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Pupil and Teacher Response to Information about the Learning Styles of 9- to 11-Year-Old Pupils

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A British educational psychologist outlined her practice in an English local educational authority. Her main role was to promote inclusion and school improvement in a "patch" of primary and secondary schools. Most of her activities were focused on less advantaged schools, within time allocation formula calculated from needs testing (e.g., free school lunches). She also undertook a demonstration project with 9- to 11-year-olds in a primary school recognised for its positive nurturing ethos. This project sought to broaden pupil and teacher perceptions of pupil learning. A model lesson based on the "Mind-Friendly" visual, auditory, and kinaesthetic (VAC) approach to learning covered brain function, teacher style, and multiple dimensions of ability. The psychologist constructed a short 28-item tool to assess strengths and weakness across seven intelligences proposed by Gardner (1985), asked pupils to self-assess their learning style, and used distinct profiles as examples to show teachers how to accommodate different strengths in their lessons. Each teacher kept a diary of teacher and pupil behaviour during a 4-week period. Comparisons of teacher assessments and pupil self-assessments showed that teachers did not collect evidence of pupil abilities in less curriculum-orientated dimensions of intelligence. New information about pupil profiles lead teachers to change class groupings, adapt curriculum delivery, and incorporate pupil feedback into their weekly review sessions. This "multiple intelligence and learning style" perspective values individual strengths in instruction and assessment.

Psychological practice in UK schools

An educational psychologist (EP) in the United Kingdom currently meets a minimum 7-year training requirement. Initial training involves either a bachelor degree in psychology or a conversion of another discipline to meet the requirements for graduate membership of the British Psychological Society. Additional training comprises a postgraduate certificate in the practice of teaching, a minimum 2-year teaching experience (compared to Scotland, which does not require the teaching component), and a master's degree in educational psychology. A major national shortage of EPs has prompted a planned change to a 6-year training model culminating in a 3-year professional doctorate in educational psychology.

In the United Kingdom, there are several thousand educational psychologists (EPs), mostly employed by a Local Education Authority (LEA). Their work in schools is focused on promotion of social and educational inclusion through "best value" procedures that increase access to additional resources. They often work alongside

school advisors, specialist support teachers, and education welfare officers in an Inclusion and School Improvement Service.

Educational psychologists are a crucial part of much of the Government's thinking...in terms of multi-agency work and some of the inclusion work that is clearly laid out in the Green Paper, "Every Child Matters", and much of the ongoing work of the Department for Education and Skills. We are speaking of a small but important profession and the work that it does...as promoters of inclusion agenda and advocates for children's rights, free of statutory duties and be available to do more early intervention and prevention. (Hansard Debates for 8th June 2004, pt 32 & pt 33).

Each EP is assigned a "patch" or cluster of schools and preschools and additional roles and duties within the inclusion team. For example, the first author's patch as a 0.5 full-time permanent team member comprised one secondary school (11–19 years), five feeder primary schools (3–11 years), one small village primary school (4–11 years), one special school (3–19 years), and one nursery school (2.5–5 years). She was also the assigned EP to a child development centre for babies and children (0–5 years) and their families as part of multiprofessional team jointly funded by education, health, and social services.

Allocated EP time in schools was closely monitored. The amount of time given to each school was calculated on the basis of an "estimated child-at-risk factor" for each school. The number of children receiving free school meals and the number of children on a school's Special Needs Register, for example, were known to be part of the formula. The rest of the formula used in the LEA was "a bit of a mystery"; it was not transparent. Therefore, the LEA administration ignored pleas from EPs together with head teachers (principals), to include a poverty index. Consequently, pockets of poverty (e.g., from extensive parental drug abuse) in the LEA missed out on grants and projects such as "Sure Start." Inevitably, problems occurred because some primary schools got one EP visit in a year, meaning that no development work could be introduced and that extra time to work with a pupil with profound needs would require renegotiation of already allocated time.

