



How we learn what we learn

2nd Edition

Kate Atkins and Neil Hopkin



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We would like to thank all our colleagues and children at Rosendale School, West Dulwich for their energy, enthusiasm and commitment to helping us create the best learning experiences.



Rosendale Primary School is part of a federation of primary schools and children's centres in South London.

For more information visit
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introduction

In the UK school system of the 20th century, the prevalent factory model of learning was informed by managerial target setting and centralised prescription. The result was that children were the recipients of school leaders' misguided but understandable attempts to meet key performance indicators which led to dry, joyless lessons designed to jump statistically through metaphorical hoops and over public relations hurdles. Smart school leaders soon learned that to avoid the punitive and public criticism of poor league table performance they would need to lead their schools with a new focus, designed to deliver results that met the publishable requirements of their political overlords. Pretty soon schools were concentrating their efforts on getting students with Ds to become Cs, were abandoning Es, and neglecting Bs and As because they had already passed the required level. Even our youngest children in primary schools were being labelled and overlooked, as adults declared around them, "They will never reach Level 4, just concentrate on those that might." Booster classes proliferated to progress children newly described as "on the cusp", whilst those who were more, or less able were left to run out the time until the test. It would be almost impossible to design a system that would be more efficiently ruthless in its ability to disengage learners, dismay and demotivate a generation of teachers or disempower a future workforce. It was a backward looking, short-sighted and short term approach. It was, and is, a disaster.

Today, schools are able to make many more of their own decisions and as a result some have begun to value other measures that were once ignored. Ingenuity, creativity, cognitive agility and adaptability are now supported through a creative and applied curriculum in learning spaces that are more akin to home than to a Victorian work house.

Unsurprisingly, standards are rising and are replacing standardisation, whilst schools are empowering children to fulfil the ever changing needs of the 21st century workplace. Now, inspired school and community leaders are measuring schools' impact through a much more intelligent and subtly nuanced set of metrics such as employment rates, reduced teenage pregnancies, parental engagement, applicants for vacant posts and stage-notage based success.

But what of tomorrow? As the current generation of parents look ruefully at the simpler world of their predecessors and live through the outworking of generational mismanagement of the world's political, social and economic affairs, we all wonder with a sense of guilt about

the legacy that we are leaving for the children in our schools. However, whilst it is right that we reflect upon our own shortcomings, our children are far more pragmatic about the task that lies ahead and in those visionary schools where pupil voice is treated seriously they are starting to seize the educational agenda. This new generation of interdependent learners are rejecting the bells, whistles and fixed schedules of mass instruction, are rejecting irrelevant, unapplied knowledge, are saying a resounding “no” to Dick Turpin style Stand-and-Deliver teaching, are questioning the logic of copying swathes of writing in class whilst being banned from ignorantly copying from the web at home and are refusing to be complicit in a model of learning that is “delivered” rather like milk once was.

It seems as though, in a rather gentle and grass roots way, a learners’ revolution is sweeping aside that old factory model of learning, perpetrated by the political and adult society, to replace it with an approach to learning which is exciting, engaging, relevant and actually fit for its 21st century purpose. What a wonderful lesson in futures thinking our children are giving us.

We hope not only that you enjoy reading this account of how we learn what we learn here at our school, but also that you use this as a launchpad for your own thinking, because whatever our profession we should all be in the business of learning.

Neil Hopkin



Kate Atkins



West Dulwich, London
September 2012

general learning theory

The construction of a pedagogical approach is a complex task. There are many competing theories and many voices demanding and deserving to be heard. Fortunately, a few giants of academic insight have emerged over the course of the last 100 years that have shed light on this complex task. At our school and Children's Centre we have endeavoured to engage with these thinkers and build upon their wisdom to make manifest the vision of learning that they describe. We are not alone in this endeavour and much of what we have constructed is mirrored around the world in classrooms and settings as far flung as New Zealand, Australia, USA, Canada, Singapore, Norway and Italy, as well as around our own country. Safe in the knowledge that we are accompanied by illustrious partners in our quest to create an intelligent and reflective, professional learning environment, we have created our own version of the 21st Century School here in London. We are far from unique in pursuing this mode of learning, but in this section we explain some of the thinking that underpins our own bespoke pedagogy.

Chapter 1 details the principals, the Big Thinkers of education that have emerged during the last century. Theirs are the ideas that have formed the backdrop to our practice and from their ideas have emerged the range of approaches that we encompass in our school. Each academic has a key theme, a nugget of insight or a particular view of how learning and cognitive development works and these ideas find a home in our pedagogical design. Of course, each academic has a particular perspective and philosophy on life, from Friere's Brazilian-influenced liberation philosophy to Erikson's spin on Freudian psychology or Vygotsky's sociological world-view, but we have discerned their common themes and woven them together in a harmonious blend of learned guidance. It is from this theoretical background that the various details of our 21st century pedagogy are born. Negotiated Learning, Project Based Learning, Assessment for Learning and all the other key ingredients of our great learning environment are all based in the considerations and reflections of these Big Thinkers of the 20th century.

Section 2 and Chapter 2 move on from the Big Thinkers to describe the Big Picture. Turn by turn we describe the philosophy and principles that underlie the details of our pedagogy.

In Section 3 and Chapters 3 onwards we will delve even deeper to describe the precise details of how these principles are implemented in the classroom, but here in Chapter 2 we start by describing the philosophy underpinning each principle. As we describe each component part we will start to be able to piece together the bigger picture, to see how these principles interrelate; how they complement one another and combine to provide a robust and empowering learning environment for children.

We hope you enjoy reading about some of the thinkers and their ideas that inform how we learn what we learn.

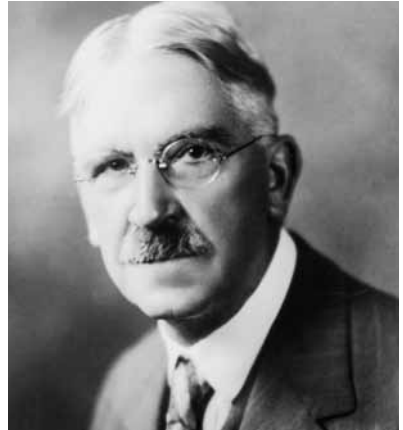
Principals: The Big Thinkers

John Dewey: Engaging the Interest and Experiences of Learners

One of the 20th Century's most influential educationalists, John Dewey, plays an important part in many teacher training programmes around the world and also on the way learning is structured in our school. Dewey believed that children should be presented with learning opportunities that allow them to relate new learning to their own prior experiences. In this manner he believed that children deepen their understanding and are able to situate their learning in the context of their expanding world view.

Dewey also believed that the best education should not put undue emphasis on either extreme of child-centred learning or curriculum. Instead, he believed that a balance should be struck between imparting knowledge and skills on the one hand and engaging the interests and experiences of the child on the other.

These two principles are fundamental to the design of learning at our school and Children's Centre. The school makes a clear distinction between the vehicle and contents of learning experiences. From the earliest point in our Children's Centre and school, children's interests are carefully observed. Adults working with the children plan carefully to deliver learning experiences that start with a child's interests and those of the children's family. This happens through a variety of mechanisms, whether formal consultation with parents at the start of the year, or broad discussion of the



*John Dewey
1859 - 1952*

curriculum with the children in the classroom. These discussions help to determine the “vehicles” for the child's subsequent learning. Left at this, Dewey would maintain that the school would be distorting learning too far in favour of child-centred learning. However, crucially, the school determines the “content” of learning experiences through careful analysis and construction of a nationally and locally determined curriculum, the school ensures that children are aware that the “vehicles” they have described must deliver the “contents” of the national curriculum.

This process of “surfacing” with the children the learning that the National Curriculum and the school requires them to acquire is essential to the process of both fulfilling the child's

entitlement to an engaging and stimulating curriculum alongside giving them accountability and a sense of responsibility to make sure that that learning meets and exceeds the required standards of the curriculum. At the younger ages this process can be seen at work in the adults often asking the children what they are learning about (rather than what they are doing). The children refer to their “Learning Agreements” a brief record of the learning outcomes and tasks that they have to complete that week. Their activities are based around those learning outcomes. As the children become older, the level of negotiation between “vehicle” and “content” and between teacher and pupil becomes greater. Children will discuss with their teacher what themes the curriculum

should address, or they will consider how to construct their class timetable to best suit their collective learning needs and rhythms, Or they may design a project brief that addresses the content of learning that they need to acquire, thus giving the project new productivity in the child’s development.

Dewey’s guiding philosophy was that the child should be an active learner and participant in constructing and engaging with learning experiences. He maintains too that the teacher should be facilitator and guide in this endeavour such that no classrooms are characterised by teachers standing at the front of the room doling out information to be absorbed by passive pupils. Our school embraces this same ideal.

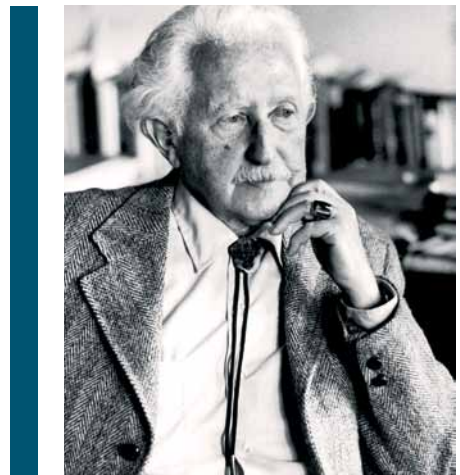
Erik Erikson: Supporting Life Long Learning

Erikson agreed with much of Freud’s thinking around childhood development, with one important exception: Freud maintained that much of our personality is determined by developmental experiences up to the age of 5, whilst Erikson believed that we develop as people throughout our lives.

In our school, we nurture children from 0 years to 11 years and so the children in our care pass through four of Erikson’s stages as they mature during their time with us.

Stage 1: Trust vs Mistrust (Birth to 1 year old)

Erikson defined trust as an essential trustfulness of others as well as a fundamental sense of one’s own trustworthiness. He thought that an infant who gets fed when he is hungry and comforted when he needs comforting will



*Erik Erikson
1902 - 1994*

develop trust.

This is a clear aim of our learning environment. Over their years at school the children will

develop and refine their understanding of cooperation and collaboration, the experiences that will help them to develop their commitment to companionship, altruism and teamwork. However, the children will also develop a sense of mistrust, which is necessary to learn to discriminate between honest and dishonest people. These life skills all start in the Children's Centre where we aim to nurture trust by meeting children's needs immediately in a wide range of circumstances, whilst providing them with a safe and secure framework to assess the trustworthiness of people, environments and situations around them.

Stage 2: Autonomy vs Shame and Doubt (2 to 3 years old)

The supportive atmosphere nurtured in Stage 1 continues into Erikson's next stage in which the child can develop a sense of self-control without a loss of self-esteem. Shame and doubt about the child's self-control and independence occur if basic trust was insufficiently developed or was lost such as when the child's will is broken by an over controlling adult. In this stage, Erikson said the child encounters rules, such as which areas of the environment, house or school, she is allowed to explore.

This stage is crucial to our endeavour at school and in the Children's Centre. We aim to nurture the children's independence, but to achieve this level of autonomy a child must also learn to exercise self-control. Important work is done here with 2 to 3 year old children to support their later development as 6 year olds and older. Learning to exercise self-control means that necessarily there will be occasions when children fail to do so. To ensure that the child is

encouraged to keep learning and acquiring the skill of self-control, we celebrate their attempts whether or not they are successful. Failure and the embrace of failure by child and adult becomes a key stepping stone in the child's positive development. Developing the resilience to overcome failure through tenacious effort is a key priority that we have for our young children.

Stage 3: Initiative vs Guilt (4 to 5 years old)

The way in which school staff support the development of a child's independence starts to bear fruit in the Early Years Foundation Stage as children start to take responsibility for their actions and intent. This is the stage in which the child finds out or determines what kind of person he or she is going to be. The sense of responsibility increases the initiative a child demonstrates during this period. As with the earlier development of independence, nurturing the child's resilient persistence in the face of failure is the hallmark of the school's work at this stage. If the child is irresponsible and is made to feel too anxious then they will have uncomfortable guilt feelings. Erikson believed that most guilt is quickly compensated for by a sense of accomplishment.

