anything from within the existing learning styles 'establishment' where learning styles theories and practices are presented and debated at the highest academic level (see De Bello, 1990; Riding and Raynor, 1998; Cassidy, 2004 and Coffield et al., 2004 for comprehensive reviews). In order to shed further light on all of this, we undertook a small-scale, snapshot survey of primary teachers' ideas and beliefs about VAK in each of our own geographical regions. VAK was described to us in some capacity in almost every one of the 76 responses obtained with a little under half of the teachers indicating that either they personally or their schools were using VAK to help them plan and teach, occasionally at a whole-school strategic level. Worryingly perhaps, most teachers seemed to be relying fully on second-hand information about VAK, information passed to them by head teachers, deputy heads, school governors and Local Authority advisors, with teachers themselves passing this on this information from school to school and teacher to teacher on a 'by word-of-mouth' basis. We were also surprised at the common association of VAK with such disparate concepts as accelerated learning, multiple intelligences and brain gym. But our survey helped us track down VAK to

the work of at least one author, Alistair Smith (Smith, 1996, 1998; Smith and Call, 1999, 2001).

VAK and Accelerated Learning in Primary Schools

We need to be clear here that we are not setting out to attempt to discredit Smith's work. Far from it in fact. For some of Smith's strategies and activities for primary teachers are sound and reflect what we would agree constitute good practice. We could, indeed, have selected almost any of the sources of VAK alluded to by the teachers in our survey had we been able to trace their origins successfully. But the nature of Smith's work and its relative popularity within our teacher survey invites particular comment. Smith's work, at least in terms of the four professional books we choose to highlight here (Smith, 1996, 1998; Smith and Call, 1999, 2001), is of considerable interest. There is a great deal to consider in each of these publications and we can only begin to deal with some of it in our critique. We are always conscious of the ease with which any author's work can be misrepresented and would point out now that while Smith's own personal ideas and beliefs may have moved on with the passage of time (discussed later), educational inertia prevents this from happening within the primary teaching profession at anything like the same pace.

VAK is embedded within what Smith refers to as his model of accelerated learning in primary schools or ALPS (though this seems to have evolved out of an original application in the secondary sector). According to Smith (1996):

Accelerated learning is an umbrella term for a series of practical approaches to learning which benefit from new knowledge about how the brain functions; motivation and self-belief; accessing different sorts of intelligence and retaining and recalling information. Accelerated learning carries with it the expectation that, when properly motivated and appropriately taught, all learners can reach a level of achievement which currently may seem beyond them. (9)

In brief, Smith outlines the fundamental principles of ALPS via the acronym 'NO LIMIT': **k**Now the about the brain and how it works; remain **O**pen and relaxed and therefore receptive to new information and ideas; develop **L**earning to capacity through challenging teaching in a supportive environment; **I**nteract information by way of visual, auditory and kinaesthetic means (VAK); adopt strategies to access **M**ultiple Intelligences; **I**nteract in learning by developing self-belief and self-esteem; **T**ry out and test new knowledge and skills. These principles are incorporated into what Smith describes as an accelerated learning cycle. While it is never made entirely clear just what exactly is being 'accelerated' in accelerated learning, VAK, used in the context of everything from instrumentation to classroom-based activities and teaching strategies, plays a prominent role for visual, auditory and kinaesthetic sensory modalities and preferences are considered fundamental to how children interact with the world around them and this, in turn, affects how well they perform. Smith is quick to point out that while he is not the originator of the terms 'accelerated learning' or 'VAK' or any of the other disparate concepts found within its methodology, he does claim to bring each of these concepts together into one coherent approach or model of learning for the purpose of classroom application perhaps for the first time. Smith also provides further insight into the deeper origins of VAK within ALPS with explicit reference to neuro-linguistic programming (for a useful introduction to NLP see O'Connor and Seymour, 2003), a highly controversial and contentious field at times strongly challenged by the mainstream academic and scientific communities:

The discipline of NLP (Neuro Linguistic Programming) concerns itself with observing the subtleties of human behaviour and particularly how we communicate with others and ourselves. The work of the pioneers of NLP ... has now progressed to such a degree that we are able to identify three distinct communication and learning preferences [VAK]. ... We do, to some extent, utilise all three [sensory modalities]. But just as we each have a hand preference, an ear preference, an eye preference and a brain hemisphere preference, we also have a representational system preference. The leading practitioners in NLP have spent many years characterising the 'typical' attributes of visual, auditory and kinaesthetic learners. This work is not research based. It is pragmatic and based on detailed elicitation and modelling. (1998: 146-147)

