The Science of Childcare

First Discoverers

A Wesco Venture

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'The hand that rocks the cradle rules the world.'

(WILLIAM ROSS WALLACE, 1865)

Whilst very little phases childcare professionals, it is rare to find them cradle-rocking. Nevertheless, when it comes to identifying those with real power to give little ones a flying start in life, dedicated nursery and childcare workers are right at the top of the list alongside parents. Wallace's observation was about a mother's influence, but anyone nurturing younger children helps them interpret their world – if done well, this has seriously positive implications for their development into mature adults well-placed to shape all our futures.

Such responsibility for laying strong foundations fit for purpose needs to be underpinned by a clear understanding of how children learn. Therefore, this article will outline five critical areas where skilful and timely support can transform early years learning and development. Each area will be explored in greater detail to identify some important theoretical concepts driving recommended childcare strategies, and to clarify the links between such theories and practical childcare.

Many professionals will discover some concepts are already a feature of their work, and are warmly encouraged to share their own particular experience and outcomes. A willingness to disseminate, reflect upon, and learn from good practice is a hallmark of all mature professions, and there is pressing evidence improvements in national childcare standards are sorely needed. For instance, Sir Michael Marmot from the Institute of Health Equity at University College London, declares: 'We continue to fail our children,' pointing out that 'only half of our five-year-olds are achieving a good level of development,' and are thus far from 'school-ready' when they leave reception.

Cognitive Development

Cognitive development concerns the mental changes which occur as a child grows. Put more simply, understanding the development of children's thinking is essential to the success of any initiatives designed to promote early-years learning. According to writers such as Donaldson, 'interpersonal contexts' provide important early support for cognitive advances in thought and language, and developmental psychologists Piaget and Vygotsky have also proposed major theories describing how cognitive change operates. Early learning approaches commonly utilise sensory play as a means of promoting a range of cognitive learning skills often, for example, providing relatively unstructured opportunities for discovery learning where children are frequently able to learn by employing trial and error approaches.

Linguistic Development

Young children seem to acquire language skills at astonishing speed: two-year-olds can convey hundreds of linguistic messages, and five-year-olds can handle the majority of grammatical rules in their mother tongue. Human language and thought are obviously closely linked, and language itself is a major learning tool which supports the development of thinking. However, it is important for educators to understand that linguistic development is a sophisticated concept and, to avoid underestimating the abilities of young children, it is helpful to think of their linguistic abilities as subdivided into receptive language and productive language. Receptive language is the language they can actually understand, whilst productive language is the (lesser) volume of acquired language they are able to use to make themselves understood.

Social & Emotional Development

Children's social development takes them on a journey from self-centred toddlers right through to normal socially adjusted adults. Along the way they slowly become independent, developing confidence as a direct result. Similarly, a well-attached child whose emotional needs are met, and who, for example, receives reassurance when required, will gradually master self-control and develop a healthy self esteem – personal attributes which are soon likely to produce a determined and resilient school-age learner. Play which naturally features co-operation and collaboration is, of course, the ideal catalyst for encouraging the development of all forms of social and emotional learning.

Physical Development

Physical movements of all kinds become more controlled as children grow – a child of three, for example, can usually run more gracefully, and with better control, than a younger child. Movement is generally classified as two types: fine motor skills where small muscle groups operate in combination; and gross motor skills where the body's large muscle groups join forces to produce movement. Though some natural development occurs, children also need regular play opportunities to realise their full motor-skills potential. Writing will later require sophisticated fine motor skills, whilst strong gross motor skills are an essential pre-requisite a school-age child will need to participate in team sports.

Creative Development

The creative dimension engages and expands a child's mind much like physical activities promote motor skills. Creative play develops imagination and allows a child to 'dream' something internally, and then give their dream external form – a fulfilling experience which ultimately may allow some to communicate by non-verbal means (dancers, artists, musicians), though the process usually inspires joy-filled language too. It is essential for childcare professionals to understand personal developments in this area benefit society as well as individuals: intensely creative dreamers may turn out to be poets, but they are just as likely to be architects, engineers and software designers too!

Following our overview, the focus shifts to looking in detail at the cognitive aspects of learning in childcare. Whilst cognitive theories provide helpful ways for professionals to visualise and think about child development, the priority will be to explore how this knowledge translates into purposeful and effective activities within the nursery environment.

Developing Childcare Best Practice

Finally, it is worth restating the value of sharing and reviewing what works best for each of us in the light of the ideas and concepts which have been discussed. Theories are intended to inform good practice and provide a useful means of evaluating what already works, but good practice is seldom achieved where working practices are dictated by theory alone.

COGNITIVE DEVELOPMENT

'The mind is the root from which all things grow...' (Bodhidharma)

Cognitive development is a term used to describe incremental changes which occur as a child's thinking and understanding unfold through the pre-school years and beyond. Though some of the most dramatic changes a child undergoes occur in this cognitive domain, it is nevertheless important to remember the 'holistic child' does not experience developments in isolation, but as a seamless complementary and interdependent stream of phases and events. Thus, for example, a baby's obvious joy in recognising its mother is a strong social advance suggesting a healthy social attachment, but recognising others as 'non-mothers' also represents a cognitive advance in terms of classification of objects, and so on...