To this end, school staff start to share learning outcomes with the children at this stage, in a process which we call "surfacing the learning". We believe that hiding the curriculum from the children is not a helpful device to encourage initiative and purposeful learning. This sense of purpose to all activities is crucial for both children and adults, as the curriculum at this Key Stage is predominantly child initiated. Failure to understand "surfaced learning" leads

some observes to think mistakenly that the Early Years Foundation Stage is simply “play”. Whilst, of course, there is nothing inherently wrong with play, within the school context play also represents a wonderful opportunity to engage children in learning experiences. Staff therefore speak with children not about what they are “doing” but what they are “learning”. Adults will play and interact with the children, constantly raising their awareness of what they are exploring and learning, always highlighting the learning that they are engaged in achieving.

Stage 4: Industry vs Inferiority (6 years old to puberty)

The National Curriculum of Key Stages 1 and 2 help to form the framework of knowledge and skills that children must acquire over these years. However, the learning process does not only occur in the classroom according to Erikson, but also at home, friend’s houses, and on the street. This is a fundamental tenet of our school’s philosophy and we use two main strategies to maximise these learning opportunities. Firstly, we open the school to parents for the first half hour or so of every day. This allows parents to come and work in class with their child and his or her classmates. This opportunity is not a parent:child moment, but an adult:children opportunity. Just as we encourage cooperation and collaboration amongst the children, so we encourage parents to extend their remit from parent of one child in a class to encourager and supporter of a number of children in the class. In this manner all children receive extra support and encouragement from parents, and see cooperation, collaboration and altruism role modelled.

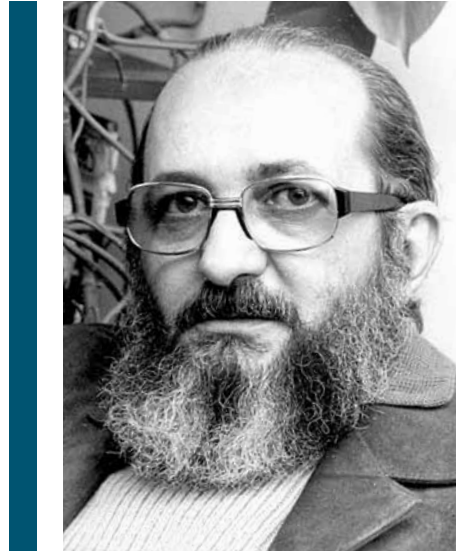
Over the course of the term and year most parents and carers will find at least one day when they can visit their child’s class. However, whether parents can or can’t visit, the school understands that there can still be an information gap in knowing what is going on in their child’s school life. Accordingly, the class blogs are an important part in breaking down barriers between school and home. By sharing learning outcomes for the week for all age groups, describing projects that can be undertaken at home and providing an online audience for the products of a period of study, the blogs are a vital strand in the school’s efforts to inform the learning moments that occur beyond the time and place of school life.

In keeping with the ethos that underpins children’s learning experiences from the Children’s Centre and throughout their school life at our school, this period is characterised by the affirmation of successful experiences which give the child a sense of industry and a feeling of competence and mastery. They learn to design products, evaluate outcomes, iteratively improve their creations and publish their findings for others to critique. In contrast to many classrooms and schools where the “finished product” is reached 95% of the way through the period of study, when children learn through project based learning work we aim to produce initial prototypes 40% of the way through a study period so that children’s understanding of “finishing” a piece of work is within the context of a further 60% period when the prototype is evaluated, re-modelled and refined before finally being published and shared widely.

Paulo Freire: Dialogue and Purposeful Action in Learning

Amongst many innovations and insights into the liberating power of education, the Brazilian Paulo Freire introduced a number of important concepts to our understanding of learning. He emphasised the role of dialogue within education, with respect being one of the defining characteristics of dialogue. For Freire, this meant that people did not act on each other, but worked with each other. In fact he believed that schools should attempt to transcend the divide between teacher and learner.

In many ways this continues the notion that Erikson discusses of the life long learner. We believe that the school staff should see themselves and also be seen to act as learners, not just teachers. This reveals itself in the school's commitment to continuing professional development for staff and also in how they interact with children in class. With an understanding of the classroom as a place of exploration and discovery, the imparting of knowledge and facts can be seen as just a small part of the wider educational endeavour. Children do not only have to possess a secure knowledge of a range of facts and skills, but most crucially they must also be able to apply that ability and knowledge in a wide range of new circumstances. The adults' role in this development is to help the children develop the higher order skills that facilitate this application and diversification of skills and knowledge. So it may be that a child has a highly developed skill or deep knowledge of a particular subject. The adults' job is to help the child learn how to apply that skill or knowledge to tackle a range of new problems. Or it may be that immersing oneself in a topic or theme unearths interesting lines of enquiry for further exploration. The adults' role



*Paulo Freire
1921 - 1997*

is to model the enthusiasm and curiosity that all learners must have if they are to genuinely grapple with our ever changing world.

Freire also believed that education should inherently involve action: making a difference in the world. This imperative is one that resonates with our school's view of the purposefulness of children's activities and learning. From the design of "generative" topics which engage and broaden the children's field of interest, to the honing of specific lines of enquiry, the emphasis in tasks that children undertake is that there is a clear answer to the question "What's the point?". It is because of this sense of purpose that each strand of learning has a "product", whether that is a poem, painting or prototype model which is presented to an audience and its impact and effectiveness evaluated.

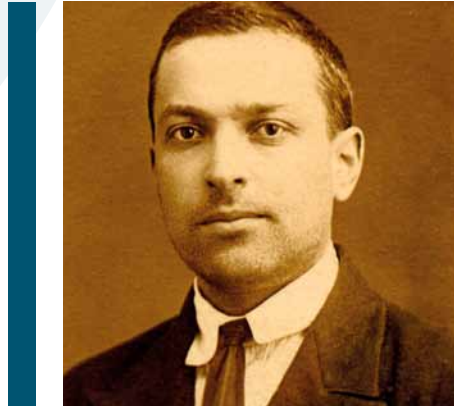
Lev Vygotsky: The Importance of Social Learning

Vygotsky disagreed with Piaget's assertion that children's development preceded their learning. In fact, Vygotsky felt that exactly the opposite was true, arguing that "learning is a necessary and universal aspect of the process of developing culturally organised, specifically human psychological function" (Vygotsky; 1978: 90).

This difference is crucial to understanding the learning dynamic in the classroom and specifically the process of learning which both psychologists understood as "meaning making". Piaget believed that there are universal stages of cognitive development, or mental schema, through which we make sense of the world. When we encounter situations which do not fit into these schema, we are faced with "disequilibrium" and it is at these moments that learning occurs as we adjust to the new situation and assimilate new facts or develop new skills.

Vygotsky views meaning making from an entirely opposite perspective. He sees the gap between what we can achieve using our existing developmental abilities and what can be achieved with the help of others as "the zone of proximal development". Vygotsky maintains that learning takes place in the "ZPD" and precedes development.

Piaget's stage theory does little to take into account the circumstances of individuals beyond their own mental schema, whereas Vygotsky's theory situates learning within a social setting and focuses on how instruction and society at large impact learning. For example, memory in young children is limited by biological factors, however culture determines the type of memory



Lev Vygotsky
1896 - 1934

strategy we develop. So, in our culture we learn note taking to aid memory, but in pre-literate societies other strategies must be developed, such as tying knots in string to remember, or carrying pebbles, or repetition of the names of ancestors until large numbers can be repeated.

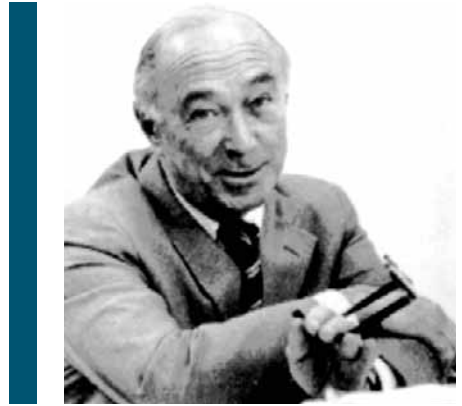
Acting upon Vygotsky's view of social development means that the classroom ceases to be a place of quiet, but instead is a place of discourse. Children no longer sit in rows, but in groups to facilitate on-task discussion. Discussion is no longer shapeless, but is structured to make the most of children's opportunity to take different roles, speaking, actively listening, cooperating and collaborating in their meaning making together. Opportunities abound for children to lead learning as well as be led, with both their peers and the adults working with them. The products of their learning are then shared with the community, far and wide, as the children learn from and contribute to the society which helps to shape them.

Jerome Bruner: The Spiral Curriculum

Bruner's psychology of cognitive development drew originally upon Piagetian mental stage models, but added a constructivist twist. A major theme in his earlier thinking is that learning is an active process in which learners construct new ideas or concepts based upon their current or past knowledge. This idea of knowledge first, learning second reveals his Piagetian leanings. Bruner then suggests that the learner selects and transforms information, constructs hypotheses, and makes decisions, relying on a cognitive structure to do so. Cognitive structure (i.e. mental schema or models) provides meaning and organisation to experiences and allows the individual to "go beyond the information given".

However, Bruner also departed significantly from Piaget in his seminal work in the 1960s, by challenging the Piagetian notion of stages in a child's development. Bruner suggested that we can "begin with the hypothesis that any subject can be taught effectively in some intellectually honest form to any child at any stage of development" (Bruner 1960: 33). This belief underpins Bruner's commitment to the spiral curriculum: "A curriculum as it develops should revisit these basic ideas repeatedly, building upon them until the pupil has grasped the full formal apparatus that goes with them" (Bruner 1960: 13).

Bruner was also a great believer in the fundamental importance of engagement. He suggested that "ideally, interest in the material to be learned is the best stimulus to learning, rather than such external goals as grades or later competitive advantage" (Bruner; 1960: 14). In an age of increasing spectatorship, or passivity, 'motives for learning must be kept



*Jerome Bruner
1915 - present*

from going passive... they must be based as much as possible upon the arousal of interest in what there is to be learned, and they must be kept broad and diverse in expression' (Bruner 1960: 80).

We can see evidence of Bruner's philosophy across our school and Children's Centre. The spiral curriculum has as its foundation Bruner's exhortation to remove the "glass ceiling" from our ambition for children's learning. We know that we need to be vigilant to low expectations as children often surprise even the most experienced teachers with their ability to grasp new concepts and grapple with complex learning, if only we give them the chance. Of course, at first encounter learners may not entirely grasp a concept or may only have a superficial or developmental understanding of an idea, but the process that they go through across the years as they return to those skills and refine their conceptual understanding means that they emerge from their primary schooling with a robust grasp of essential

skills and knowledge. So the spiral curriculum manifests itself in three ways:

- Teachers set high expectations of children's learning, giving the learner opportunity to surprise, extend their skill set and learn according to "stage" (of conceptual understanding) and not "age" (you are Year X so you must learn ABC);
- The children periodically return to particular skills and aspects of knowledge in order to deepen, extend, embed and refine conceptual understanding;
- The curriculum is monitored to ensure that skills build upon those previously

acquired so that understanding is deepened from one year to the next in a "progression of skills".

We can also see evidence of Bruner's influence in our Negotiated Curriculum and Project Based Learning. Just as Bruner believed that engagement is key to great learning, so our pedagogical design aims to arouse the children's interest and ensure their active involvement in the construction of the vehicles for learning, whilst we determine the content of that learning.

Robert Gagné: Instructional Design and Conditions for Learning

Gagné's Instructional Design was intended to give opportunity to support different ways of learning through creating different classroom conditions to support each way. Gagné asserted that there are 5 categories of learning: intellectual skills; cognitive strategies; verbal information; motor skills; attitudes.