Now ALPS is not NLP, and Smith is careful to place some distance between VAK and NLP as his work unfolds. But both ALPS and VAK seem influenced by it and this may reflect something of Smith's own training and educational philosophy and ideology. On the determination of individual learning styles preferences, for example, Smith begins by suggesting that these can be '*discerned through noticing different [physiological and linguistic] cues*' (1996: 42). Children with visual learning styles preferences might direct their gaze or move their eyes upwards, their breathing might be shallow and take place high in their chests, their voices might come across as high pitched, they might ask questions like '*I see what you mean*', and they might '*readily construct imagined scenes*'. Smith goes on to afford us the opportunity to consider three VAK learning styles instruments (1996: 43-48), two of which were apparently obtained from colleagues in schools, the third the 'mainstream' Learning Styles Inventory (LSI) of Dunn et al. (1975-1997). He later provides teachers with his own VAK learning styles questionnaire (Smith and Call, 2001: 163), a global, 15-item, self-reporting instrument using a Likert-type scale, the basis upon which visual, auditory and kinaesthetic learning styles can be determined for all children regardless of age or curriculum interest. This was by far the most common example of a learning styles instrument provided to us by the teachers in our survey. But this is not a research instrument. Smith asks us to take every aspect of this questionnaire from its construction to how it should be interpreted and used entirely on trust. As our survey showed, teachers are being led to believe, though not at all by Smith, that this instrument provides them with information about their children which is both deep and meaningful. Just consider the following: '*I like the pictures in books the best*' [V], '*I like music when I do my homework*' [A] and '*I like it when we make things in class*' [K]. How could children's own responses to fifteen statements of this type tell you anything diagnostic about their preferred visual, auditory or kinaesthetic learning styles? And how could children's own responses to fifteen statements like these result in anything of any pedagogical value? This may help to explain why, to the best of our knowledge, independently verified quasi-experimental and longitudinal studies producing conclusive evidence pointing unequivocally to such a close relationship between VAK and children's academic performance at primary school do not exist. Smith does, however, remind us that:

Children will not use one sensory approach to the exclusion of all others and it is verging on the absurd to say that a child is a visual, auditory or kinaesthetic learner. (Smith and Call, 1999: 191)

Perhaps it is because many teachers appear to have never read Smith's work for themselves that VAK labelling in primary schools is very real. In establishing the importance of VAK and promoting it within ALPS, both as a means of determining children's learning styles preferences (instrumentation) and addressing them (strategies and activities), Smith

makes full use of what we can see as his undeniable gift for writing persuasively. He employs an extensive range of motivational cartoons, supporting quotes and anecdotal examples, though none of these proves anything by itself.

VAK and Multiple Intelligences Theory

The relationship between VAK and Multiple Intelligences (MI) theory (Gardner, 1983, 1993, 1999) within ALPS is based upon Smith's view that it is also possible to determine an individual's balance of multiple intelligences and then address this balance as appropriate using the range of VAK strategies and activities he presents. While VAK and MI are joined at the hip within ALPS, Smith is clear about the distinction between the two, an important point Gardner himself draws attention to:

Without doubt, some of the distinctions made in the theory of multiple intelligences resemble those made by educators who speak of different learning or working styles. ... But MI theory begins from a different point and ends up in a different place from most schemes that emphasise stylistic approaches. ... Children may well exhibit one style with one kind of information (such as being impulsive in the musical realm) while exhibiting a contrasting style with other information (such as being reflective when working on a jigsaw puzzle). (1993: 44-45)

Unfortunately, this distinction was not so evident in the minds of many respondents in our teacher survey. According to Gardner, MI theory pluralises the traditional concept of a singular intelligence in favour of up to eight or nine cognitive competences described in terms of sets of abilities, talents or mental skills (there were seven intelligences originally but these have increased over time). Gardner's MI theory has received considerable attention in recent years not least of all for its educational implications (Gardner 1995). But despite having its own vast and impressive literature-base, MI theory also has its critics (e.g. Perks, 2004; White, 2005). Smith, however, approaches multiple intelligences in the same way he approaches learning styles. MI theory is adopted almost without question, with little regard to any aspect of the MI theory debate, and presented in an almost entirely unproblematic way:

Work completed by others in the field of Accelerated Learning suggests that the development of a full range of intelligences assists long-term learning generally. Effective teaching will provide learning opportunities for a range of intelligences. (Smith, 1996: 53)

