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Learning styles

It is apparent to many of those who have considered learning, even if only in passing, that we learn in different ways from each other and we often choose to use what has become known as a 'preferred learning style'. The literature on the subject is vast and a full review of what has been written would take in many other related areas which deal with the same, or at least very similar and very closely related, ideas. Cognitive style, for example, is an area of psychology which investigates the preferred style of thinking and problem-solving an individual may have. The term 'learning preferences' is also widely used to refer to what we shall here refer to as 'learning style'.

The literature provides many useful definitions of learning styles and related ideas which we could consider. To look briefly at one or two will act as a useful starting point.

Learning style is defined variously as:

- a particular way in which an individual learns;
- a mode of learning – an individual's preferred or best manner(s) in which to think, process information and demonstrate learning;
- an individual's preferred means of acquiring knowledge and skills;
- habits, strategies, or regular mental behaviours concerning learning, particularly deliberate educational learning, that an individual displays.

Cognitive style is also defined in a range of different ways, as:

- a certain approach to problem-solving, based on intellectual schemes of thought;
- individual characteristics of cognitive processing which are peculiar to a particular individual;
- a person's typical approach to learning activities and problem-solving;
- strategies, or regular mental behaviours, habitually applied by an individual to problem-solving.

As we can see, there are many overlapping features contained within these definitions.

So, a learning style is a preferred way of learning and studying; for example, using pictures instead of text; working in groups as opposed to working alone; or learning in a structured

rather than an unstructured manner. Learning preferences refer to an individual's preferred intellectual approach to learning, which has an important bearing on how learning proceeds for each individual, especially when considered in conjunction with what teachers expect from learners in the classroom. This idea will be explored later.

The term 'learning preferences' has been used to refer to the conditions, encompassing environmental, emotional, sociological and physical conditions, that an individual learner would choose, if they were in a position to make a choice (Dunn *et al.* 1989). Choice is another slant on the notion of preferred learning styles which has a bearing on how learning progresses. This is, perhaps, more to do with the more general area of cognitive preferences, but is still important in this context.

If a particular approach to learning is encouraged by a teacher, there is a possibility that some pupils will work and learn less effectively than others in the class. For this reason, an awareness of learning styles is important for teachers. Learning style awareness should make an impact on pedagogy – the ways in which teachers choose to teach – and should help teachers to a better understanding of the needs of learners, as well as to an awareness of the need to differentiate materials, not only by level of difficulty but also by learning style.

The literature dealing with learning styles has something else to say which should be of interest to teachers. It is suggested that learners who are actively engaged in the learning process will be more likely to achieve success (Dewar 1996; Hartman 1995; Leadership Project 1995). Once learners become actively engaged in their own learning process, they develop a sense of being in control. This has been shown to improve self-esteem and motivation. A learner's awareness of learning preference and an understanding of the learning process, as well as metacognitive engagement, can lead to improved learning outcomes.

Learning styles

What becomes very clear as we think closely about different learners who are known to us is that they do not all learn in the same way. Each individual will adopt an approach to learning with which they are most comfortable and in doing so leave behind the approaches with which they are less comfortable. It is helpful for learners if they are aware of their own particular learning preferences in order that they can use an appropriate learning style to suit the particular learning that is being undertaken, and take opportunities to improve their potential for learning when faced with a learning activity that might steer them towards one of their 'weaker' – or at least one of their less favoured – styles.

Learning styles are not fixed traits which an individual will always display. Learners are able to adopt different styles in different contexts. For most of us, one or two styles are preferred above the others. Honey and Mumford (1986) suggest that we need to be able to adopt one of four different styles in order to complete any given learning task satisfactorily. An inability or reluctance to adopt any particular style has the potential to hamper our ability to learn effectively.

The four styles described in the Honey-Mumford Model are:

- activists
- reflectors
- theorists
- pragmatists.

Activists prefer to learn by doing rather than, for example, by reading or listening. They thrive on novelty, and will ‘give anything a try’. They like to immerse themselves in a wide range of experiences and activities and like to work in groups so that ideas can be shared and ideas tested. They like to get on with things, so they are not interested in planning. Activists are bored by repetition, and are most often open-minded and enthusiastic.