As the Hansard debate portrayed, unmet need was accentuated by the increasing workload for EPs and was exacerbated by a serious shortage of qualified EPs.

The lack of available qualified educational psychologists has an impact on their work. Children often need to wait for assessment [, which] prevents the sort of therapeutic intervention that we would like to see at an early stage. Educational psychologists are spending less time with children. For an educational psychologist to see a child for a second time is a luxury, which is not what we want to see in a profession that provides ongoing support. (Hansard Debates for 8th June 2004, pt 32 & pt 33).

In order to create a "more preventive" situation in her patch of schools, this EP attempted to deal with whole school issues and even issues pertinent to the whole cluster of schools with respect to training. School-wide training would then free time to allocate to individual assessments. Additionally, she tried to ensure that, where relevant, individual casework also influenced systems work within and between schools.

The latest Code of Practice (CoP) for Special Educational Needs (SEN), incorporating the rights and duties outlined in the SEN and Disability Act 2001, became effective in January 2002. This document provided practical advice to LEAs, to

"maintained schools" (e.g., church-affiliated schools), to early education settings, and to other agencies including health and social services on carrying out statutory duties to identify, assess, and make provision for children's SEN. This code was aimed to help schools and their LEAs obtain the best value from the considerable resources and expertise that the education system invests in helping children with SEN (DfES, 2001).

It recommended a graduated response to a child's SEN through School Action and School Action Plus. Before a formal assessment would be approved, teachers in the educational setting were required to collect evidence, as outlined in the CoP. The EP usually perused this evidence during an allotted school session and also helped either to prioritise the children to be assessed or to recommend further evidence collection. The evidence was then sent to the LEA's SEN Officer. There usually followed a 6-month-long process towards Statutory Assessment and, finally, a Statement.

Protected research time

An EP's time was protected in different areas of work. In addition to school-based work, the EP's time was protected in relation to continuing professional development; training offered to schools, parents, other LEA officers, other professional agencies, and community services; service development (e.g., team meetings and focus groups); administration; LEA statutory work; and to research. The percentage of time per work area for an EP was plotted as sessions per working year. This scheme of recording, developed by a senior colleague, supported EPs in relation to time and stress management. It also helped to fairly apportion amongst team members "out of the blue" work (unexpected work requested by the LEA in response to parental or outside agency requests for statutory assessment of a child's special educational needs).

Allocated time for research, however, was always under extreme pressure. Psychologists often forfeited protected research time to cope with unexpected cases. The head teachers in this EP's patch were demanding more EP time. They were willing to pay for it out of their SEN budget. The problem was that there were no spare EPs. However, a program field-tested at a thriving school in the LEA made use of this protected time. This approach was based Thomson's (1996) premise that effective change is facilitated by focusing on interaction between the individual and the environment rather than by focusing on the individual.

Study guidelines

This field study involved a school in a high socioeconomic community. The head teacher in this school had established a stable learning and teaching environment manifested in above average student achievement on national indicators. The Mind Friendly Learning (MFL) approach was sponsored within the LEA and had already been introduced to the school staff. Thomsen (2002) has argued that teachers need to understand their own learning style in order to remember that their pupils also have learning preferences. This study used protected EP time to provide the school with a vehicle to introduce the Mind Friendly Learning (MFL) approach at pupil level.

The study met a number of best practice research criteria (Robson, 1993). First, it was developed from activity and involvement based on professional contacts with

researchers and practitioners who promoted MFL theories and techniques. Second, it involved convergence, in that other colleagues in the field inspired this study to provide evidence to support the MFL approach. Third, it showed intuition, in that it resonated with the high profile of the MFL approach encountered during visits to schools and during discussions with senior officers in the LEA. Fourth, it incorporated theory, because the study revisited the origins of MFL in separate strands of theories and practices in (a) multiple intelligences, (b) physiological precursors for learning (e.g., nutrition and water, kinaesiology, and motivation), and (c) accelerated learning. The MFL movement in the UK brought together these approaches. Fifth, the project had real world value because the target school had previously invested time and money in preparing staff and parents for the promotion of MFL. For example, the school used pupil free days to provide training, with Alistair Smith and Eva Hoffman, in MFL principles and practices to teachers and parents.