Having adopted MI theory, Smith then goes on to point out rather oddly that 'the extent to which one agrees with Gardner's theory of Multiple Intelligences is irrelevant' (1996: 10), later stressing:

The debate over intelligence, what it is and how it is defined, will continue around us. For the purpose of the ALPS model, we operate under the guiding belief that teachers can intervene in meaningful ways to develop intelligent responses. (Smith and Call, 1999: 218)

Guiding beliefs, of course, are not as convincing as hard evidence. And while they can eventually turn out to work in your favour, they can also come back to haunt you. But developing intelligent responses is one thing, intelligence itself is something else! Nevertheless, Smith then provides his reader with a way of determining and measuring an

individual's multiple intelligences with, like VAK, a self-reporting instrument using a Likert-type scale in the form of a questionnaire (which changes to keep pace with the increase in number of intelligences proposed). Again, is not a research instrument. Smith asks us once more to take every aspect of this questionnaire from its construction to how it should be interpreted and used entirely on trust. Yet, Smith attempts to convince his reader that outcomes can be used 'as a resource for work on ability and potential' (1996: 59) and that 'the model of multiple intelligences [can be used] to structure different sorts of lessons [and to] teach for each intelligence as a subject in itself' (Smith, 1998: 152). In Gardner's own words, short pencil and paper tests of this type are nowhere near being 'intelligence-fair' (1993: 176). This may help to explain why, to the best of our knowledge, independently verified quasi-experimental and longitudinal studies producing conclusive evidence pointing unequivocally to such a close relationship between VAK, multiple intelligences and children's academic performance at primary school do not exist.

VAK and brain-based learning

Smith makes clear links between VAK and brain-based learning within ALPS throughout his work stating that:

An understanding of the three parts of the brain –the reptilian, limbic and neo-cortex – and what functions they control will help teachers to design appropriate learning activities which are challenging, without being stressful, and which deliver whole-brain, holistic learning. Lesson structure and content which demonstrates awareness of the different needs of right and left brain learners will automatically have a greater impact. (1996: 10)

He goes as far as to provide pen-portraits of four imaginary children and the sorts of left-right hemispheric activities they enjoy the most and indicates that their individual needs might be met by following his approach (1996: 46-47). He later presents nine key principles of brain-based learning (Smith, 1998: 29) and draws upon what he believes provides neuroscientific evidence to support his claims. Smith also incorporates into his strategies and activities the likes of brain gym (Dennison and Dennison, 1989), another highly controversial and contentious field strongly challenged by the mainstream academic and scientific communities, laterality exercises, different types of music for different lessons and times of the day, brain breaks, and so on, all of which are implicated in bringing about improvements in self-esteem, motivation, classroom behaviours and achievement. He highlights anecdotal quotes from children exposed to VAK activities commenting on how much 'stronger' their brains feel and how better prepared they feel to move forward with their lives and their studies, how well they will do in SATs or national tests, and how people will want to employ them because they 'are powerful' (Smith, 1998: 192-196). Interestingly, both prior to and at much the same time as Smith was publishing his own work, the relationship between neuroscience, psychology and education and the relative merits of merging findings from within each field was being investigated pretty thoroughly elsewhere (e.g. Gregorc, 1982; Byrnes and Fox, 1998; O'Boyle and Gill, 1998), with signs of disquiet about brain-based learning as a whole coming to light:

Brain science fascinates teachers and educators, just as much as it fascinates all of us. When I speak to teachers about applications of cognitive science in the classroom, there is always a question or two about the right brain vs the left brain and the promise of brain-based curricula. I answer that these ideas have been around for a decade, are often based on misconceptions and overgeneralisations of

what we know about the brain, and have too little to offer to educators. (Bruer, 1997: 4)

The emergence of brain-based learning in education later prompted further response:

We agree with Bruer that misinterpretations of the science are problematic, perhaps even potentially dangerous, and certainly counterproductive for informed consideration of educational issues. Recent appeals based on misinterpretations of laterality studies for teachers to educate half the brain of their pupils (usually the right half) should be too ridiculous to flatter with serious consideration, save that they appear with increasing frequency in populist, if not mainstream literature. (Geake and Cooper, 2003:12-13)