Reflectors stand back and observe. They like to collect as much information as possible before making any decisions; they are always keen to ‘look before they leap’. They prefer to look at the big picture, including previous experiences and the perspectives of others. The strength of reflectors is their painstaking data collection and its subsequent analysis, which will take place before any conclusion is reached. Reflectors are slow to make up their minds, but when they do, their decisions are based on sound consideration of both their own knowledge and opinions, and on what they have taken in when watching and listening to the thoughts and ideas of others.

Theorists like to adapt and integrate all of their observations into frameworks, so that they are able to see how one observation is related to other observations. Theorists work towards adding new learning into existing frameworks by questioning and assessing the possible ways that new information might fit into their existing frameworks of understanding. They have tidy and well-organised minds. They sometimes cannot relax until they get to the bottom of the situation in question and are able to explain their observations in basic terms. Theorists are uncomfortable with anything subjective or ambiguous. Theorists are usually sound in their approach to problem-solving, taking a logical, one-step-at-a-time approach.

Pragmatists are keen to seek out and make use of new ideas. Pragmatists look for the practical implications of any new ideas or theories before making a judgement on their value. They will take the view that if something works, all is well and good, but if it does not work, there is little point in spending time on the analysis of its failure. A strength of pragmatists is that they are confident in their use of new ideas and will incorporate them into their thinking. Pragmatists are most at home in problem-solving situations.

These four dimensions can be used as a way of classifying learners. The four basic types of learner, as characterised by preference for active, reflective, theoretical or practical learning, are clearly different one from the other, but most learners are not extreme examples of just one preference. Most people have characteristics of all four dimensions. Honey and Mumford devised a learning style inventory, designed to help individuals to find out which predominant type of learner they might be. Completing the inventory involves answering ‘yes’ or ‘no’ to 80 statements, 20 of which are related to each of the four types. The scores are then added up, plotted along the axes of a chart, and joined up to produce a kite shape of the type shown in

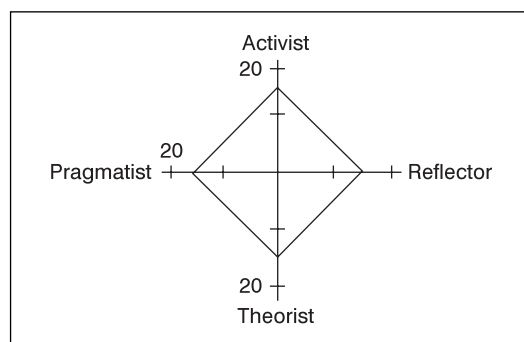


Figure 5.1 A typical Honey and Mumford 'kite'

Figure 5.1. The pattern in this diagram shows a typical pattern for a mature learner who can adopt any of the four learning styles when appropriate.

The next description of learning styles comes from a different, but obviously related, area of human research, namely Neuro-Linguistic Programming (NLP). Neuro-Linguistic Programming is concerned with how we communicate and how this affects our learning. Over many years, and through many research projects, including close and detailed observation of the way we communicate, three particular learning styles – visual, auditory and kinaesthetic – have been identified.

Visual learners

Visual learners prefer to learn by seeing. They have good visual recall and prefer information to be presented visually, in the form of diagrams, graphs, maps, posters and displays, for example. They often use hand movements when describing or recalling events or objects and have a tendency to look upwards when thinking or recalling information.

Auditory learners

Auditory learners prefer to learn by listening. They have good auditory memory and benefit from discussion, lectures, interviewing, hearing stories and audio tapes, for example. They like sequence, repetition and summary, and when recalling memories tend to tilt their head and use level eye movements.

Kinaesthetic learners

Kinaesthetic learners prefer to learn by doing. They are good at recalling events and associate feelings or physical experiences with memory. They enjoy physical activity, field trips, manipulating objects and other practical, first-hand experience. They often find it difficult to keep still and need regular breaks in classroom activities.

While we all use all three styles of learning to some extent, some learners rely heavily on one of them. An over-reliance on one style, and an inability or unwillingness to adopt another style where it might be appropriate, can be limiting in some learning situations and can mean that learning might be hindered.