Whilst Gagné suggested that each category needed a particular condition for learning he believed that any instruction designed to meet these needs would need to address the same 9 steps:

1. Gain attention
2. Tell the learners the learning objective
3. Stimulate recall of prior learning
4. Present the stimulus: Display the content
5. Provide learning guidance
6. Elicit performance: Learners respond to demonstrate knowledge
7. Provide feedback: Give informative feedback on the learner's performance
8. Assess performance: More performance



*Robert Gagné
1916 - 2002*

- and more feedback, to reinforce information
9. Enhance retention and transfer to other contexts

In our context, the influence of Gagné's method can be seen in all lessons: teachers ensure that children are aware of the learning outcomes for

a lesson; the learning they undertake builds upon prior learning; there are provocations points from which learning emerges; teachers and children coach one another to improve learning; feedback is given frequently and is formative of further learning; concepts and

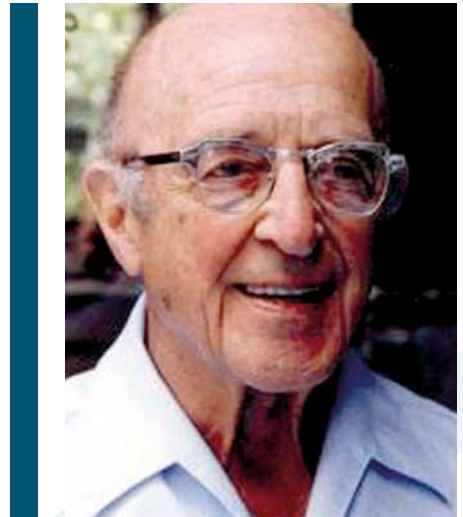
skills learnt are applied in a range of contexts. However, the process of Gagné's step 8, with reiterations of performances and feedback is most clearly seen in the Project Based Learning approach, where children learn the importance of constant refinement of their "product".

Carl Rogers: The Significance of Experiential Learning

Rogers is rather dismissive of cognitive learning, describing it as meaningless, though what he means is that it has no context, such as learning times tables or learning vocabulary. This sort of learning has prominence in the National Curriculum published by the UK Government under Michael Gove. Rogers attaches more significance to experiential learning, which refers to applied learning such as learning about engines in order to repair a car.

The key to the distinction is that experiential learning addresses the needs and wants of the learner. Rogers lists these qualities of experiential learning: personal involvement, self-initiated, evaluated by the learner, and having pervasive effects on the learner.

The reference to a real life task has real significance in our pedagogy at school and the Children's Centre. Children are given a sense of "audience", whether that is the global audience reached by publishing work on the internet, the audience of a performance, or the audience of a presentation in class. Whatever the context, the children are aware that their work will be presented to and evaluated by its "audience".



*Carl Rogers
1902 - 1987*

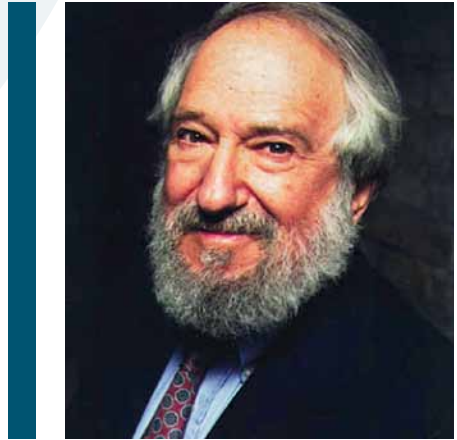
To this end, particularly within Project Based Learning, the children develop lines of enquiry around real life tasks to solve real life problems. This may, for example, be the layout of the classroom, creating a particular effect with art or music, monitoring the eco-operation of the school, or addressing some need in the school or wider community.

Seymour Papert: Using New Technologies to Enhance Creativity

People laughed at Seymour Papert in the 1960s when he talked about children using computers as instruments for learning and for enhancing creativity. The idea of an inexpensive personal computer was then science fiction. But Papert was conducting serious research in his capacity as a professor at MIT and of course, in time, he has been proven to be a visionary.

Although Papert is recognised as one of the world's leading experts on Mathematics, Artificial Intelligence and the use of computers in education, as well as being the founder of the MIT Media Lab and the inventor of the Logo programming language script and Lego Mindstorms robotics, his real interest is in learning. He suggests that to create engaging learning, the first thing the school has to do is to give up the idea of curriculum; curriculum meaning a child has to learn "this" on a given day. He suggests that we should replace our current idea of a curriculum with a system where a child learns "this" when and where they need it. He suggests that we must put children in a position where they are going to use the knowledge that they are acquiring. This means that teachers must develop the kinds of activities that are rich in scientific, mathematical, artistic and other contents like managerial skills and project skills, and which mesh with interests that particular children might have.

For Papert, one of the key drivers for robust 21st century learning is the empowerment of the child. So teachers need to re-think their professional role and the shape of the learning process that they lead. He understands that schools often consider these issues on the



*Seymour Papert
1928 - present*

basis of the short term pay-off, which he says limits school improvement to the issues of yesterday rather than the demands of tomorrow. Papert suggests that schools should give up age segregation which is, he suggests, just as wrong and harmful as any other kind of segregation. "It's just as bad to segregate the seven-year-olds from the eight-year-olds, the eight-year-olds from the nine-year-olds, as it was to segregate people by color or religion, or whatever." However, Papert believes that age-based segregation, "Will go away. Kids will work in communities of common interest on rich projects that will connect with powerful ideas."

Papert asserts that people, not either books or computers, are the sources of knowledge and ideas. In the classroom, many of these "people" are other children that have already done similar activities. Children working together get to know who has what sort of expertise and learn to pick this up from one another in a collaborative manner. But Papert says limiting children to age

grades limits how well this knowledge can be spread and prevents the most potent sort of teaching potential: every child being a teacher. Teachers, Papert maintains, are professionals in the art of helping people learn. Rather than being a technician, the teacher is more like a philosopher, having to lead discussions of much more profound questions than a simple “tell and test” curriculum allows.

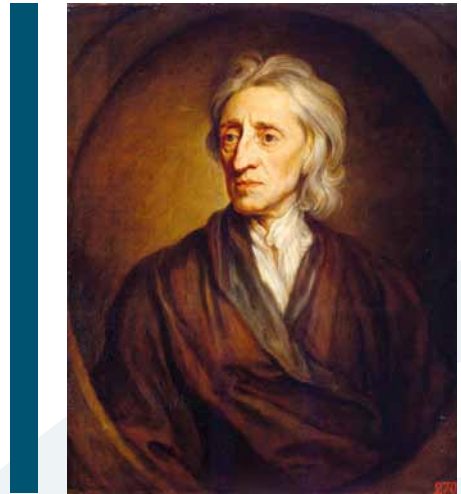
Papert observes that there is no word for learning that parallels the relationship of the words pedagogy and teaching. This, he maintains, reflects an approach to school leadership that is old and now wrong-headed, in which children are forced to stop “learning” so that they can instead be “taught”. For Papert, everyone should be a learner, both teachers and children.

The Anti-Theories: The Theories With Which We Disagree

There are some theoretical viewpoints that contrast with those discussed above but which are well established, so we will discuss those briefly here, lest they are inadvertently adopted as common practice.

John Locke proposed the notion that children are a *Tabula Rasa* (Blank Slate), onto which anything can be written, we might call them nowadays a blank page in an open book. We can give children new experiences that expand their minds and which they accept at face value. In a similar manner, **B.F. Skinner** was a firm advocate of the idea of behaviourism: that children (or indeed anyone) can be “conditioned” to behave in a certain way if appropriately motivated. The classic example of this is “Pavlov’s dogs” who hear the ringing of a bell shortly before they are fed and, after a period of conditioning, then salivate simply at the sound of a bell as they are conditioned to believe that food will soon arrive.

There is much about these two theories that is patently true. New experiences can be given to children that open up new and hitherto unexplored vistas in their minds. However, we ignore learners’ social contexts at our peril. The learner is not an open book or empty vessel, but



John Locke
1632 - 1704

has a framework or world-view through which they approach new experiences. For instance, a young child told his mother that he had learnt that “Jesus died on a crossing,” because his world view did not include the possibility of crosses, or crosses that were big enough to nail a person to. He did however know about railways crossings and that if you weren’t careful you could be killed on one. This social context is the basis of children’s initial thoughts, the starting point from which they start to explore



*B.F. Skinner
1904 - 1990*

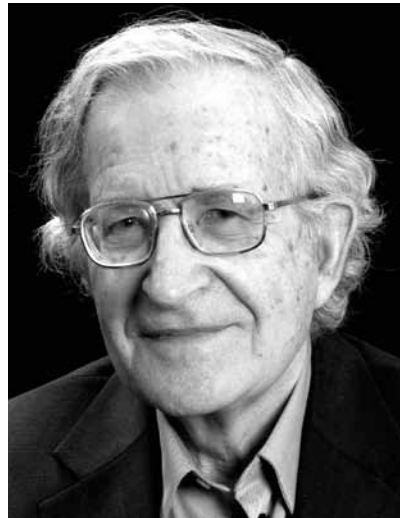
new experiences and so it is fundamental to the pathway they will tread in exploring new learning. Understanding this starting point, as opposed to thinking that they start from a tabula rasa, a blank page, is a crucial part of understanding how to lead the child's learning. They are informed by their context male, black, middle class, four years old, living with mum etc. and we must understand that if we are to know how to lead their learning.

Similarly, whilst we are all conditioned by our experiences, we are not robots. We are much more complex creatures than can be defined by a $2 + 2 = 4$ equation of input to output. There are many examples of behaviourist hangovers from the 1950s and 1960s in our modern classrooms: stickers, star charts, golden time, house points, certificates and so on, all of which are examples of rewards-based teaching. The problem is, as we all know, that rewards are soon normalised, accepted as a given, and

so lose their potency and effectiveness. The children are not house point robots.

Although initial positive support for a behavioural understanding of motivation and conditioning makes the theory seductive, deep at the heart of behaviourism is a misunderstanding about how the mind works. This was laid bare by **Noam Chomsky** in the 1950s when he demonstrated that children acquiring language quite simply do not acquire it in a behaviourist way as had been thought previously. His evidence for this was that children often consistently say, "I runned away," or "I caught the ball," even though they would never have heard these expressions.

Behaviourists suggested that children are conditioned by constant exposure to the phrases "I ran away," or "I caught the ball," to learn to express themselves likewise. However Chomsky showed that this is patently not the case, the children are not conditioned



*Noam Chomsky
1928 - present*

to respond in that way. Rather they use their cognitive powers (Chomsky called this the Language Acquisition Device) to make sense of what they hear and to make some speculative attempts to form a Grammar. So, we imagine the child's mind thinking, 'Okay, these adults say "pull" and if they did it yesterday they say "pulled", so if I would normally say "run" but I want to say what I did yesterday then I must have to say "runned".'

Chomsky's powerful argument spelt the end for the influence of behaviourist thinking in the university academies of education, but we still cling tenaciously to many behaviourist practices in our classrooms. The bottom line is that some aspects of behaviourism such as stickers, house points and so on will work, but probably only for a limited period and may give unwelcome messages such as over-compensating rewards for children that regularly misbehave. Ultimately, behaviourist rewards ignore the crucial role of the child's cognitive and intellectual abilities in discovering motivation to learn. Our emphasis should be on seeking engagement, not enforcing compliance.

Jean Piaget held the centre ground in teacher training for much of the 20th century, until the 1960s and 1970s and the arrival in the western world of translations of the Russian psychologist Lev Vygotsky's work. Again, there is much about Piaget's work that we would embrace in terms of his understanding of how children learn and move from concrete concepts to more abstract use of concepts and applications in other contexts. However, there are two fundamental areas over which we would disagree.

Piaget's rigid adherence to stage theory and its association with specific ages places false



Jean Piaget
1896 - 1980

ceilings on our expectations of children. It may be the case that a child is able to think in a fashion way beyond the stage represented by their age and we must always allow for that possibility in our planning of learning experiences. Most importantly however, Piaget's view of the child as an individual ignores the vital role that social discourse plays in child development and learning. This is the area that Vygotsky so powerfully illustrated in his research about social learning and the zone of proximal development (ZPD). Piaget's view of the learner, as a learner viewed in isolation, is not synonymous with personalisation, nor should it form the basis of a pedagogy for learning. Personalisation gives the learner personal experiences based on their personal needs, not isolated experiences. The best personalised learning is also socialised, interactive, collaborative and cooperative. In this way, individuals receive what they need, when they need it and think about that in collaboration with other learners.

theory into practice

A clear understanding of learning theory is crucial to ensuring that the school's pedagogy has a considered theoretical framework. However, in order to translate what can sometimes be a somewhat rarefied theoretical framework in to working classroom practice an intermediary step is required. This step takes the general theories and starts to cache out how that informs some of the building blocks of the school's approach to learning. Or to put that another way, professional reflection upon the ideas discussed by the principal learning theorists will result in some key decisions being made about how their ideas may be manifest.