The project introduced pupils and their teachers to a variety of instruments that served to add a different dimension to learning and assessment processes. These tasks aimed to enhance teachers' understanding of the strengths and weaknesses of the children in their class. At the same time, they promoted the pupils' self-awareness of their strengths and weaknesses across a selection of potential abilities much broader than conventional school abilities. The tasks could also promote metacognitive activities in teachers and pupils by encouraging reflection and review of the learning process. These tasks might have potential for enhancing pupil self-esteem about ability to learn. The project also provided a medium to explore the value of "brain gym" activities (e.g., Rub a Dubs, in which the pupil rubs head and stomach in opposite directions and Cross Crawl, in which the pupil moves knees and elbows in an alternating pattern). These activities provided planned breaks at a time when pupils are still task-engaged, and they help to maintain pupil attention and interest, thus preventing loss of task interest and preempting off-task behaviour.

The purpose of the research, therefore, was to broaden the view of ability within a classroom. For the pupils, there were three aspects of the study. First, they were introduced to the concept of Multiple Intelligence (MI) and the principles behind VAK (Visual, Auditory, and Kinaesthetic) curriculum delivery and MFL. Second, the pupils were assisted to self-assess their own learning styles through an application of multiple intelligence theory. Third, the pupils were assisted to make a wheel-shaped representation of their individual learning profiles such that each pupil would have a useful reference tool when making choices about learning new skills or approaching new tasks (i.e., discovering how they learn best). For the teachers, the study was aimed to assist in their planning of VAK sessions and promotion of MFL.

The study was aimed to enhance existing practice and not to impose an extra burden on the school community. This proposal upheld the sentiments of Alistair Smith (2001), an engaging and entertaining UK educationalist, highly regarded for his ability to link learning theory to classroom practice, who stated, "Take what you do outstandingly well and add this to it!" Modern education systems are still failing an inordinate number of children, despite established practice in classroom management and curriculum delivery. Because the current value system, which pervades most educational settings, has

emphasised achievements in the traditional school subjects: literacy and numeracy, the broader picture of the child's strengths and weaknesses has been undervalued or at worst, neglected.

This study recognised a need to overhaul the traditional assessment system for children's learning and developmental levels. Little emphasis in education has been placed on assisting children to discover how they learn best. When Gardner (1983; Gardner, Kornhaber, & Wake, 1996) developed his theory of multiple intelligences, he was seeking to widen teachers' perspective on human intelligence beyond the confines of psychometrics and IQ scores. Thus, linguistic and logical-mathematical domains of a person's intelligence have been measured by psychometric IQ testing, which accurately predicts conventional academic achievements. Such assessment, however, has attended to only one portion of the child's functioning but has not considered or predicted a broader range of other social, professional, and practical achievements. In contrast, Gardner (1983) initially proposed that the mind is a collection of seven distinct intelligences. More recently, Gardner (1999) outlined an evolutionary picture of people developing various distinctive and separate types of capabilities in his latest definition of intelligence and incorporated two new intelligences (i.e., more abstract abilities in relation to natural and spiritual worlds) into his framework.

Accelerated learning

Smith (1996) defined accelerated learning as the attempt to enhance learning through the practical application of knowledge about (a) brain functioning, both conscious and unconscious, (b) how motivation works alongside self-esteem, and (c) ways to access a variety of intelligences and to maximise memory functions. "The best classroom practice does not assume that teaching and learning necessarily co-exist; it starts from the needs of the learner; it is differentiated and motivational and is fun, lively and engaging. As such it is accelerative because it allows the learner to fulfil his or her potential" (Smith, 1996, p. 9). The elements of accelerated learning need to be addressed if it is to operate successfully. Smith (1996) developed the acronym, NO LIMITS, to encapsulate these elements. This series of elements creates a learning cycle.