An extension of the NLP description of learning styles has been developed by Fleming (2001). Fleming tells us that when we gather information from the world around us, which includes the information that we need for learning, we make use of all of our senses. Some of us, though, employ one sense more than others. The V-A-R-K system assesses how much people rely on:

- visual
- auditory
- reading
- kinaesthetic.

The Myers-Briggs Type Indicator (MBTI) system is a means of establishing an individual's personality profile and is used widely in aptitude testing for employment. Designed as a tool for investigating the many different strands of personality type, the MBTI also has something for teachers to be aware of. The MBTI describes four personality types which can be interpreted along the lines of some of the other learning style descriptions.

The Myers-Briggs Model (Briggs and Myers 1975; or Briggs *et al.* 1980, for example) classifies individuals according to their preferences on scales derived from the theories of psychological types developed by Carl Jung. According to the model, learners may be:

- *extroverts* – who are happy to try things out and who focus on the world of people;
- *introverts* – who are more likely to think things through and to focus on the world of ideas;
- *sensors* – who tend to be practical, detail-oriented, and who focus on facts and procedures;
- *intuitors* – who are imaginative, concept-oriented and focus on meaning;
- *thinkers* – who are sceptical, and make decisions based on logic and rules;
- *feelers* – who are appreciative and tend to make decisions based on personal and more humanistic considerations;
- *judgers* – who set and follow agendas, and seek closure and completeness even without having the full picture; or
- *perceivers* – who adapt to changing circumstances and will defer completion until more is known.

The Myers-Briggs Type Indicator type preferences can be combined to give 16 different learning style types. For example, one learner may be an E-S-T-P (extrovert, sensor, thinker, perceiver) and another may be an I-N-F-J (introvert, intuitor, feeler, judger). Across all 16 types, there is a wide range of different types of learner, all of which can be found, in different proportions, in our classrooms. One element of the Myers-Briggs work that has become more commonly used is the introvert–extrovert continuum. This is perhaps a result of the Myers-Briggs types being based on Jung’s work. Jung’s main focus and subsequent work on personality types was on the introvert–extrovert dimension. The notion of an introvert or an extrovert has become widely understood outside the world of education or spheres of psychological study. The other dimensions have not.

According to the descriptions set out by the Myers-Briggs work, the following attributes and strengths relate to each of the different types defined.

Extrovert learners

Extrovert learners like to:

- talk to understand new information and ideas;
- work in groups;
- try something first and think about it later;
- see the results from a project;
- see examples of how other people are doing the work.

Strengths

Extroverts learn best when they can work with a friend and learn by trying something themselves instead of watching or listening to others. When they have difficulty with understanding, they benefit by talking about their ideas with others.

Introvert learners

Introvert learners like to:

- study alone;
- listen to others talk and think about information privately;
- think about something first and try it later;
- listen, observe, write and read;
- take time to complete assignments.

Strengths

Introverts learn best when they can find quiet places to work and have enough time to reflect on, redraft and improve their work. Introverts often like to make connections between school work and their personal interests.

Sensing learners

Sensing learners:

- like clear goals;
- are careful and pay attention to details;
- like taking one step at a time;
- have a good memory for facts;
- pay more attention to practical tasks and ideas.

Strengths

Sensing learners learn best when they can ask their teacher to explain exactly what is expected and when they can focus on skills and tasks that are important in their lives. They like to use computers, watch films or find other ways to see, hear and touch what they are learning.

Intuitive learners

Intuitive learners:

- like reading and listening;
- like problems that require the use of imagination;
- like variety;
- are more interested in big ideas than in little details;
- like starting on new projects rather than finishing existing ones.

Strengths

Intuitive learners learn best when they can find ways to be imaginative and creative in school. They prefer to follow their instincts and understand the big picture before they begin school tasks.

Thinking learners

Thinking learners:

- want to be treated fairly;
- like teachers who are organised;
- want to feel a sense of achievement and skill;
- use clear thinking to work out problems;
- like clear and logical direction.

Strengths

Thinking learners learn best when they have limited time to do their work and are able to put information in a logical order that makes sense to them. They succeed when they can focus on what they already know in order to make connections to new information.