This is the first point at which the "Big Picture" may emerge and become tangible. The fundamental tenets of our approach to learning start to take shape and the ways in which they may interconnect may be explored.

In this chapter, we take the big ideas that we have discussed so far and describe their implementation through a number of key areas of interest. There are some natural groupings within these areas of interest of course, so for instance Negotiated Learning and Project Based Learning have some significant areas of overlap, but also some key differences. It is not simply the case that Project Based learning is a subset of the genre Negotiated Learning for instance, since there is a design process defined within Project Based Learning that is not a necessary part of Negotiated Learning. Similarly, inclusion extends beyond special educational needs, yet clearly has significant overlap, and so on.

Principals: The Big Picture



Negotiated Learning

Human conversation is the most ancient and easiest way to cultivate the conditions for change — personal change, community and organisational change, planetary change. If we can sit together and talk about what is important to us, we begin to come truly alive.

Margaret Wheatley (2003), *Turning to One Another: Simple conversations that restore hope to the future*

The value of increasing the role of pupils in decisions made about and for their learning is a persistent theme in the current discourse of educational reform. Many teachers are exploring new ways to give their pupils a stronger voice in the learning conversation that takes place in schools and there is plenty of evidence to suggest such involvement enhances learning.

When pupils are really listened to, when they are valued and included in such decisions, they are far more productive and motivated.

Research also confirms the very real differences between learners, highlighting the need to recognise the learning preferences of

the individual. If our aim is to nurture pupils as active, capable and responsible learners, then we must invite them into the teaching and learning conversation that has traditionally been 'secret teachers' business'.

The concept of negotiating learning is far from new. Well over a decade ago, the visionary educator, Garth Boomer, wrote extensively on the subject. Yet, the reality in most classrooms remains a long way short of his ideal. Involving pupils closely in decision making sparks a range of strong reactions—from the excitement of possibility (I wonder what my pupils will do with this?) to the fear of losing control (As a teacher, what can and should I decide?).



The New Characteristics of Success

Teachers are active listeners

Teachers consciously and genuinely listen to (and document) children's ideas, wonderings, stories and experiences. Such conversations may be planned or spontaneous and can occur with the entire class, small groups or individual pupils.

Structures such as developmental play workshops, small group learning, or scheduled

appointments for individual or group conferences can provide more time for quality, purposeful conversation. As one Year 5/6 teacher said, 'I love getting the chance to talk with the children about what they are doing, as individuals. In the crowded, busy, day-today bustle of teaching you don't get much of an opportunity to do that ... it's worth it.'

Children participate in decision-making

There are many techniques teachers can use to invite children to participate in making decisions about what and how they will learn. Finding out what children are interested in learning about, or in learning to do, can provide fascinating responses. Older children may be asked to identify more specifically the things that interest or concern them - at a personal, community and global level. This information can be used to create and inform programmes of study and

amounts to a 'decision to rewrite the curriculum' (Reid & Thwaites 1992: 128).

Similarly, even within more teacher-determined sessions, children can still develop questions or issues that interest them about that topic - particularly when they are provided with stimulating, hands-on experiences that activate thinking and wondering.

Choice and responsibility begins early

If we want our children to develop as independent and responsible learners, we must give them plenty of practice. Providing choice (even about the smallest things, such as where to sit in the classroom) builds important decision-making skills and tells our pupils that we trust and respect them. Observing a pre-school environment, where children are often

given many more choices than those at school, can be a salutary reminder of the capacity even very young children have to manage themselves. Children who are empowered to contribute to the conversation about their learning from the outset become highly skilled in the process as they move through the school.

Teacher planning is informed by children's learning

When we thoroughly plan our day, week, term or year, we can fall into the trap of leaving little space for the learning opportunities that arise

unexpectedly. Plans need to remain flexible so that we can act upon what pupils reveal to us about their needs and interests. It is all

too common for teachers to ask pupils, 'What would you like to find out?', then proceed with what they had planned to do anyway! When this happens, the message is clear—it is what the teacher wants that really counts.

Of course, thorough planning is essential;

Different children explore different content

One of the greatest blockers to a more differentiated and child-centred pedagogy is the perception that pupils need to be 'covering' the same thing — often at the same time and at the same speed.

While we would argue that not all curricula should or can be negotiated in this way, the pressure of what we 'have to cover', and the time available to do it, can blind us to the potential of more independent, varied pathways. Increasingly, DfE curricula documents identify core skills and knowledge, but leave it to schools to determine how to deliver that most crucial element of the learning process: the opportunity to apply those skills. It is these competencies — such as thinking, collaboration, communication - which are constitute a 'hidden curriculum' and which employers and Higher Education Institutions (HEIs) lament are missing in our young adults. These life skills can and should be developed across a range of contexts to ensure that our

Negotiation is carefully scaffolded and structured

In considering greater negotiation with pupils, many teachers worry about potential chaos or loss of structure in the classroom. From what we have experienced, negotiating is much more purposeful and meaningful if structures, routines and record keeping are tightly in place. Essential

however, in successful classrooms teachers regularly ask themselves such questions as: 'What are my pupils revealing to me? How will this refine where we go next? How do my plans need to be modified?' This is conscious, empowering teaching.

children are versatile learners able to adapt to a range of unanticipated circumstances and challenges.

Allowing children to explore more varied pathways in terms of subject matter and interests does not mean that a teacher has to sacrifice 'coverage' to engage interest. Key to this notion is understanding the difference between the 'content' of a child's study and the 'vehicle' for that study. The child's interests form the 'vehicle' for their study; the passions through which a child is engaged in learning. The curriculum forms the 'content': the learning that that individual child needs to acquire next in their development. With this understanding of vehicle and content, the teacher and child work in partnership to ensure that, at the very least, the child learns all that is described for them in the National Curriculum, through themes and explorations that the child finds intriguing.

skills such as questioning, time-management, self-assessment, decision making and critical thinking need to be explicitly modelled and discussed.

In addition, successful teachers actively work on dispositions that accompany independence

- persistence, risk taking, patience and having the confidence to seek assistance and receive feedback.

Such skills and dispositions are clear in this reflection from a Year 6 pupil who revealed, 'I have found my confidence has deeply improved,

and I am amazed at the organisation skills I have developed. I now feel confident about conferencing with my teacher... and I know that I am interested in my topic, and really enjoy it. I think it's great to learn about negotiating because what you learn pretty much stays with you forever.'

Teachers and pupils see themselves in new ways

Many of the teachers identify the process of 'letting go' as critical to their capacity to truly value and listen to the voices of their pupils. What are they letting go of? It is certainly not rigour, instead they are relinquishing the need to control the learning experience and to make all the decisions.

Similarly, children themselves may not initially respond well to the invitation, particularly if they have become accustomed to most decisions being made for them. Honest dialogue about these challenges is an important part of managing change.



The rewards

All of us want to feel valued, to have a voice and to have our opinions respected by others. As adults, we usually consider it our right to be heard and to have a say in matters that affect us. When this is denied, we are left feeling disempowered, unmotivated or distrustful. Similarly, children have a right to participate in

decisions about their learning.

Acknowledging and respecting this right in the classroom can reward us with learning outcomes that often far exceed our expectations. It is definitely a conversation worth having.

Project Based Learning

To instruct someone... is not a matter of getting him to commit results to mind. Rather, it is to teach him to participate in the process that makes possible the establishment of knowledge. We teach a subject not to produce little living libraries on that subject, but rather to get a pupil to think mathematically for himself, to consider matters as an historian does, to take part in the process of knowledge getting. Knowing is a process not a product.

Jerome Bruner (1966),
Toward a Theory of Instruction

The idea that projects better empower learning through “doing” certainly is not new (Dewey, 1933; Kilpatrick, 1918). Previous attempts at the reform of curriculum and teaching in the 1960s used “investigative” and “discovery” learning as methods to involve pupils in active learning (Bruner, 1963). But although these initial approaches showed some success (e.g. Bredderman, 1983), further research (Blumenfeld et al., 1991) has shown that more structure is required than these 1960s approaches provided, in order for teachers and pupils to engage children successfully in challenging project based learning.

Researchers found that although many schools do attempt to prepare pupils for everyday life, school approaches to learning are vastly different, and so “success within [school] culture often has little bearing on performance elsewhere” (Brown, Collins, & Duguid, 1989). So Project Based Learning (PBL) methodology also needs to address the skill divide that universities and employers report as demonstrated in young people’s capabilities. The key to this, and the long-term goal of PBL, is to assist in the development of the pupils’ abilities to learn for themselves (Bransford, Sherwood, Vye, & Rieser, 1986; Bruer, 1993; Resnick, 1987). If learning is properly understood as an activity of

constructing knowledge and developing skills, then pupils need to be mentally active. Since this type of thinking activity is consistent with that of “experts in the field”, it is unrealistic for teachers to expect pupils to “come upon” these habits of mind on their own. Instead the children need to interact meaningfully with a range of challenges and interests, with advice and guidance about how problems may be overcome using a range of approaches. As a consequence of all these demands, the PBL pedagogical approach has undergone much reflection and refinement over the last 40 years to reach its current form.

Nowadays, PBL enables pupils to gain a deeper understanding of the concepts and standards at the heart of a project, concepts and standards which are prescribed by the National Curriculum and mostly chosen by the teacher, although teacher and pupil will negotiate over additional learning outcomes that the project may address. Projects also build vital workplace skills and lifelong habits of learning. They can allow pupils to address community issues, explore careers, interact with adult mentors, use technology, and present their work to audiences beyond the classroom. PBL can motivate pupils who might otherwise find school boring or meaningless. Even more broadly, PBL allows children to

develop their empathic skills in order that they can understand the problems that others face more completely in the future. So what are the main levers for constructing really effective PBL?

Rigorous, meaningful and effective Project Based Learning:

is intended to teach significant content. Goals for pupils' learning are explicitly derived from content standards and key concepts at the heart of academic disciplines.

requires critical thinking, problem solving, collaboration, and various forms of communication. To answer a Generative Question and create high-quality work, pupils need to do much more than remember information. They need to use higher order thinking skills and learn to work as a team. They must listen to others and make their own ideas clear when speaking, be able to read a variety of material, write or otherwise express themselves in various modes, and make effective presentations. These skills, competencies and habits of mind are often known as "21st century skills," because they are prerequisite for success in the 21st century workplace.

requires enquiry as part of the process of learning and creating something new. Pupils ask questions, search for answers, and arrive at conclusions, leading them to construct something new: an idea, an interpretation, or a product. Pupils find project work more meaningful if they conduct real enquiry, which does not mean finding information in books, on Google or through websites and pasting it onto a poster. In real enquiry, pupils follow a

trail that begins with their own questions, leads to a search for resources and the discovery of answers, and often ultimately leads to generating new questions, testing ideas, and drawing their own conclusions.

With real enquiry comes innovation—a new answer to a generative question, a new product, or an individually generated solution to a problem. The teacher does not ask pupils to simply reproduce teacher- or textbook-provided information in a pretty format. To guide pupils in real enquiry, children refer to the list of questions and lines of enquiry they generated during the immersion events. The teacher coaches them to add to this list as they discover new insights. The classroom culture should value questioning, hypothesising, and openness to new ideas and perspectives.

is organised around an open-ended Generative Question. This focuses pupils' work and deepens their learning by framing important issues, debates, challenges or problems. A good generative question captures the heart of the project in clear, compelling language, which gives pupils a sense of purpose and challenge. The question should be provocative, open-ended, complex, and linked to the core of what the teacher wants pupils to learn. It could be abstract (When is war justified?); concrete (Is our water safe to drink?); or focused on solving a problem (How can we improve this website so that more young people will use it?). A project without a generative question is like an essay without a thesis. Without a thesis statement, a reader might be able to pick out the main point a writer is trying to make; but with a thesis statement, the main point is unmistakable. Without a generative question, pupils may not understand why they are undertaking a project.