"Now the brain and how it works" involves an appreciation of how all three parts of the brain work.

"Openness and relaxation for optimum learning" recommends music to help create a sense of well-being in an environment where the learner feels safe, feels relaxed yet alert, feels secure enough to take risks with learning, and feels attuned to expectations regarding learning outcomes.

"Learn to capacity" introduces the learner to a challenging, stimulating environment in which high personal goals are set, teacher expectations are clearly communicated, and the classroom remains secure (i.e., frequent, appropriate, and immediate rewards).

"Input through VAK-Visual, Auditory, and Kinaesthetic" ensures that teachers develop a "tool-kit" for children with different learning styles in order to communicate with all learners.

"Multiple intelligence activities" allow teachers to adapt teaching beyond VAK to reach even more learners by identifying the unique array of multiple intelligences in each learner.

"Invest more through BASIS" asks the learner to value what they are being asked to learn and to have belief in their own ability to learn the task and be able to apply learning in meaningful contexts, in order to optimise learning. Because the learner has reached a level of self-knowledge that lets them recognise personal strengths and weaknesses, the learner will set realistic targets and be confident of outcomes. Hence, self-belief can contribute to the learner's level of relaxed alertness during learning.

"Try it, test it and review it" encourages the learner to try different elements of the learning tool kit. Once skills are learnt, targets are reached. The learner is once again encouraged to explain and share with others what they have learnt and to revisit their own skills in light of new knowledge. The learning cycle is restarted.

Development of learning styles profiles

Thomsen (2002) pointed out that, in order for Gardner's theorised intelligences to be useful in the school setting, it is necessary to link them with learning style theories. "Multiple intelligence theory focuses on the content of learning and its relation to the disciplines. It does not account for the individualized process of learning. Content is the what of learning and process is the how. We need to consider both" (Thomsen, 2002, p. 80). For example, the kinaesthetic learner may express that preference in athletics or massage therapy, and the musical learner may compose or perform (in various genres).

Learning style has been defined as the distinctive way in which a person's brain connects with learning experiences set out for them: "That consistent pattern of behaviour and performance by which an individual approaches educational experiences" (Dunn & Dunn, 1988 cited in Smith, 1996, p. 48). The cycle of accelerated learning is based on the argument that each learner is unique in his or her approach to and preparedness for learning.

Models of learning styles are not "exact science." Observations of learners were then grouped into neat categories developed by Carbo, Dunn, and Dunn (1988). The key factors selected for the categorisation process, however, serve to guide teachers who are assisting learners to adapt their styles and prepare them for lifelong learning. Five elements of personal traits and preferences that contribute to a characteristic profile and, hence, to effective learning have been identified and incorporated into Ken and Rita Dunn's Learning Styles Inventory (Smith, 1996).

First, the psychological element includes personality factors, preferred hemisphere, and preference to learn piecemeal or to see the "big picture." Second, the environmental element includes awareness of differential sensitivity to, for example, noise and light levels, temperature, and classroom layout. Third, the physical element includes access to regular food and drink. Optimal learning requires a balanced diet, with water and frequent but small portions (Lucas, 2001). Other physical factors include visual cues, additional time, and regular breaks (see, also, brain gym activities). Fourth, the emotional

element includes explicit rewards, high levels of attention and perseverance, degree of task-required structure, and acceptance of responsibility for learning. The sociological element includes the degree of self-knowledge such as preference for working either independently or with a partner or team and preference for learning through peers or through adult direction.