Feeling learners

Feeling learners:

- like to have a friendly relationship with teachers;
- learn by helping others;
- need to get along with other people;
- like to work with groups;
- like tasks with which they have a personal connection.

Strengths

Feeling learners learn best when they can work with a friend, find opportunities to choose topics they care about and help others.

Judging learners

Judging learners:

- like to have a plan and stick to it;
- work in a steady, orderly way;
- like to finish projects;

- take school seriously;
- like to know exactly what is expected of them.

Strengths

Judging learners learn best when they have short-term goals, when they are able to make a plan of action and find out from the teacher exactly what is expected.

Perceiving learners

Perceiving learners:

- are open to new experiences in learning;
- like to make choices;
- are flexible;
- work best when work is fun;
- like to discover new information.

Strengths

Perceiving learners learn best when they find new ways to do routine tasks in order to generate interest and to discover new information and ideas.

They prefer being involved in projects that are open-ended without definite cut-off points and deadlines.

Studies show that many teachers are of the intuitive type, preferring abstract and theoretical ideas. This learning style preference is often reflected in how they plan for learning in their classrooms. The needs of their pupils, who will have a range of different learning types, are often neglected. We will return to this notion later.

Yet another description of learning style is found in Kolb's Learning Style Model, which classifies individuals over two continuous dimensions as having a preference for:

- 1 The *concrete experience* mode or the *abstract conceptualisation* mode (the dimension concerning how the learner takes in information).
- 2 The *active experimentation* mode or the *reflective observation* mode (the dimension concerning how the learner internalises information).

Kolb describes four general learning types based on the two dimensions, as follows:

- *Type 1: Diverger (concrete, reflective)*. Type 1 learners often use the question 'Why?' and they respond well to explanations of how new material relates to their experience and interests.

Diverging learners prefer to learn by observation, brainstorming and gathering information. They are imaginative and sensitive.

- *Type 2: Assimilator (abstract, reflective).* Type 2 learners often use the question ‘What?’ and respond well to information presented in an organised, logical fashion. They benefit if they are given time for reflection. Assimilating learners prefer to learn by putting information in concise logical order and using reflective observation.
- *Type 3: Converger (abstract, active).* Type 3 learners often use the question ‘How?’ and respond to having opportunities to work actively on well-defined tasks. They learn by trial and error in an environment that allows them to fail safely. Converging learners like to learn by solving problems and doing technical tasks, and are good at finding practical uses for ideas.
- *Type 4: Accommodator (concrete, active).* Type 4 learners often use the question ‘What if?’ and respond well when they are able to apply new material in problem-solving situations. Accommodating learners are people-oriented, hands-on learners and rely on feelings rather than logic.

Figure 5.2 gives a pictorial explanation of the way that the dimensions interact to give the four learning types. Kolb says that, while almost every individual makes use of all learning modes to some extent, each person has a preferred learning style.

The Felder-Silverman Learning Style Model is another system for describing learning style. It has many similarities with the other systems and classifies learners as:

- sensing learners who prefer the concrete, are practical, and are oriented toward facts and procedures; or intuitive learners who prefer the conceptual, are innovative, and oriented towards theories and meanings;