They know that the series of assigned activities has some connection with a time period, a place, or a concept. But if you asked, “What is the point of all these activities?” they might only be able to offer, “Because we’re making a poster.”

provides a broad range of lines of enquiry and interest to pursue. Teachers launch projects with “immersive events” that engage interest and initiate questioning. An immersive event can be almost anything: a video, a lively discussion, a guest speaker, a field trip, or a piece of mock correspondence that sets up a scenario. The period of immersion will include a wide variety of stimuli to generate many possible lines of enquiry that could be pursued. In contrast, announcing a project by distributing a packet of papers is likely to turn pupils off; it looks like a prelude to activity without engagement. Many

pupils find schoolwork meaningless because they don’t perceive a need to know what they’re being taught. They are unmotivated by a teacher’s suggestion that they should learn something because they’ll need it later in life, for the next course, or simply because “it’s going to be on the test.” With a compelling project, the reason for learning relevant material becomes clear: I need to know this to meet the challenge I’ve accepted and the interests I have (Sizer, 1984).

creates a need to know essential content and skills. Project Based Learning reverses the order in which information and concepts are traditionally presented. A typical unit with a “project” add-on begins by presenting pupils with knowledge and concepts and then, once gained, giving pupils the opportunity to apply them. Project Based Learning begins with an



immersive process to establish the vision of an end product or presentation. This creates a context and reason to learn and understand the information and concepts.

allows some degree of pupil voice and choice.

Pupils learn to work independently and take responsibility when they are asked to make choices. The opportunity to make choices, and to express their learning in their own voice, also helps to increase pupils' educational engagement. This element of project-based learning is key. In terms of making a project feel meaningful to pupils, the more voice and choice, the better. However, teachers should design projects with the extent of pupil choice that fits their own style and pupils. On the limited-choice end of the scale, learners can select what topic to study within a general driving question or choose how to design, create, and present products. As a middle ground, teachers might provide a limited menu of options for creative products to prevent pupils from becoming overwhelmed by choices. On the "the more, the better" end of the scale, pupils can decide what products they will create, what resources they will use, and how they will structure their time. Pupils could even choose a project's topic and driving question.

includes processes for revision and reflection.

Pupils learn to give and receive feedback in order to improve the quality of the products they create, and are asked to think about what and how they are learning. Formalising a process for feedback and revision during a project makes learning meaningful because it

emphasises that creating high-quality products and performances is an important purpose of the endeavour. Pupils need to learn that most people's first attempts don't result in high quality and that revision is a frequent feature of real-world work. In addition to providing direct feedback, the teacher should coach pupils in using sets of criteria to critique one another's work. Teachers can arrange for experts or adult mentors to provide feedback, which is especially meaningful to pupils because of the source. A project should give pupils opportunities to build such 21st century skills as collaboration, communication, critical thinking, and the use of technology, which will serve them well in the workplace and life. This exposure to authentic skills meets the second criterion for meaningful work—an important purpose. A teacher in a project-based learning environment explicitly teaches and assesses these skills and provides frequent opportunities for pupils to assess themselves.

involves a public audience. Pupils present their work to other people, beyond their classmates and teacher – in person or online.

This "ups the stakes," increasing pupils' motivation to do high-quality work, and adds to the authenticity of the project. School work is more meaningful when it's not done only for the teacher or the test. When pupils present their work to a real audience, they care more about its quality. Once again, it's "the more, the better" when it comes to authenticity. Pupils might replicate the kinds of tasks done by professionals—but even better, they might create real products that people outside school use.

Cooperative Learning

In the last half century many forces have converged to create the abandoned generation — students who are not receiving life skills training outside of school, who, to a frightening extent, are rearing themselves, struggling on their own to formulate values and learn life skills. Children of the abandoned generation have turned to television and video games in an attempt to fill the socialisation void, to formulate their values. Children today spend 1180 minutes a week watching television; they spend 38 minutes a week in meaningful conversation with a parent.

At the same time supply of positive life skills is down, demand is increasing dramatically. The work world has changed so that social skills are at a premium. Over seventy percent of jobs today involve membership in a team, and the number is increasing. Increased technology in the workplace is associated with interdependence — no one person working alone can design a computer. Teams cooperate with other teams. In today's world teamwork skills are employability skills.

Spencer Kagan (2003),
Addressing the Life Skills Crisis

Over the past twenty years different approaches to cooperative learning have been proposed by different individuals. The three most popular are those of David Johnson and Roger Johnson (Johnson et al., 1994), Robert Slavin (1994, 1995), and Shlomo Sharan and Yael Sharan (Sharan, 1995; Sharan & Sharan, 1994). Generally, the size of cooperative-learning groups is relatively small and as heterogeneous as circumstances allow. The recommended size is usually four to five pupils. At the very least, groups should contain both males and females and pupils of different ability levels. If possible, different ethnic backgrounds and social classes should be represented as well.

A specific goal is shared by the group which can be achieved only if each member learns the material being taught or makes a specific contribution to the group's effort. In this way each pupil is individually accountable, but

also makes a collective contribution to the group's goal. Pupils are shown how to help each other overcome problems and complete whatever task has been assigned. This may involve episodes of peer tutoring, temporary assistance, exchanges of information and material, challenging of each other's reasoning, feedback, and encouragement to keep one another highly motivated.

Positive interdependence and promotive interaction are not likely to occur if pupils do not know how to make the most of their face-to-face interactions. As a result, they have to be taught basic skills as leadership, decision making, trust building, clear communication, and conflict management. The conflict that arises over differences of opinion, for example, can be constructive if it is used as a stimulus to search for more information or to rethink one's conclusions. But it can destroy group cohesion

and productivity if it results in pupils stubbornly clinging to a position. In the vast majority of studies, forms of cooperative learning have been shown to be more effective than

noncooperative reward structures in raising the levels of variables that contribute to motivation, in raising achievement, and in producing positive social outcomes.

Effect on Motivation

Because a pupil's sense of self-esteem can have a strong effect on motivation, this has been examined in several cooperative-learning studies. Slavin (1995) found that cooperative learning produced bigger increases in some aspect of self-esteem (general self-esteem, academic self-esteem, social self-esteem) than the noncooperative method with which it was compared. He cites several studies in which pupils in cooperative learning groups felt more strongly than did other pupils that their groupmates wanted them to come to school every day and work hard in class. Pupils in cooperative-learning groups were more likely to attribute success to hard work and ability than to luck. A strong indicator of motivation is the actual amount of time pupils spend working on a task. Most studies have found that cooperative-learning pupils spend significantly more time on-task than do control pupils (Johnson et al., 1995; Slavin, 1995).

Effect on Achievement

The various features of cooperative learning, particularly positive interdependence, are highly effective in raising achievement because they encourage such achievement oriented behaviours as trying hard, attending school regularly, praising the efforts of others, and receiving help from one's groupmates.

Learning is seen as an obligation and a valued activity because the group's success is based



on it and one's groupmates will reward it. Vygotskyan views of cognitive development make a very powerful case for the positive aspects of the heterogenous grouping of cooperative learning groups, however a common concern is what happens to the "more able" pupil: do they operate as a "cut-price" teacher? Indeed, Tudge (1990) notes that the ZPD exists around a child, not just in front, by which he means that a more able pupil could regress if

all they did was speak with less able children.

There are two important observations to make of this particular issue. Firstly, there is that sense that is captured in the commonly held notion that if you really want to understand something then you should try teaching it. Implicit within this is the element of practice that allows children to engage with tasks or information more than once and from more than one leader of learning, whether adult or child. New information that is elaborated (restructured and related to existing knowledge) is more easily retrieved from memory than is information that is not elaborated. A particularly effective means of elaboration is explaining something to someone else.

Effect on Social Relationships

In most studies pupils exposed to cooperative learning were more likely than pupils who learned under competitive or individualistic conditions to name a classmate from a different race, ability group, ethnic group,

Secondly, there is the teacher's understanding of Vygotsky's assertion that "good learning" is that which is in advance of development" (Vygotsky 1978: 89). The role of the adults in the classroom whilst the more able children are explaining their thinking, if that is what a particular cooperative learning structure requires them to do, is to intervene and support their coaching conversation so that they are presented with new information and new skills as they explain their thinking.

Most structures do not require pupils to explain knowledge or skills already acquired to their less able peers. But if they do, then research tells us that the more able pupil must be challenged and supported during these structures.

or social class as a friend or to label such individuals as "nice" or "smart." In some studies the friendships that were formed were deemed to be quite strong.

Pupil Engagement and Pupil Voice

School can be far more than a place that allows only some pupils to serve on the pupil council... School can be a place whose very mission is to ensure that everyone becomes a school leader in some ways and at some times in concert with some others.

Roland Barth (2001),
Improving Schools from Within

Pupil engagement can be tokenistic if schools are not careful. At our school we want to achieve much more than nodding reference to children's opinions. While "pupil engagement" has enjoyed considerable attention in the literature since the mid-1990s, its beginnings can substantively be seen a decade previously, in Alexander Astin's work on pupil involvement (Astin 1984). Following on from "the pupil experience" and "research-led teaching" before it, "pupil engagement" has become the latest focus of attention among those aiming to enhance learning and teaching around the world. It is not difficult to understand why: a sound body of literature has established robust correlations between pupil involvement in educationally purposeful activities, and positive outcomes of pupil success and development, including satisfaction, persistence, academic achievement and social engagement (Astin, 1984, 1993; Berger and Milem, 1999; Chickering and Gamson, 1987; Goodsell, Maher and Tinto, 1992; Kuh, 1995; Kuh et al., 2005; Kuh and Vesper, 1997; Pace, 1995; Pascarella and Terenzini, 1991, 2005).

It has been suggested that, in the UK, consideration of pupil engagement practice should include pupil feedback, pupil representation, pupil approaches to learning, institutional organisation, learning spaces, architectural design, and learning development

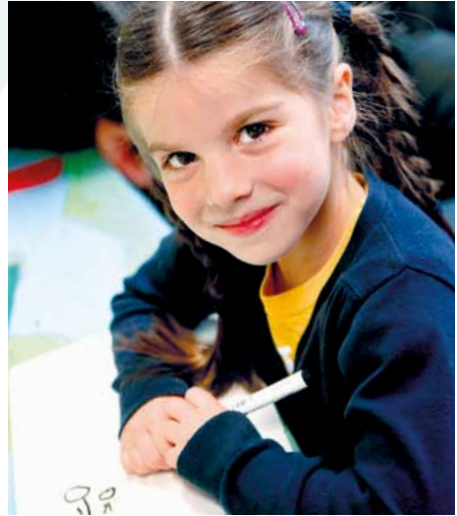
(Trowler 2010). In some respects, what pupil engagement should achieve could also be defined by contrast with pupil disaffection, such that the possible consequences of not engaging pupils are inertia, apathy, disillusionment or engagement in other pursuits (Krause 2005).

In practice, pupil engagement has three different aspects:

- **Behavioural engagement** - Pupils who are behaviourally engaged would typically comply with behavioural norms, such as attendance and involvement, and would demonstrate the absence of disruptive or negative behaviour;
- **Emotional engagement** - Pupils who engage emotionally would experience affective reactions such as interest, enjoyment, or a sense of belonging;
- **Cognitive engagement** - Cognitively engaged pupils would be invested in their learning, would seek to go beyond the requirements, and would relish challenge.

These three means of engagement are the foundations of purposeful co-construction of schools' learning experiences. Globally, pupil voice and engagement is accepted as an important part of the design of an education system and many countries, provinces and states have well embedded strategies for

capturing children's opinions about the design of learning, built upon these three means of engagement. Programmes such as Speak Out, in Alberta, Canada or Sound Out in the USA, are effective in giving children meaningful voices in the co-construction and reform of their learning and learning environments. However, elsewhere in the world, such as in Victoria, Australia, pupil voice is limited mostly to state-wide committees of school councils, as it also tends to be in the UK. Despite the UK having one of the longest histories of pupil engagement in the world, as yet there is no formal national or even regional route to involving children in curriculum design. Freire, Hooks and others have been consistent in their warning that pupil voice limited to school councils in this way is unlikely to yield pupil engagement.



Special Educational Needs and Inclusion

Exceptional human beings must be given exceptional educational treatment, treatment which takes into account their special difficulties. Further, we can show that despite abnormality, human beings can fulfil their social role within the community, especially if they find understanding, love and guidance.

Hans Asperger (1944),
PhD thesis

Schools must follow two codes of practice in order to support children who have special educational needs (SEN) or disabilities, respectively. This section on general theory does not form policy or practice here at our school or children's centres, but seeks to shed some light on the current debates in education about the issues that arise around SEN and Inclusive provision.