In the accelerated learning model, learning styles are also part of a cycle of learning. Kolb (1984) developed a simple model of the learning cycle from concrete experience through reflective observation and abstract conceptualisation to active experimentation and back again. Thus, learning starts with some striking or divergent experience or knowledge, from which the learner tries to make progress through a combined acquisition and clarification process (see also, Schön, 1983). McCarthy (1972, in Smith, 1996) developed a more detailed model (viz., the plan, view, review cycle). Smith (1996) used this model to show teachers how to become more attuned to their pupils' learning needs and how to adapt their teaching styles accordingly to assist with accelerated learning and lifelong learning.

The present study can be described as a set of individual case studies for which 8 children are selected on the basis of diverse perceptions of themselves as learners. The process of identification is explored alongside a system of recording change. The study is aimed to identify "changes" in teacher and pupils, respectively: (a) Any reported change in the teacher's selection of resources and method of delivery of a lesson as a result of increased knowledge of each of the target children's preferred learning style and (b) any reported change in each of the target child's attitudes and approaches to learning as a result of increased knowledge of their preferred learning style.

Method

The study design involved a sequence of tests and interviews for pupils and teachers, shown in Table 1. The EP worked with the pupils in the first three phases and with their teachers in the last two phases of the study.

Sample, setting, and tools

Phase 1

The initial phase of the study in the target primary school included all 55 of the Years 5 and 6 children (aged between 9 years 9 months and 11 years 8 months), of whom 33 were male and 22 were female. All interventions took place in the second half of the summer term, 2001, when all external and optional Pupil Achievement Tests (SATs) had been completed. These data were used to show pupil progress, assist high schools at transition, and indicate "best value" from school entry and for national performance tables. The notion of best value addresses social class confounding of estimates of school effectiveness by accommodating the notion of progress made during school years from where the pupils began. That is, it allows for and differentially rewards more change in pupils from impoverished backgrounds than in students from enriched backgrounds.

Their respective classroom environments was the setting for the EP's introductory 15-minute discussion about the work of psychologists, the theories of multiple intelligences, and differences in learning styles. All children sat at their desks to write

their responses in an additional 30 minutes for completion of the Learning Styles Profile (Smith, 1996). Intervention with Year 5 took place during Session 2 (between morning break and lunch break). Intervention with Year 6 took place during Session 3 (immediately after lunch break).

The Learning Styles Profile (LSP) was an adaptation of a multiple intelligence questionnaire used with university pupils (Smith, 1996). The 28 statements provided "a quick way of assessing the balance of intelligences amongst the pupils " (Smith, 1996, p. 60-61). Each child was asked to give a Likert-style self-rating to each statement as it applied (or otherwise). Although the original profile used a graded response from 0 to 5, the child version used only three discrete responses (0 = is not at all like me/not true; 1 = is like me sometimes/true sometimes; 2 = is very much like me/very true). Test completion took 20 to 25 minutes. To score the results, the statements were grouped according to the corresponding intelligence to which they belonged, with a maximum score of 8. The results were then plotted on the Multiple Intelligences Wheel. The visual representation helps a child to see the pattern of strengths.

Table 1

Outline of study design

| PHASES OF STUDY | SAMPLE PARTICIPANTS | TASKS AND SETTING |
|-----------------|--|---|
| Pupils | | |
| Phase 1 | Years 5–6 (N = 55) | Whole class talk for 15 minutes Topic: "Mind-Friendly" introduction to MI and to learning styles, with EP modelling different VAK approaches to curriculum delivery Test: Learning Styles Profile (LSP), in 30 mins |
| Phase 2 | LSP-selected pupils (n = 8) | Two groups of four Years 5 & 6 pupils Group discussion with EP: Topics included each pupil's LSP, information transfer onto MI wheel, and brief discussion of each pupil's dominant intelligences and how this related to strengths and weaknesses in curriculum areas |
| Phase 3 | LSP-selected pupils (n = 8) | Feedback Group interview: How pupils can support each other as a group through knowledge of strengths and weaknesses, valuing each group member for valid contributions Individual follow-up interview: What the wheel told each pupil about how s/he learns best |
| Teachers | | |
| Phase 4 | Two teachers 1 female with 2 years of teaching, 1 newly qualified male | Test: Teachers completed Pupil Inventory for 8 selected pupils (10–15 mins per test) Activity: Daily diary for 4-week period, starting after input to pupils in Phase 1–3 |
| Phase 5 | Two teachers | Feedback regarding instruments and procedures Follow-up taped individual interview to clarify diary entries |