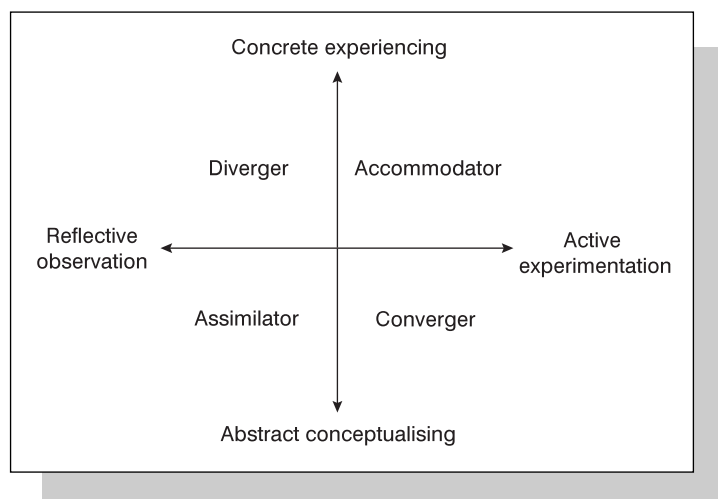


Figure 5.2 Kolb's dimensions

- visual learners who prefer visual representations of material – pictures, diagrams, flow charts; or verbal learners who prefer written and spoken explanations;
- inductive learners who prefer to consider topics by moving from the specific to the general; or deductive learners who prefer to consider topics by moving from the general to the specific;
- active learners who learn by trying things out and working with others; or reflective learners who learn by thinking things through and working alone;
- sequential learners who prefer to work in a linear, orderly fashion and prefer to learn in small incremental steps; or global learners who prefer to take a holistic view and learn by taking large steps forward.

Learning styles and multiple intelligences

Gardner and Hatch conclude that it may be worthwhile for teachers to ‘detect the distinctive human strengths and use them as a basis for engagement and learning’ (Gardner and Hatch 1990). They describe this process, unsurprisingly, in terms of multiple intelligences, which we have considered in the previous chapter, and in doing so, demonstrate the many overlaps between multiple intelligence theory and the area of study on which this chapter focuses, namely learning styles.

If we look in turn, in Table 5.1, at each of the intelligences and consider the way in which those learners with particular strengths in the area in question might best learn, we can devise a set of ideas which could be of practical use in the planning of learning activities.

There was a great deal of research carried out in the later part of the twentieth century (Dunn *et al.* 1982; Dunn *et al.* 1986; Lemmon 1985; MacMurren 1985) concerned with identifying the relationship between academic achievement and individual learning style. The research has fairly consistent support for the following ideas:

- Pupils do learn in different ways to each other.
- Pupil performance in different subject areas is related to how individuals learn.
- When pupils are taught with approaches and resources that complement their particular learning styles, their achievement is significantly increased.

The third of these points has importance for teachers if they are to develop approaches to teaching all pupils that will ensure that the greatest number of learners in their classes benefit from their teaching. Another interesting but, in the light of what has gone before, possibly quite obvious pointer from research is that children are far more likely to complete their homework if ‘its design takes into consideration students’ learning styles and study habits’ (Dunn *et al.* 1989).

By learning about the learning style preferences of learners, teachers put themselves in a far stronger position when they come to the task of planning learning approaches and classroom activities that are most likely to take advantage of pupils’ individual learning styles, which will in turn help them to achieve their learning goals.

TABLE 5.1 Learning activity preferences for the different intelligences

Intelligence	Preferences
Linguistic/verbal learner: intelligence related to language and to the written and spoken word	Likes to: read, write and tell stories, work with riddles. Is good at: using descriptive language, memorising places, dates and trivia. Learns best by: saying, hearing and seeing words.
Logical/mathematical learner: intelligence related to reasoning, numbers, abstractions and patterns	Likes to: do experiments, work things out, work with numbers, ask questions and explore patterns and relationships. Is good at: maths, reasoning, logic and problem-solving, working from concrete to abstract. Learns best by: categorising, classifying and working with abstract patterns and relationships.
Spatial/visual learner: intelligence related to anything visual and the creation of mental images	Likes to: draw, build, design and create things, daydream, look at pictures and slides, watch films and play with machines. Is good at: imagining things, sensing changes, mazes and puzzles, and reading maps and charts. Learns best by: visualising, dreaming, using the 'mind's eye' and working with pictures.
Bodily/kinaesthetic learner: intelligence related to physical movement and actions located in the brain's motor cortex (where movement is controlled)	Likes to: move around, touch, 'tinker', talk, use body language and perform. Is good at: physical activities and crafts. Learns best by: touching, moving, interacting with space and processing knowledge through bodily sensations.
Musical learner: intelligence related to sounds and auditory patterns, to rhythm, beat and tempo	Likes to: play musical instruments, sing, drum. Likes the sound of the human voice. Is good at: listening, inventing tunes, keeping time (tempo), discriminating between different sounds. Learns best by: listening, especially if things are set to music or are rhythmical.
Interpersonal learner: intelligence related to relationships with others and various means of communication	Likes to: have lots of friends, talk to people, solve problems and join groups. Is good at: understanding other people's feelings, leading others, organising and communicating. Learns best by: sharing, comparing, relating and talking.