While neuroscience, psychology and education are now at a point where collaboration between fields might be a profitable enterprise, it would still seem far too early to draw any sensible conclusions about how outcomes in one field might influence another or lead to practical suggestions for teaching. The problem for Smith is that he falls into the trap of interpreting and applying neuroscientific information out of context in a little far fetched and fanciful way. Neuroscientific facts, the limitations of which he does draw attention to, are given far greater educational relevance and significance than they should have. The notion that different hemispheres of the brain carry out different functions, for example, is well known in the neurosciences. But these findings were obtained using highly specialised neuro-imaging techniques in tightly focused, strictly controlled and rigorously conducted experiments in laboratories not classrooms or communities. In 'normal' brains, substantial cross-hemisphere connections exist with both hemispheres working together in every cognitive task so far explored (Goswami, 2004). Even when neuroscientists and teachers appear to ask similar questions and explore similar aspects of learning, they do so in very different ways and at very different levels of abstraction. All of this perhaps explains why, to the very best of our knowledge, independently verified quasi-experimental and longitudinal studies producing conclusive evidence pointing unequivocally to such a close relationship between brain-based learning and children's academic performance at primary school do not exist.

Smith on Smith

Smith provides teachers with very real and appropriate strategies and activities which they can apply in their own classrooms. His work, however, is not beyond criticism, and for very good reason as we have tried to demonstrate. But you do not have to believe us or take our word for it, Smith himself appears to agree. In the 2002 reprint of Smith (1996), he himself presents his reader with a highly laudable and honestly expressed 'retraction' on at least some of the issues:

I wrote Accelerated Learning in the Classroom quickly in the summer of 1995. ... I now know I cannot go back there again despite wanting to. I would like to start from scratch. If I was to write about Accelerated Learning in the Classroom again, I'd do it differently. ... When I read the book now, I think it has a great deal of practical ideas to offer, I think the accelerated learning cycle is sound and the text alludes to a number of questions which have since become the focus of critical attention here in the UK. I also think that the references to the brain and to human intelligence in the book have more metaphorical than literal worth and this is especially so for classroom teachers. In truth, brain research does not validate any learning

approach, nor does it say that 'one must do this' and 'avoid doing this'. ... With hindsight I would change the interpretation of brain research in this book to be less conclusive and more open to question. ... For those of you who are intrigued by references in Accelerated Learning in the Classroom to brain development and to the study of the human brain I recommend looking at The Brain's Behind It [2002]. Dissatisfaction with some aspects of Accelerated Learning in the Classroom prompted me to write it. ... [The book] has had an influence which was way beyond its author's original intent. It has forced its author into updating and revising his thinking again and again. (4,5)

And Smith's *'The Brain's Behind It'* (2002) really is quite good. But does it matter if Smith's work was rushed and perhaps flawed? As we have already indicated, there is much in Smith's work in terms of strategies and activities to commend it. Indeed, strip away the layers of pseudoscience, psychobabble and neurononsense, and see through the other distractions, and what you have left is an attractive, practitioner-based model of very real importance. But this is a model of *teaching*, not a model of *learning*, and a model of teaching which *can* be rigorously and empirically tested, without the need for VAK, accelerated and brain-based learning and multiple intelligences at all. And rigorously tested it must be if we are ever to see anything of its impact beyond a few anecdotal outcomes. More importantly, however, teaching is a serious profession. Teachers have a responsibility to ensure that whatever models, instruments, strategies and activities they adopt and use are credible and effective. We do not expect them to carry around in their heads the unsubstantiated claims, misconceptions and half-truths of those they turn to for advice on current educational developments. For introducing teachers to VAK with little regard to any of the many issues of importance raised here there are no excuses. We know that Smith did not expect his work to have such an influence at the chalk face, he himself has said so, but it has and now these issues must be addressed.

Summary and conclusions

In this brief position paper we have tried to indicate that VAK, together with many of the ideas surrounding and underpinning it, is an educational minefield. As our own teacher survey demonstrated, learning styles as VAK is popular in many primary schools and it is easy to see why. From this hopefully revealing consideration of VAK from within Smith's ALPS, one of an apparently ever growing number of VAK sources, we are drawn to take the position that this is perhaps an over-rated phenomenon, one offering no diagnostic or pedagogical power whatsoever, and one with no independently verifiable claim to validity and reliability. It is our current belief that many advocates of VAK provide its converts with little more than a statement of the obvious, that children learn through their senses, that environment and motivation are important, and that the human brain is pretty well adapted to processing the information from everything that they see, hear and do. Good teachers know this already and don't need a gimmick to remind them. If VAK is ever to be taken seriously and generalised at anything more than a personal and intuitive level, it clearly has some way to go. As an evidence-based profession which prides itself on critical analysis and reflection, we are genuinely concerned at the apparent readiness with which learning styles as VAK has been adopted by some schools and the extent to which VAK has already begun to inform planning and teaching. VAK is no 'short-cut', 'quick-fix' or 'magic bullet'.