Phase 2

Selection of 8 pupils (4 from each class) from this sample was based on the diversity of their profiles. That is, those who scored very highly (7 or 8 out of 8) in one of the eight areas of intelligence were included (see Table 2). One of the class teachers had assumed that his opinion about pupil selection would be required, and his top three selected were found to be included among three of the four children in his class selected by testing. He had not considered the fourth, the linguist, simply because she coped so well with most tasks (i.e., her skills suited the traditional academic class delivery of the curriculum).

Table 2

Phase 2 sample of pupils with highest LSP scores on specific intelligences

| INTELLIGENCE | "NAME" OF CHILD |
|--------------------------|---------------------|
| Linguistic | Timothy and Jessica |
| Mathematical and Logical | Rhys |
| Visual and Spatial | Daniel and Louise |
| Musical | Anna |
| Interpersonal | Anna |
| Intrapersonal | James |
| Kinaesthetic | Louise and Emma |

Groups of four Year-based children were given an overview of their respective different learning styles and transferred their scores onto a MI wheel. The EP outlined strategies to compensate for weaknesses in particular modes of intelligence. In this phase, the pupils discussed how to work cooperatively to balance strengths and weaknesses and how to show mutual support and respect for each group member's contribution. Both year-groups worked away from their classrooms in the school medical room. They had access to chairs, tables, coloured pencils, a white board, natural light, and fresh air through open windows.

Phase 3

Group interviews with the eight Phase 2 students together started with the premise that the combination of strengths represented in this group made them an "ideal group" to work together and followed up the consequences of this premise for their approach to classroom tasks. Individual interviews with the Phase 2 children explored how they learned best, addressed self-esteem issues, validated their strengths, and clarified strategies to compensate for and to address weaknesses. These structured interviews were audiotaped.

Phases 4 and 5

The class teachers (one male, one female) also participated in the study. They completed a Pupil Inventory (downloaded from the Cheshire Council's "Mind Friendly Learning" website). In this version of the inventory, multi-intelligence statements were specifically grouped into areas of intelligence to make the task easier for the teacher. The teacher ticked when the statement applied to a child. This test provided descriptive data that corroborated pupil self-reports. Each inventory took 10 to 15 minutes to complete.

Because teachers also rated pupils' "natural world" intelligence, scores for eight areas of intelligence were obtained. It was considered that teachers could rate this area meaningfully from curriculum studies, whereas the concept was considered less self-evident to the pupils.

Each teacher maintained a daily diary for 4 weeks. The teachers were asked to use the diaries to record changes in themselves and for the four target children in their class during each of the three sessions (morning, middle, afternoon). The teacher recorded the impact of their knowledge about each child's LSP on their teaching (i.e., planning, resource selection and provision, lesson delivery, and evaluation). That is, what had the teacher changed as a result of information about each target child's learning style. For the target pupils, the teacher also record session changes in the effects on each pupil's attitude and approach to learning specific tasks after these pupils took part in the three pupil phases (i.e., introductory discussion and further explorations of how they learned best). Teachers were assured that alterations to and comments on the format were welcome if the diary was considered unwieldy and, in some way, difficult to use. Because the teachers were completing diary entries towards the end of the school year, it was not a convenient time, but they did use the diary to sit and reflect.

In follow-up interviews with teachers, the EP clarified diary entries. Taping ensured feedback was obtained on all instruments and procedures through the phases of the study.