TABLE 5.1 Continued

Intelligence	Preferences
Intrapersonal learner: intelligence related to self-reflection and self-awareness	Likes to: work alone and pursue own interests, daydream. Is good at: understanding self, focusing inwards on feelings and dreams, following instincts, pursuing interests/goals and being original. Learns best by: working alone, individualised projects, self-paced instruction and having own space.
Naturalistic learner: intelligence related to observation and awareness of the natural world and the patterns to be found there	Likes to: work outdoors, or at least close to the natural environment. Is good at: collecting and classifying, identifying natural artefacts. Learns best by: working outdoors, relating classroom ideas and activities to the natural world.

Problems can arise for teachers who try to explain things in a way that they consider everyone can understand, when some of their pupils have difficulty in making sense of what they are being taught. From what we have seen, a pupil of a different temperament, whose mind is set in a different way from his or her teacher's – in short, with different learning style – is likely to have the greatest difficulty.

It is highly likely to be of great value if both teachers and pupils can have awareness of the potential problems that differences in learning style and preference may lead to. That is, they should (in particular the teacher should) be fully aware that we all learn in different ways, behave in different ways and go about our lives in different ways. We do not have to lose consideration for other people by encouraging differences. Parents too can benefit from knowledge of these differences, as it can impact on the approaches they might take when supporting their children's school work at home.

From the point of view of the teacher then, the important point about learning styles is not to be concerned with how many styles are listed, nor how they might be labelled, but to raise awareness in both teacher and learner that everyone is likely to learn in a different way, and that different learning styles present needs which must be met if teaching is to be effective and learning to take place.

According to Bandler and Grinder (1979), 70 per cent of learners will be able to cope however a lesson is presented; 10 per cent will be unable to learn whatever method is employed, for reasons largely unrelated to learning style; but the remainder will only be able to learn in a visual, auditory or kinaesthetic way. It should perhaps be the view of teachers that 70 per cent is not enough and that some action needs to be taken in order to increase this figure.

What should we do about this?

One view on the question of what to do with what we have learnt about individual learning styles is summed up by a set of notes found in the psychology department website at Glasgow University:

Should teachers adapt to learners, or learners to teachers? The answer is 'both'; and the concept to think of is that of learning communities. All (institutional) learning can be thought of from a wholly social perspective, as one of the learner joining a community, and becoming enculturated. From that point of view, the learner needs to do the adapting, and the more they do so, the more they gain access to that subculture and its knowledge.

The complementary viewpoint is that teachers should adapt, not so much to individuals, as to the broadest audience possible; to make their material accessible to the most people. (Draper 2004)

So, from this perspective, the onus is on both teacher and learner. However, since it is the prime role of a teacher to facilitate and encourage learning in all of their pupils, it is fairly clear that the real responsibility to accommodate lies with the teacher. Naturally though, some accommodating is also required on the part of the learner.

What is perhaps needed is an approach that is sometimes referred to as 'teaching to all types'. This is not always as straightforward as some would have us believe, of course. An example of how to teach to all types, which can also be described as 'appealing to a wide range of learning styles', based on, for example, the Felder-Silverman Model, might look something like this:

- For the sensing/intuitive continuum: balance concrete information, such as facts and experimental results, with conceptual information like theories and models and ideas.
- For the visual/verbal continuum: make use of graphs, diagrams, pictures and demonstrations as well as spoken and written explanations of the same information; learners can make a choice of which resources to use.
- For the inductive/deductive continuum: ask pupils to reason and attempt to explain a general principle given only experimental observations to work with, as well as exploring principles based on their component parts.
- For the active/reflective continuum: provide time for pupils to consider the material presented, possibly individually, as well as time for active participation in group work.
- For the sequential/global learner: be sure to highlight the logical flow of material but also make connections to other lessons, topics and everyday experiences. Encourage both logical, linear thought patterns and the wider, sometimes referred to as 'lateral', patterns of thought.