References

- Byrnes, J.P. and Fox, N.A. (1998) The educational relevance of research in cognitive neuroscience. *Educational Psychology Review*, 10(3), 297-341.
- Bruer, J.T. (1997) Education and the brain: a bridge too far. *Educational Researcher*, 26(8), 4-16.
- Cassidy, S. (2004) Learning styles: an overview of theories, models and measures. *Educational Psychology*, 24(4), 419-444.
- Coffield, F., Moseley, D., Hall, E. and Ecclestone, K. (2004) *Should we be using learning styles? What research has to say to practice*. Learning and Skills Research Centre. Trowbridge: Cromwell Press.
- Curry, L. (1990) A critique of the research on learning styles. *Educational Leadership*, 48(2), 50-56.
- De Bello, T.C. (1990) Comparison of eleven major learning style models: variables, appropriate populations, validity of instrumentation, and the research behind them. *International Journal of Reading, Writing and Learning Disabilities*, 6, 203-222.
- Dennison, P.E. and Dennison, G.E. (1989) *Brain gym: teacher's edition*. Ventura: Educational Kinesiology Foundation.
- Dunn, K., Dunn, R. and Price, G.E. (1975-1997) *Learning styles inventory*. Lawrence: Price Systems.
- Entwistle, N. (1981) *Styles of learning and teaching: an integrated outline of educational psychology for students, teachers and lecturers*. Chichester: Wiley.
- Gardner, H. (1983) *Frames of mind: the theory of multiple intelligences*. New York: Basic Books.
- Gardner, H. (1993) *Multiple intelligences: the theory in practice*. New York: Basic Books.
- Gardner, H. (1995) *The unschooled mind: how children think and how Schools should teach*. New York: Basic Books.
- Gardner, H. (1999) *Intelligences reframed: Multiple Intelligences for the 21st century*. New York: Basic Books.
- Geake, J. and Cooper, P. (2003) Cognitive neuroscience: implications for education? *Westminster Studies in Education*, 26(1), 7-20.
- Goswami, U. (2004) Neuroscience and education. *British Journal of Educational Psychology*, 74, 1-14.
- Gregorc, A.F. (1982) Learning style/brain research: harbinger of an emerging psychology. In: J.W. Keefe (ed.) *Student learning styles and behaviour*. Reston: National Association of Secondary School Principals.
- Keefe, J.W. (1982) Assessing student learning styles: an overview. In: J.W. Keefe (ed.) *Student learning styles and behaviour*. Reston: National Association of Secondary School Principals.
- O'Boyle, M.W. and Gill, H.S. (1998) On the relevance of research findings in cognitive neuroscience to educational practice. *Educational Psychology Review*, 10(4), 397-409.
- O'Connor, J. and Seymour, J. (2003) *Introducing NLP neuro-linguistic programming*. London: HarperCollins.

- Pask, G. (1976) Styles and strategies of learning. *British Journal of Educational Psychology*, 46, 128-148.
- Perks, D. (2004) The shattered mirror: a critique of Multiple Intelligences. In: D. Hayes (ed.) *The RoutledgeFalmer guide to key debates in education*. London: RoutledgeFalmer.
- Riding, R. and Raynor, S. (1998) *Cognitive styles and learning strategies: understanding style differences in learning and behaviour*. London: Fulton.
- Smith, A. (1996) *Accelerated learning in the classroom*. Stafford: Network Educational Press.
- Smith, A. (1998) *Accelerated learning in practice: brain-based methods for accelerating motivation and achievement*. Stafford: Network Educational Press.
- Smith, A. (2002) *The brain's behind it: new knowledge about the brain and learning*. Stafford: Network Educational Press.
- Smith, A. and Call, N. (1999) *The alps approach: accelerated learning in primary schools*. Stafford: Network Educational Press.
- Smith, A. and Call, N. (2001) *The alps approach resource book*. Stafford: Network Educational Press.
- White, J. (2004) *Howard Gardner: the myth of Multiple Intelligences*. Lecture at the Institute of Education, University of London, November 17, 2004. Available at: http://k1.ioe.ac.uk/schools/mst/LTU/phil/HowardGardner_171104.pdf.

Acknowledgement

A significantly extended and enhanced version of this article, originally presented as a paper at the second annual conference of the British Education Studies Association (BESA) in 2006, will appear soon in the journal *Research papers in Education*.