Results

Interview data from teachers and pupils were transcribed and coded. In broad terms, both teachers and pupils were enthusiastic about the concept of learning styles related to the intelligence strengths. Each teacher reported conscious changes in curriculum delivery and in pupils' response to the curriculum. Knowledge of learning styles appeared to benefit pupils' self-awareness, teachers' curriculum planning, and classroom organisation.

Teachers gave positive feedback about pupils' positive in-class responses to the Phase 1 "Mind-Friendly" talk with the psychologist.

They were really genuinely interested in it, definitely, every single one of them, and it didn't just prompt discussion between teacher and pupil but also between themselves...they said it is of great value to know this information as they continue their school career... It's been high profile with the children. (Miss F.)

It wasn't really until Parents' Evening when they were sharing them (the Multiple Intelligences Wheel) that I picked up what the significance was...They were completely relaxed, sat down, and the parents were asking them questions [about the Multiple Intelligences Wheel]. (Mr. H.)

The teachers also agreed that even 15 minutes with the educational psychologist had a noticeable effect on pupils. Pupils were stimulated by this relatively brief activity and continued to be interested. Given the EP shortage and their scarce time allocation to early intervention work and research, this result was important in promoting this type of project to EP colleagues and to schools. The teachers affirmed that this activity would be a good use of EP time. They also suggested that whole classes would appreciate this time

at the start of a session to discuss the MFL approach and the ideas behind VAK and Multiple Intelligences. They agreed that the EP's modelling of different approaches to curriculum delivery would appeal to pupils' various learning styles. They also considered this modelling as source of ideas about their own teaching styles. Teachers viewed this notion of 15 minutes, therefore, as a catalyst for further work that the class teacher could deliver, provided they received guidance and training in the principles of MFL, VAK, and MI. This interest was transferred into requests for Inservice Training for Teachers (INSET) provided during pupil free days and for EP to provide staff development work on curriculum delivery.

The teachers reported that information about learning styles helped to improve classroom organisation: It altered the way they grouped their pupils, particularly for science and other topic based work, and it informed planning (e.g., differentiation of curriculum and planned curriculum delivery). They also reported that LSP information improved performance in literacy tasks. Because teachers allowed for different learning styles, they accepted different modes of recording information, such as allowing children to tape story plans (auditory learners), accepting mind mapping diagrams and comic strip response (visual learners), and videoing a dramatic episode (kinaesthetic learner). Teachers acknowledged that this approach challenged the way that they recorded pupil work in progress and recognised that providing parents with this type of material helped to validate the pupil's learning pathway. This change also sets a wider challenge for acceptance of these alternative modes of assessment in SATs.

The teachers valued the LEA conference on learning, which they had attended as a whole school prior to the study. Teachers were keen to use the multiple intelligence wheel again and also wanted advice on how to apply the principles to younger children. Teachers agreed that diaries were useful to encourage reflection on practice and, hence, to inform future planning, particularly for group work. It also affected their expectations in terms of the way children communicate their understanding of the curriculum to them, ensuring that consecutive curricular activities did not place the same demands upon the children. For example, literacy could be interspersed with either physical education or music, rather than further text led work of the same kind. Also, the teachers could plan for frequent breaks in an activity through brain gym exercises during an extended activity such as a video. The teachers also suggested that a pupil version of the learning styles diary designed for self-evaluation would be viable.

Comparisons of teacher assessments and pupil self-assessments showed that teachers did not collect evidence of pupil abilities in less curriculum-orientated dimensions of intelligence. For example, one particular child was very musical, but the teacher was unaware of this instrumental success outside of school. New information about pupil profiles lead teachers to change their class groupings, adapt the nature of curriculum delivery, and incorporate pupil feedback into their weekly review sessions. The teachers found the instruments easy to use and were keen to incorporate them both to inform planning and monitor the balance of VAK lessons.