A child has special educational needs (SEN) if

he or she has learning difficulties or disabilities that make it harder for him or her to learn than most other children of about the same age, such that they are unable to access the curriculum with 'normal' classroom differentiation. Many children will have special educational needs of some kind during their education. Schools and other organisations can help most children overcome the barriers their difficulties present quickly and easily. A few children will need extra help for some or all of their time in school.

So special educational needs could mean that a child has:

1. **learning difficulties** – in acquiring basic skills in school
2. **emotional and behavioural difficulties** – making friends or relating to adults or behaving properly in school
3. **specific learning difficulty** – with reading, writing, number work or understanding information
4. **sensory or physical needs** - such as hearing or visual impairment, which might affect them in school
5. **communication problems** – in expressing themselves or understanding what others are saying
6. **medical or health conditions** – which may slow down a child's progress and/or involves treatment that affects his or her education.

Children make progress at different rates and have different ways in which they learn best. Teachers take account of this in the way they organise their lessons and teach. Children making slower progress or having particular difficulties in one area may be given extra help or different lessons to help them succeed. The most important and controversial issue currently regarding the education of children with disabilities and special educational needs (SEN) internationally is that of “inclusive education”. The debate about inclusive education was re-ignited in 2005 when Mary Warnock published a pamphlet entitled, “Special Educational

Needs: A New Look”

Warnock was the author of the landmark Warnock Report (DES, 1978), that had a profound impact on SEN education both in the UK and in much of the English speaking world. However in the intervening 4 decades, Warnock has come to consider that the reference to inclusion is “possibly the most disastrous legacy of the 1978 Report” (Warnock 2010: 20), since “there is increasing evidence that the ideal of inclusion, if this means that all but those with the most severe disabilities will be in mainstream schools, is not working” (Warnock 2010: 32). Warnock is joined by other leading academics from around the world such as Kauffman & Hallahan (1995), Jenkinson (1997), O'Brien (2001) and Vaughn & Schumm (1995) in questioning the extent to which schools should be “inclusive”.

What emerges from Warnock's later reflections is the need for clarity about what “inclusion” means. Some, such as the DfEE (1997) refer to advancing inclusive education to mean increasing the numbers of children with SEN in mainstream schools, while maintaining special schools for those who need them. In contrast, other sources (e.g. The Inclusion Charter, 1989) use the term inclusion to describe a state of affairs in which all children are educated in mainstream classes, within mainstream schools, with only temporary withdrawal from the situation ever envisaged. However, Warnock now emphasises that total inclusion of all children, as opposed to the majority of children, is not appropriate for schools since, “it is [children's] right to learn that we must defend, not their right to learn in the same environment as everyone else” (Warnock 2010: 36). Hornby summarises this view with the assertion that “it

cannot be morally right to include all children in mainstream schools if this means that some of them will not be able to receive the education most appropriate for their needs” (Hornby 2012: 54). It may however be appropriate to have some link schools, where mainstream and special schools work together to provide some integration opportunities with appropriate support (Heggarty 1988).

So, the weight of current opinion within the research community is that inclusion should refer to the practice of meeting the needs of those children with SEN whose needs are such that they can be met by the mainstream school. Given this, Hattie’s (2009) influential analysis of the beneficial effect of learning support makes it very clear that it is important that children remain in the class with their teacher as the best qualified professional and are supported there as far as is possible.

Even so, some parents are concerned that if their child is identified as having special educational needs that they will become labelled and stigmatised. Norwich (2010: 91) notes that there is a tension, a “dilemma of difference” in that if children are identified as having SEN there is a risk of negative labelling and stigma, while if they are not identified as having SEN then there is a risk that they will not get the teaching they require and their needs will not be met. Sadly, society labels us all in many ways and it is the opinion of many within the research community that avoiding identifying SEN will not prevent children being labelled, but that it may prevent them from getting the education that they need. In this regard, the curriculum must be appropriate for SEN children. As Warnock notes, it is particularly important for many children with SEN that there should be a balance between academic achievement and personal and social development.

Assessment

Even when instruction is planned with great care, delivered effectively, and in a way that engages pupils, the learning outcomes often bear little or no relation to what was intended. If what a pupil learns as a result of a particular sequence of instructional activities is impossible to predict, even in the unlikely event that all the learners in an instructional group are at the same place when the instruction starts, within minutes, pupils will have reached different understandings. That is why assessment is a, perhaps the, central process in effective instruction. It is only through assessment that we can find out whether a particular sequence of instructional activities has resulted in the intended learning outcomes.

Dylan William (2011),
Formative Assessment: Definitions and Relationships

Ausubel suggested that the most important factor influencing learning is what the learner already knows, that teachers should ascertain this, and teach accordingly (Ausubel, 1968).

One of the main reasons that one-to-one tutoring is so effective, according to Bloom (1984), is that the tutor is able to identify errors in the pupil’s work immediately, and then to

provide clarification, and further follow-up if necessary. Crucially, information about pupil performance is only useful if its analysis leads to action. Black & William, (1998) accept that “feedback” as it is commonly used in the classroom amounts to teachers commenting on a piece of work after it has been completed. In order for it to be counted as good feedback, they insist that it must also actually improve pupil learning. To this end, Sadler (1989) observes that “information about the gap between actual and reference levels is considered as feedback only when it is used to alter the gap”.

Kluger & DeNisi (1996) assert that there are two possible contexts to feedback, namely that it indicates that the performance either exceeded or fell short of the intended goal. For either context there are four possible responses to a feedback intervention: changed behaviour; changed goal; abandoned goal; or rejected feedback. Yet, of the eight possible scenarios six of them are likely to be ineffective or worse. Only two responses are likely to have positive outcomes: either when feedback about a goal exceeded results in changing the goal and increasing aspiration; or when feedback about a goal missed succeeds in changing behaviour and leads to increased effort. If we do not ensure that feedback matches these two positive descriptions then, as Perrenoud noted in his commentary on the Black and William (1998) paper, “...the feedback given to pupils in class is like so many bottles thrown into the sea. No one can be sure that the message they contain will one day find a receiver” (Perrenoud 1998: 87). The implication of this is that the design of effective formative assessment cannot be detached from the learning context in which it is undertaken. The motivations and self-perceptions of pupils, and their assessment

histories, will all be important influences on how feedback is received (Deci & Ryan, 1994).

In a year-long study of eight Reception and Year 1 classrooms in six schools in England, Tunstall and Gipps (1996) identified a range of roles played by feedback, shown in the table below. They found that much of the feedback given by teachers to pupils focused on socialisation: “I’m only helping people who are sitting down with their hands up”. Beyond this socialisation role, they identified four types of feedback on academic work (see below). Type A included feedback that rewarded or punished the pupils for their work, such as being allowed to leave for lunch early when they had done good work, or threatened with not being allowed to leave for lunch if they hadn’t completed assigned tasks. Type B feedback was also evaluative but, while type A feedback focused on rewards and sanction, type B feedback indicated the teacher’s level of approval, e.g. “I’m very pleased with you” or “I’m very disappointed in you today”.

In contrast to the evaluative feedback classified as types A and B, feedback classified as types C and D was descriptive. Type C focused on the adequacy of the work in terms of the teacher’s criteria for success, ranging from the extent to which the work already satisfied the criteria at one end (e.g., “This is extremely well explained”) to the steps the pupil needed to take to improve the work (e.g., “I want you to go over all of them and write your equals sign in each one”). A defining characteristic of type C feedback is that it focuses on the idea of work as product, while type D feedback emphasises the “process” aspects of work, with the teacher playing the role of facilitator, rather than evaluator. Teachers engaged in this

kind of feedback “conveyed a sense of work in progress, heightening awareness of what was being undertaken and reflecting on it” (Tunstall and Gipps 1996: 399). Type D is the methodology that most empowers the child as a

co-creator of their own learning (e.g. “What are the problems that you face now in improving this product?” or “How can we improve this writing?”).

Evaluative feedback	Type A	Type B
Positive	Rewarding	Approving
Negative	Punishing	Disapproving

Descriptive feedback	Type C	Type D
Achievement feedback	Specifying attainment	Constructing achievement
Improvement feedback	Specifying improvement	Constructing the way forward

Although there is no simple one-size-fits-all guide to effective feedback, there are some clear guiding principles that teachers should follow to maximise the effectiveness of the feedback they provide. Firstly, Brookhart (2007) suggests that there are three (nested) steps to good feedback:

Formative assessment provides information about the learning process that teachers can use for instructional decisions;

Formative assessment provides information about the learning process that teachers can use for instructional decisions and pupils can use in improving their performance;

Formative assessment provides information about the learning process that teachers can use for instructional decisions and pupils can use in improving their performance, which motivates pupils.

Secondly, Shute (2008) suggests that in providing this sort of nested, effective formative

assessment in order to motivate pupils and help them to improve their performance, teachers should bear in mind two further observations:

1. To enhance learning:

- feedback should focus on the specific features of the task, and provide suggestions on how to improve, rather than focus on the learner;
- it should focus on the “what, how and why” of a problem rather than simply indicating to pupils whether they were correct or not; elaborated feedback should be presented in manageable units and, echoing Einstein’s famous dictum, should be “as simple as possible but no simpler.”
- However, feedback should not be so detailed and specific that it scaffolds the learning so completely that the pupils do not need to think for themselves.
- Feedback is also more effective when from a trusted source (whether human or computer).

2. In relation to the timing of feedback

- the optimum timing of feedback appears to depend strongly on the kind of learning being undertaken.
- immediate feedback appears to be most helpful for procedural learning, or where the task is well beyond the learner's capability at the beginning of the learning, while delayed feedback appears to be more appropriate for tasks well within the learner's capability, or where transfer to other contexts is sought.

There is a role for frequent testing, such as through times tables or spelling tests. Bangert-Drowns, Kulik and Kulik (1991) found that pupils who took at least one test over a 15 week period scored significantly higher than those who did not, and that more frequent testing was associated with higher levels of achievement, although testing more frequently than once every two weeks appeared to confer no additional benefit. They found that the crucial variable in determining the impact of feedback on learning through these sorts of frequent tests was the degree to which the nature of the feedback, and the way it was provided, encouraged understanding in pupils.



New Technologies

The alternative to giving far more attention to envisioning the future is to squander resources on vainly trying to use new technologies to solve the problems of school- as-it-is instead of seeking radically new opportunities to develop school-as-it can be. The conversation about technology in schools is trapped in the wrong subject. The talk is all about “does the technology work” as a fix for the old. It ought to be about developing and choosing between visions of how this immensely powerful technology can support the invention of powerful new forms of learning to serve levels of expectation higher than anything imagined in the past.

Seymour Papert (1999),
Vision for Education

The American academic Marc Prensky expresses an understanding, that the modern teacher knows only too well, about the place of new technologies and ICT in the lives of our pupils.

“It is amazing to me how in all the hoopla and debate these days about the decline of education... we ignore the most fundamental of its causes. Our pupils have changed radically. Today’s pupils are no longer the people our educational system was designed to teach. Today’s pupils have not just changed incrementally from those of the past, nor simply changed their slang, clothes, body adornments, or styles, as has happened between generations previously. A really big discontinuity has taken place.

One might even call it a “singularity” – an event which changes things so fundamentally that there is absolutely no going back. This so-called “singularity” is the arrival and rapid dissemination of digital technology in the last decades of the 20th century.

Today’s pupils – [from Nursery through to University] – represent the first generations to

grow up with this new technology. They have spent their entire lives surrounded by and using computers, video games, digital music players, video cams, cell phones, and all the other toys and tools of the digital age. Today’s average college grads have spent less than 5,000 hours of their lives reading, but over 10,000 hours playing video games (not to mention 20,000 hours watching TV). Computer games, email, the Internet, cell phones and instant messaging are integral parts of their lives” (Prensky 2001: 1).

He goes on to describe these new pupils as “digital natives”. However, the term “Digital Native” is misleading because no two Digital Natives are created equal. Each of them has varying degrees of access to digital technologies, literacy skills, and participation within their peer culture. What’s more alarming is the “divide” opening up between those that have access to the network and those without. Schools and teachers need to ensure that children who do not have internet access at home, or who have inappropriate internet access at home, have opportunities to close that divide through high quality, educational technology in class.



In these class-based experiences they should learn how to protect their on-line privacy and safety as well as learn how to utilise and exploit the opportunities that new technologies offer them to achieve new outcomes.