There are other, similar sets of instructions which have been prepared for teachers to consider when making plans for learning. The lists refer to learning preferences and suggest particular activities which are likely to satisfy all of, or at least as many of the different preferences that are likely to be encountered. Indeed, Table 5.1 sets out the particular approaches which are likely to be favoured by, and therefore successful with, learners having different preferences and strengths.

We should perhaps bear in mind, however, that the educational system in most countries, and particularly in the developed world, rewards and even requires learning and, in particular, successful learning outcomes in terms of examination passes, to be approached through language

– more specifically, written language. This has ramifications for what goes on in classrooms. While teachers have a view to providing appropriate learning activities for a range of different learning styles, they must also have a clear grip on the fact that success in our current educational climate depends heavily upon reading and writing.

Identifying learning styles

We have seen that it is helpful for teachers to consider the learning styles of their pupils and for them to incorporate what they discover into their approach to planning – at an individual level sometimes. There are formal tests and quizzes designed to identify learning styles and some schools make use of them. There are some examples available online and a simple search will unearth them. Naturally, each learning style ‘quiz’ or inventory will be designed to categorise learners according to the theoretical position on learning styles taken by its creators. It is possible to find formal ways of identifying learning styles to suit the preferred descriptions of learning styles available, some of which we have considered earlier. There are also similar tests or quizzes available to help in the identification of multiple intelligence strengths and preferences. Some schools or individual teachers like to encourage their pupils to consider their particular learning styles and some of the online quizzes are helpful at this level.

In some cases, teachers do not want to go as far as formally examining the learning styles of a class, but would still like insight into an individual’s style in order to be able to understand better how they are likely to function in learning situations. It appears that, at a simple level, it is possible to pick up on some visual cues which give an idea of an individual’s style. Put simply, and as we saw earlier, visual learners tend to look up (for a mental picture perhaps), auditory learners tend to look to the side and kinaesthetic learners tend to look down. The reasons for this are not given in any of the easily available sources, but it does seem, as a rule of thumb, to be useful.

There is a possible drawback to helping children to identify their particular learning style: if a child is given a particular learning style label, it is possible that they will centre their learning on this one approach to learning and even refuse to work in other modes. This would be undesirable. When introducing the idea of learning styles to children, it is probably helpful to stress the importance of being able to work and learn in different ways at different times and for different purposes. A case – even a strong case – for encouraging children to develop ways of learning that do not come easily to them can be made.

Summary

Individual learners have preferred ways of working, thinking and learning. If an individual’s preferred approach to learning tasks is ignored in the ways that a teacher expects them to work, there is a distinct possibility that their learning will not progress as efficiently and effectively as it might.

Descriptions of learning styles are plentiful and some are complex. One description commonly used to help teachers understand differences in a practical and immediate way is the 'visual/auditory/kinaesthetic'. It is likely that one-third of any given class will have a preference for learning which is undertaken in one of these divisions. This means that teachers should be aware of and take into account the fact that some of their pupils will find it difficult to make headway with their learning if at least some of it is not presented in an appropriate format for them.

It is very important that opportunities are given to learners of all types to take part fully in the planned learning activities in classrooms and that they should have full access to the curriculum, whatever their learning style preference might be.

In the classroom

In some ways, the suggestions that might be added at the end of this chapter are very similar to those at the end of the previous chapter, 'Multiple Intelligences'. We have discussed the links between multiple intelligences and learning styles, and it is reasonable to repeat the points from Chapter 4 here:

- Be aware that individuals have different strengths and are likely to perform very differently according to the nature of the style of the tasks with which they are presented.
- Give opportunities for learning in a range of different ways; sitting and listening may suit some children, but others will find this particularly difficult; conversely others will not respond well to individual work. Be flexible in teaching approaches.
- Give opportunities for learners to respond in a range of different ways; writing prose responses is not the only way to record events; indeed there are many ways other than writing that new learning can be dealt with.
- Be prepared to reward responses to work that do not necessarily conform to the traditional expectation of 'school work'.
- Help learners realise that there is more than one way to approach and solve a learning problem, and that one approach is almost certainly as valid as another if it leads to the required outcome.