A range of themes was noted in the pupil interview data. The concept of learning styles was appealing to all of the children. Although the level of EP input to the class was minimal, it generated much discussion. Exposure to the profiles precipitated so much

discussion that the assessment tool was a valuable tool to encourage metacognitive activity on learning. The level of interest and ensuing inquiry from the children resulted in the need to provide further support to the teachers. Pupils reported an increase in self-knowledge. Teachers and pupils also reported during individual interviews that regular breaks in literacy activities, in particular, improved their attention. Teachers reported a significant impact on the level of pupil confidence as a direct result of receiving information about their learning preferences and the principles of MI.

Discussion

The educational psychologist can help the classroom teacher to integrate a Mind Friendly Learning framework into classroom learning. The EP can help the teacher to understand brain physiology and alternate theories of intelligence; to explore different learning theories and the social, biological, psychological, and environmental factors that can impede learning; and to enhance their pupils' self-esteem so that they can confront their weaknesses and celebrate their strengths.

This study showed that teachers could make a range of changes in their classroom practices. Teachers also can develop an alternative view to the prevailing "failing" perspective on nonacademic students. Teachers can adapt instruction and assessment to individual strengths. Teachers can balance VAK lessons and can offer breaks to accommodate different learning styles. They can be aware of the children's value systems so that they can optimise motivation and enhance memory. They can collect evidence of children's performance in different domains of intelligence and be alert to the idea that the profiles of intelligence are constantly developing (i.e., that these abilities are not fixed). Teachers can also model and promote metacognitive activities to assist the review process and encourage children to monitor and reflect on their own learning.

The educational psychologist can find a training niche in the MFL movement with its emphases on brain physiology, the learning environment, and the principles of accelerated learning. Within this framework, the EP can escape from the shackles of psychometrics and Local Education Authority criteria for statementing. Instead, they can resurrect their skills in applied psychology, such that they can provide development work for schools and can model the new dimension of assessment of children's learning styles. In doing so, the EP can take a large step towards ensuring that education really is for all the children in our schools, where a much broader view of intelligence will be accepted and a wider variety of strengths valued. The principles of Multiple Intelligence (MI) and the Mind Friendly Learning (MFL) can be incorporated into EP practice when assessing children, planning interventions, and providing staff development to schools through INSET.

This school-based project later provided a model for additional work in another school in a poorer area of the LEA, which was in difficulties (e.g., teachers were extremely stressed, students were underperforming on national indicators, and resources were inadequate and rundown over many years). A new head teacher who had worked in highly effective schools that used MFL principles wanted to improve opportunities in this disadvantaged community. When one of the EP's schools was classed as a failing school and was placed by the LEA under "special measures", she offered support to the

school in three areas, in liaison with the school adviser and inspectorate. First, she provided training time to the whole cluster of schools to deal with behavioural concerns relevant to them all. Second, she provided a session of hypnotherapy for staff to increase morale and ease stress. Third, she allocated EP research time to the school in special measures, to assist with pupils' learning environment, staff development, and training to improve teacher self-esteem and overall staff morale. The approach run in this setting applied the program tried and tested in a more advantaged school.

Recruitment and retention issues have resulted in further reduction of EP staffing in the Cheshire LEA in the period since this study was completed. Hence, the EP team has been reduced to "firefighting", the time allocation model has been abandoned, and a "first come-first served" waiting list has replaced it. It is clear that crisis management inhibits the development of preventive services, which should be the main domain of EPs as is supported by the UK Parliament.

We would all like educational psychologists, who are highly skilled, not to write endless reports but to deal with children...and perhaps work more generally on the design of school teaching and the causes of exclusion in the school environment...be able to do more preventive work rather than statutory work and concentrate on some of the schemes that the Government are anxious to promote, such as portage schemes, Sure Start and behaviour improvement projects...They are a critical factor in creating the circumstances for proper inclusion for children who are at risk" (Hansard Debates for 8th June 2004, pt 32 & pt 33).

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