But that in itself isn't the whole problem, because having access alone isn't the solution. While access speaks of the stark contrast amongst the haves and have-nots, digital literacy reveals the difference in those who have the skills to navigate this new landscape and those that don't. Like many other crucial skills, digital literacy needs to be taught and learned through constant practice. Naturally, this doesn't explain why some Digital Natives will get more out of their sessions than others do. But what about those who get much more practice? Its estimated by Professor Urs Gasser that for children who turn fifteen in 2016 or so, "they are likely to spend somewhere between 1,200 and 1,500 hours per year on digital technologies." Going onto say that, "Five years later, at age twenty, they will have accumulated at least 10,000 hours as active users of the Internet, if the current statistics still apply." This amount of time, in turn, is equivalent to

what Malcolm Gladwell argued to be the magic number for true expertise in his book "Outliers". Whether you consider world-class violinists, concert pianists, chess grandmasters, star athletes, Bill Gates or the Beatles, 10,000 hours appears again and again. "It seems," neurologist Daniel Levitin writes, "that it takes the brain this long to assimilate all that it needs to know to achieve true mastery." Ten years, Gladwell says, is roughly how long it takes to put in 10,000 hours of hard practice. For these Digital Natives it will only have taken them five years.

Will every single one of these Digital Natives grow up to be top-notch experts? Of course not. "But in fact," Gladwell writes, "they are invariably the beneficiaries of hidden advantages and extraordinary opportunities and cultural legacies that allow them to learn and work hard and make sense of the world in ways that others cannot." For those who are given the chance to put in those hours and have the presence of mind to seize it, undoubtedly they will become masters of digital technologies. But mastering the "use" of digital technologies isn't enough, because they must understand the

“role” it plays in their lives too. This higher order understanding of new technologies and ICT is crucial to the school’s intelligent leadership of this subject area.

Although a certain level of functional knowledge of ICT is essential, the teacher does not need to be the “expert” in what to click, or how to create; these digital natives will be a long way ahead in the courageous exploration of any software’s capacity. However, the children’s development curve means that they need monitoring, intervention at the point of learning, correction and challenge: the teacher is the guide and facilitator of the children’s use and understanding of new technologies (Bax 2011). This is the difference between knowing what technology can “do”, compared to knowing how and when to apply that knowledge. As with all other areas of the curriculum, the most important and exciting part of the ICT curriculum is its application. This is so true in ICT, that it should not be taught without context, but always embedded within a purposeful outcome.

The notion of children being co-constructors of the curriculum and learning experiences in order to ensure their engagement with the learning endeavour, is particularly pertinent in New Technologies and ICT. In the modern world technology is inescapable and children are bombarded with information and communication from an immense number of trustworthy and less-trustworthy sources. Yet, as Buckingham states, “Some grand claims have been made about the impact of new media on children’s lives. Like the idea of childhood itself, new technology is often invested with our most intense fantasies and fears. It holds out the promise of a better future, while simultaneously provoking anxieties about a fundamental break

with the past. In this scenario, children are perceived both as the avant-garde of media users and as the ones who are most at risk from new developments” (Buckingham 2002: 77). Media scholar Henry Jenkins asserts that teachers must work together to ensure that every young person has “access to the skills and experiences needed to become a full participant, can articulate their understanding of how media shapes perceptions, and has been socialised into the emerging ethical standards that should shape their practices as media makers and participants in online communities.”

Indeed, in this particular subject, the school ignores the imperative to co-construct the curriculum at its peril since, as Professor Stephen Heppell observes, today the really substantial technological seismic shocks are “out there” in the consumers hands before a policy debate has even had time to start, let alone conclude. As schools debate acceptable use policy for their managed IP networks, pupils are arriving with more personal bandwidth, unfettered, on their mobile phones, than the school offers, filtered, and shared between whole classes. Children “printing” otherwise unmanufacturable 3D physical objects as components of their Design and Technology projects will have identified issues, addressed and solved them, before the policy makers and strategists have even perceived the problem. In 2000 - 2010, policy makers were still debating the merits and dangers of Google (which was for an inexplicable while banned in many schools) as the children themselves were already switching to YouTube as their primary search engine. Whilst the Blair government floundered and obfuscated around its promise for an email address for each child, the children themselves

had dropped email (“It’s what your dad does”) in favour of the greater conversational granularity of social networks and messaging. Policy looks backwards in this hectic rush, but children

and (many of) their teachers look forward. The school’s approach to New Technologies will therefore always need to be dynamic and under constant review.

Curriculum Design and the Learning Community

What has become increasingly clear... is that education is not just about conventional school matters like curriculum or standards or testing. What we resolve to do in school only makes sense when considered in the broader context of what the society intends to accomplish through its educational investment in the young. How one conceives of education, we have finally come to recognise, is a function of how one conceives of culture and its aims, professed and otherwise.

Jerome Bruner(1996),
Vision for Education

“Curriculum design” is understood by many (such as JISC) as a high-level process, which defines the learning that is to take place within a specific programme of study, leading to specific units of credit or qualification. However, we believe that the curriculum is capable of much more than this, that it offers many more opportunities for creative expansion of the mind than simply a route to examination and qualification.

Currently the English national curriculum is under review, as happens periodically and especially at times of a change of government. This is not coincidental as each government has its own view of the essential ways in which young people should be educated in order to fill the country’s needs for a productive workforce and constructive citizens or subjects. In its soon to be revealed incarnation, the next curriculum promises to be slimmer but deeper than previous versions. It will demand mastery of core skills which will be identified nationally and yet will provide for a more locally determined and bespoke broader curriculum,

entrusting the skillful design of this to schools. How exactly schools will go about this design is very important, as experience tells us that there are many factors that should be considered in order to produce a robust, rigorous and vibrant curriculum.

We believe that the way that a school designs its curriculum should encompass those ideas that we have detailed in all the principles outlined above. However, designing a successful curriculum is not as simple as throwing a few good ideas together and hoping that they cohere. There are some fundamental structures that must be put in place to make sure that teachers are able to give children a coherent experience that informs and involves parents and carers and provides children with just enough scaffolding to allow them to shape their own curriculum without also predetermining its form and nature. Some educationalists advocate a checklist for curriculum design including consideration of where the learning should take place and who should be involved and so on

(e.g. Waters 2012). However, whilst these sorts of considerations are important, they are just a small part of the curriculum design process. Those are the kinds of considerations that go in to producing a curriculum map, the tool by which a whole school or a year group ensures that it is covering the statutory curriculum and against which it tracks progress. The much greater issue at the heart of curriculum design starts with a more fundamental question: what sort of learners will emerge from our school as a result of being a part of our learning community? If we are able to define the answer to this question, then we have the basis for an exploration of the curriculum that must be designed.

The process of answering this question is one that the best schools never consider completed. In these schools, the way we structure learning and the way that the curriculum helps to enable that learning is under constant review. To this end, schools should involve the parents and children in the co-construction of the curriculum. This may be achieved by inviting parental suggestion for vehicles and contents of the curriculum at the beginning of the year, whilst asking children and teachers to review and negotiate their outcomes of that curriculum as they progress through each term. The results and progress made should be publicly viewable and reflected upon by the children so that all stakeholders can validate the decisions around curriculum that have been made.

At a more strategic level, the curriculum must also be designed with an understanding of what has gone before. Hargreaves usefully observes the “ways” in which previous educational policy has informed the curriculum and what we may learn from each era’s influence. He suggests that from the shortfalls of the 1950s to 1970s

era we should understand that our curriculum design should retrieve the spirit of innovation and flexibility in order to restore the capacity of teachers. From the 1980s Hargreaves argues that we can discern the importance of broadly defined standards and the need to support each pupil as an individual. From the 1990s Hargreaves suggests that we should understand that our curriculum needs a sense of urgency in the way it addresses inequities and the underperformance of some groups of children.

With this strategic understanding, there are then some key principles that our curriculum should embody and address as we design and re-design it through its implementation:

- Children should find their learning **challenging, engaging and motivating**. The curriculum should actively and explicitly encourage high aspirations, sustained effort and lofty ambitions for all.
- The curriculum should be **broad enough to give expression to a wide range of experiences** for all children. The curriculum should open the children’s minds to possibilities and should lead them to explore new and future talents.
- Children should experience opportunities to **progress and develop their skills and knowledge** through the structured nature of the curriculum, with each stage and phase of learning building upon previous understanding. This understanding should be garnered from teacher and pupil analysis, not chronological age. Learning in the 21st century demands that we help students understand rather than just remember. In discussing the need to teach for understanding, Howard Gardner suggests that students need the

capacity to take knowledge learned in one setting and apply it appropriately in a different setting. The methodology to build understanding requires a different approach to curriculum development, an approach that takes the evidence of understanding as a starting point and builds the learning experiences for students towards demonstrating that understanding. There should be opportunities for children to develop their full capacity for different types of thinking and learning. As they progress, they should develop and apply increasing intellectual rigour, drawing different strands of learning together, and exploring and achieving more advanced levels of understanding.

- The **curriculum should enable personalisation of each child's learning journey and should empower each learner's choice**. The curriculum should respond to individual needs and support particular aptitudes and talents. It should give each child increasing opportunities for exercising responsible personal choice as they move through their school career. Once they have achieved suitable levels of attainment across a wide range of areas of learning, the choice should become as open as possible. There should be safeguards to ensure that choices are soundly based and lead to successful outcomes.
- The curriculum should be **relevant and coherent**. There should be clear links between the different aspects of children's learning, including opportunities for extended activities which draw different strands of learning together. Children should understand and help to co-create

purpose for their activities. The curriculum should enable them to see the value of what they are learning and its relevance to their lives, both for the present and in the future.

- The **philosophy which underlies the curriculum should extend and be seen to extend to all members of the learning community**. As Papert notes, "If I wanted to become a better carpenter, I'd go find a good carpenter, and I'll work with this carpenter on doing carpentry or making things. And that's how I'll get to be a better carpenter. So if I want to be a better learner, I'll go find somebody who's a good learner and with this person do some learning. But this is the opposite of what we do in our schools. We don't allow the teacher to do any learning. We don't allow the kids to have the experience of learning with the teacher because that's incompatible with the concept of the curriculum where what is being taught is what's already known." Our curriculum should have at its heart "learning" and all who are involved with children, whether as teaching or support staff, or parents and carers, should endeavour to model a "learning" approach to life.



applied practice

Negotiated Learning

Negotiated Learning describes the blend of teacher-designed and child-initiated learning that takes place at Rosendale Primary School. It allows children to pursue their own interests in which they can apply the knowledge, skills and understanding they have acquired. Children will learn as a whole class, individually and in small groups.

There is whole class teaching of skills and knowledge. Children will not learn how to add and subtract numbers for example unless they are taught the required skills. Children will learn each day as a class having maths, literacy and phonic sessions. They will learn in their teams or pairs using a range of cooperative learning structures to help them practise, explain and describe what they have learnt.

This new learning is then practised and applied during independent learning. Children may use a Learning Agreement, which is a document that outlines teacher-designed independent learning activities that the children need to complete that week. These activities are planned to evidence the application of the new learning that occurred in the whole class teaching sessions the previous week. As children move through the school, they will undertake longer, Contracted Learning Activities, such as a longer piece of writing and a maths investigation. There will be two or three activities to choose from and the teacher will talk to the children individually about the expectation for this activity, thus ensuring differentiation and rigour.

When not teaching whole class sessions, teachers intervene with children individually to extend and support their learning. Intervention also ensures that work is being completed to the high quality that is expected. This is called 'intervention at the point of learning' and is a vital tool for learning. Intervention can take different forms. It might involve an adult modeling a language structure e.g. "This is how I would start a persuasive letter". When an adult sees a child struggling with a particular skill and shows them how to master it e.g. "remember to partition the number first before you add it", this is also intervention. As is asking a child to construct a sentence first orally and extending or supporting their vocabulary choices before writing it down. Teachers will spend a large part of their day intervening at the point of learning. All adults must record their interventions on the child's work. This might just simply be by



writing a capital I, and then 'adjectives'. There is an expectation that the child's work will improve as a result of this intervention. Every piece of work completed by a child needs to show how an adult has intervened to move the child on or

Cooperative Learning

Learning cooperatively is an essential aspect of life at Rosendale and is incorporated into all areas of the curriculum. We insist on cooperative learning because research shows that it raises attainment, closes the achievement gap, improves socialisation skills and reduces behaviour issues. The system used at Rosendale to implement cooperative learning is the Kagan system. When planning, teachers always ask themselves "What do I want the children to learn and what structure will help me achieve this?" It is essential that the structure support the learning.

Children work in Cooperative Learning Teams. These teams are heterogeneous, having a mix of ability, ethnicity, personality and boys and girls. These teams are changed each half term.

Cooperative learning structures are used throughout the whole class sessions and also used as part of the independent learning e.g. complete these number operations using RallyCoach

There is no 'hands up' at Rosendale, if teachers want to know whether or not children know the answer to a question or have remembered something from the previous lesson, they should use 'stop structures' such as As tell Bs or a 'Rally Robin'. This increases the engagement and participation of all children.

must be evaluated by an adult. There will also be times when teachers will want to reinforce a concept with a particular group of children and so will gather the children together in a group to receive further teaching.

Children are also encouraged to reflect on the value of good social skills for learning and life that are established through cooperative learning such as how to be a good listener. Through cooperative learning children feel on the same side and that they need each other. They feel that they can't hide in the classroom and are held to account for their learning. They feel equal status as all participate and they feel engaged due to the simultaneous interaction that takes place in class.



Feedback and Assessment

High quality feedback is essential in order for learners to make progress. Without feedback, learners will continue to make the same mistakes or will never have their learning extended.

In the Early Years, most of the feedback learners receive will be verbal, as adults talk to the children as they are working, correcting language errors, asking questions and explaining events. However, there are opportunities for adults to record these observations by simply writing what they have said on the child's drawing or work. This is also done in the form of an annotated photograph, which is then stored in the digital data programme, Evernote.



At Rosendale Primary School, learners will receive feedback on all their written work. This will take the form of Intervention Marking when teachers intervene with a child as they are working, helping to improve their performance then and there. This feedback will be given verbally to the child but must always be accompanied by a written reminder. If teachers have not seen a piece of work until after the

child has finished working on it, they must provide a written evaluation of it. This can be to simply indicate whether or not it has met the learning outcome or may involve 'Next Steps' marking which will instruct the child as to what they need to do in order to improve. The child must always be given the opportunity to respond to this feedback.

The children will also begin to provide feedback to each other. This will need to be planned for and supported by the teacher using 'Two Stars and a Wish' or Carousel Feedback, for example.

Assessment for Learning is a vital part of any classroom and actively involves the learners themselves. By assessing a child's learning, the teacher becomes aware of any barriers to learning, knows what the child needs to do next in order to progress, what the child needs to practise in order to consolidate learning and what styles of learning support the child. This knowledge is essential in order to ensure that planning takes into account how the children are learning and moves their learning on. At Rosendale, this is referred to as the 'Plan,



Teach, Assess' cycle. Each term, teachers also take a 'snap shot' assessment of where children are.

Children's reflections on their learning are captured throughout the year by the children themselves, with the adults supporting them, using Evernote. The mechanics of the digital system are simple. Each child has a folder within Evernote and each piece of work, observation or reflection is stored in that folder. Each reflection is also accompanied by a series of tags. Children will, with support where necessary, photograph and annotate their work samples as well as photographing more practical learning moments. Teachers always talk about 'learning' not 'doing' and reflect themselves on their own learning. Sentence structures such as "Next time I will..." which help scaffold the language of setting goals are established with all children. Children tag all their reflections with three tags: name of subject, subject

detail and emotion. Adults also add tags where appropriate for specific evidence groups. Adults also assist the children by planning specifically for reflections and making those opportunities evident. For example, independent learning activities, such as learning spelling patterns, provide plenty of opportunities for ongoing self assessment. Children are asked to test themselves with a partner each day and keep a record of their score, plotting progress and analysing the strategies that led to improved scores. Teachers also plan regular opportunities for children to undertake 'housekeeping' of their Evernote folder, making sure that everything is properly tagged and seeing where there is missing evidence of their learning. Children are introduced to using their reflections to share failure and set goals. Pupils are also expected to generate their own learning tags based upon learning outcomes, which will be used and displayed in their independent work.

Project Based Learning

Project Based Learning is an approach to teaching foundation subjects, with the potential to cover either many curriculum areas or provide a more detailed exploration of one. Rosendale bases their learning in project on the 'Design Thinking' model, which provides a framework around which to plan. It provides a structure so that the learner and the teacher know where they are in the learning journey. It provides choice to the learner in what they're going to learn, and how – the student needs to work out what knowledge and understanding they're lacking, in order to achieve what they want to achieve. Learners are able to find a compelling area of learning and an interesting approach to learning it. It always presents the

whole game of learning, the big picture, even if students have to learn some 'expert elements' along the way, they see where they slot in to



a bigger, more epic problem they are trying to solve and this gives them a sense of purpose and audience.

Project based learning is separated into five different stages: immersion, synthesis, ideation, prototyping and feedback, although the feedback stage operates throughout the other stages in the form of ongoing evaluation, as well as being a final stage in itself. Before Project Based Learning can start, teachers plan the starting point for a project, working together to create a question or statement that will generate curiosity and stimulate thinking when revealed to the children. The question or statement is epic and also open enough for the children to be able to take their learning in unplanned for directions, bearing in mind that teachers have planned specific experiences that they want the children to have and which will 'tilt' the children's learning towards certain curriculum areas.

Immersion is the longest of the stages, in terms of time, and during this stage teachers will have the opportunity to plan for coverage of the curriculum. There is direct teaching of



knowledge and skills. The children have a range of experiences including going on trips and visits, listening to experts, hands on learning of skills, watching video clips, preparing and listening to talks giving information, or having experiences that help them to empathise with the subject matter. They use a dedicated wall space to share all of the content explored.

Synthesis is when the children work to define a focus for the remainder of the project either individually, as a group or a whole class. They search through all their learning during immersion to find a line of enquiry, a 'non-googleable' question that has some purpose, function and an identifiable audience. During this stage, children seek feedback from their peers and teachers provide structured opportunities to do this using Cooperative Learning structures e.g. Carousel Feedback, One Stray. Children end this stage with a question to explore and a problem to solve.

Ideation is the most rapid of the stages and gets children to quickly generate lots of ideas about their line of enquiry or their problem and quickly narrow them down. Again, there are many Cooperative Learning structures to facilitate this process including Jot Thoughts, or AllWrite RoundRobin. The result of this stage is that the children come up with a decision about what they are going to produce in the Prototype stage that will satisfy their line of enquiry, address their problem or help them work out a solution.

Prototyping is the point at which children start to work towards their end product. However, the product is not the first step in the process but an end goal. The point of this process is for children to revisit and refine their work, constantly seeking out and acting upon feedback from their peers and others. This

stage starts with a 'paper prototype' that is made quickly without too much time and energy invested so that children are happy to 'screw it up' and go back to the drawing board as a result of the feedback. Again, Cooperative Learning strategies lend themselves to the process of feedback and these feedback sessions are planned for and facilitated by the teacher. Children use their prototype to express their ideas to others. Children use a variety of techniques to prototype including, junk modelling, LEGO, role play, story boards, publishing writing, short films, or presentations.

After each version of their prototype there is a round of feedback so that the children can evaluate, refine and redefine their prototype. Final Feedback is the end point of the project. Each project ends with some kind of feedback and this could be incorporated in to some kind of performance. Children might present their ideas as a talk, a completed piece of art work, they might publish to the web, redecorate a room in the school etc. The feedback they receive is an integral part of their 'presentation' e.g. as an audience response, a question and answer session etc.

New Technology

The use of emergent technologies is an invaluable classroom tool. It can engage children, capture learning, give access to a world of information and provide a local and global audience. Teachers should always be aware that often children's knowledge and expertise is better than theirs. Although as adults we might be anxious about the expert use of technology, we might struggle to understand or remember

how it works and it might not be our first port of call when looking for a suitable medium, for children it is as much an everyday part of life as a notepad and a pencil is to us. Therefore, we have to make sure that it is accessible in the classroom, and allow children to be the experts and coach others in the use of a particular type of software.



Every class has a blog, which is updated every week. Children should access the class blog once a week so that they become familiar with how it works and its purpose and parents are encouraged to comment regularly not just on their own class blog but on all blogs throughout the school. Children upload photos and text to the blog and also use a range of technology – ‘easyspeak’ microphones, flipcams and digital cameras - to record learning for the blog.

New technology particularly lends itself to ‘games based’ learning and to supporting the ‘rote’ learning of specific areas of knowledge such as letter formation, number bonds and simple spelling patterns. These require frequent repetition and learning apps in iPads provide a fun and engaging way to practise these.

Pupil Voice

Throughout Rosendale Primary School, children play an essential role in determining their learning and co-constructing the curriculum. There is a school council, which meets regularly to discuss whole school issues.

However, children also co-construct their curriculum and are active participants in their learning. Teachers discuss with children each week how well they feel they have learnt that week and how their learning should progress next week. These discussions take place directly before PPA sessions and inform the planning for the following week. There are many Cooperative Learning structures that support this decision making such as ‘Spend A Buck’ or ‘Numbered Heads Together’. Teachers always make this visible for the children so that they can see that they are active participants in their learning. The teacher quickly takes the

Children also use technology as a coaching tool for other children. They use ‘Educreations’ and ‘Screen Capture’ to explain how they solved a problem or show their understanding of a maths strategy or sentence type. This can aid teacher assessment of the child’s learning and also act as a useful tool for learning when it is uploaded on to the class blog, so that other children can view that demonstration of methodology and learn from it.

Although much of the ICT curriculum is presented as an integrated part of learning in all curriculum areas, there are times when teachers need children to learn a specific set of skills altogether. For example, when children learn how to use ComicLife to explore certain issues, for example bullying.

class through what has been taught that week and helps them to reflect on what they liked best and what it was about that learning that they liked, so that that can be incorporated into the following week’s teaching. This is made apparent to the children e.g. “QuizQuizTrade really helped you to remember your table facts this week, so next week we are going to use it to help us remember equivalent fractions”. It is also used to see where learning has not been so successful e.g. “We need to relearn this spelling pattern because no one can spell it correctly”.

Children take an active role in their own personalised curriculum. When completing the longer Contracted Learning Task, children relate their learning to their own interests, providing it still addresses the learning outcome. For example, if the learning outcome is to learn to structure their writing using paragraphs and the

suggested activity is to write a letter, children may chose to compose a story if that is there area of interest. As long as they can show that they understand the use of paragraphs, the choice of genre of writing can be flexible.

The children will elect two representatives (one boy, one girl) from each class for the

school council. They will attend the school council meetings bringing to these meetings the opinions and responses of their class and feeding back the discussions from those meetings. Once a week there is a 'in class' assembly when children use the circle time format to discuss whole school and class based issues.



Special Educational Needs

At Rosendale Primary School children with Special Educational Needs (SEN) are supported to learn in class by the class teacher and the teaching assistant. Any concerns about children who may be experiencing barriers to their learning are discussed with the Assistant Headteacher and the SEN Specialist Teacher who then advises as to how best support the child. The Assistant Headteacher works closely with parents and carers and a range of outside professionals. The support given to children who are experiencing difficulties is formalised by a Group Educational Plan (GEP) or a

Personal Education Plan (PEP) which details what interventions will take place to support the child with their learning. Best practice is that interventions are led and monitored by the class teacher and happen 'little and often'.


Children with a statement of SEN are supported, in class, by a one to one Learning Support Assistant (LSA) and these children have an individualised learning programme that is written in consultation with the Assistant Headteacher and the SEN Specialist Teacher.

Reading

Reading is an essential part of any primary curriculum and the following opportunities to develop reading skills are incorporated into the school day.

- Direct teaching of blending sounds in order to read words.
- Direct teaching of high frequency words and the development of a sight vocabulary
- Daily reading of a whole class story or stories
- Individual one to one reading with an adult
- Guided Reading sessions for everyone, every day.
- Regular opportunities for children to take home books from school to share at home
- The opportunity to read with a reading partner every week, either from an older class, as a 'Reading Buddy' to a younger child or as part of their independent learning.



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From the big thinkers of the previous century that have influenced our own understanding of learning, to the strategic implementation of those principles in designing pedagogy, this text sheds light on the great heritage that we draw upon in our 21st century schools. It then explains in clear detail the manner in which those principles are implemented in actual practice for each year group. An indispensable guide to the design and practice of learning in our federation, this text is a unique support for every member of our learning community.