All cognitive advances clearly impact upon a child's learning abilities, and much of the skilful part of a childcare professional's role lies in recognising such progression in reasoning, and then assessing when, and how, to introduce new initiatives to further enhance development. Professional, evidence-based assessments are essential to avoid what Fontana (1988) describes as the risk that 'forms of thinking are demanded of children that they are incapable of supplying'. A rich field of research is available to inform such decisions and the work of landmark contributors to the study of children's cognitive development will now be reviewed, together with significant modern additions.

Piaget's Theory

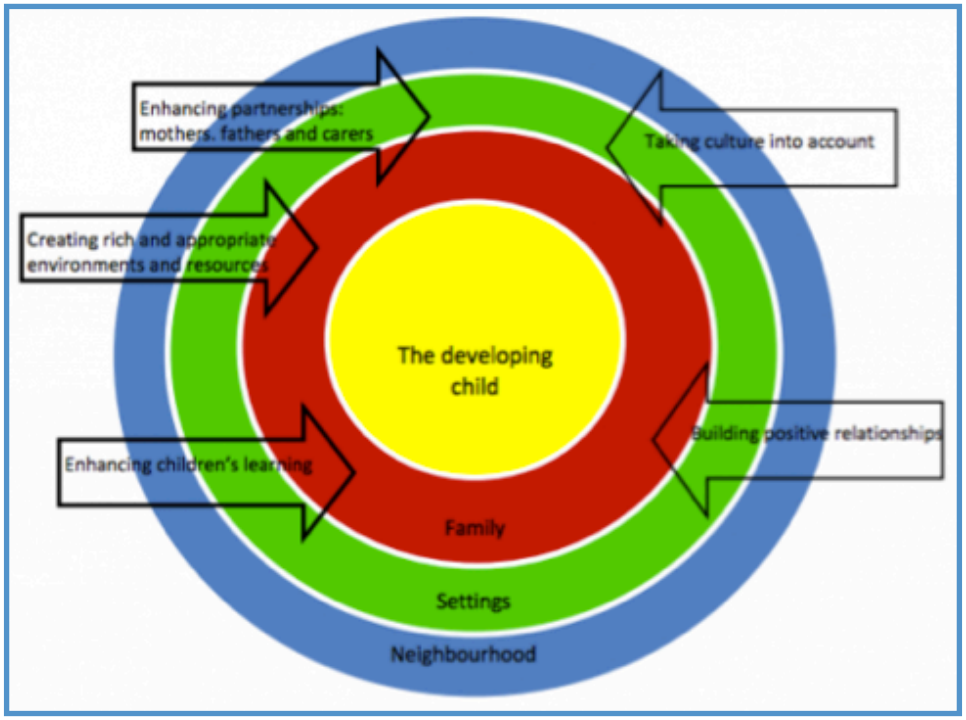
Piaget developed a comprehensive account of child development in the context of the child's constant interaction with the outside world. According to Piaget, the child continuously 'accommodates' the world by adjusting to meet its demands, and also 'assimilates' new situations by working out how any new knowledge fits with what is already understood. Two further key concepts – schemas and equilibration – are central to Piaget's ideas. A schema is a model which a child develops, and continuously updates, thus adding to it's complexity – for example, 'mother' and 'father' are similar separate schemas which progressively become ever more divergent as the growing child adds detail. Equilibration, Piaget thought, drives a child to reconcile each new piece of knowledge – by accommodation and assimilation – with what is already known. This theory explains 'trial-and-error' learning as the mind's attempt to restore a balanced state whilst new learning is taking place.

Early learning professionals will mostly encounter children at Piaget's 'sensori-motor' phase (birth to around 2 years), or else the 'pre-operational' phase (2-7 years). The sensori-motor phase is characterised by the child's attempts to master the co-ordination of senses with motor responses – described by Piaget as gaining 'intelligence through action'. During the following pre-operational phase, the child's own knowledge and perception of the world becomes the dominating influence, with some more-advanced 'symbolic functioning' emerging around four years old.

Vygotsky's Theory

Where Piaget emphasised the child's discovery of the outside world, Vygotsky held that a child's cognitive development was primarily the result of social communication and interaction. Basically, Vygotsky points out, a growing child will always learn more from others than they learn alone – especially when the help is offered by 'experts', or is grounded in the child's cultural context. Allied to this point is Vygotsky's concept of a 'zone of proximal development': the notion, familiar to many educators, that a child (when tested) appears not to know something but becomes altogether more capable once the social context includes an adult guide, or more-advanced peers. Thus, building on Vygotsky's work, Wood, Bruner and Ross advocated the practice of 'scaffolding', in which adults, for example, gave confidence-building contextual assistance which was then sensitively withdrawn as the child developed develops skill and self-assurance.

The modern view, whilst not abandoning Piaget, considers his groundbreaking work takes a linear approach to child development, whereas observations suggest this is often a more complex matrix of multiple elements with different children progressing in different ways. Vygotsky's theories, on the other hand, have proved more enduring with Rogoff's extensive research, for example, describing guided participation involving adults as the most effective means of promoting cognitive development, and Bronfenbrenner's child-centred account of the context of children's development highlighting the importance of social and cultural elements. The latter is set out below in the diagrammatic form favoured by the author.



There is universal agreement about the positive benefits of children's play in stimulating cognitive development. It is also generally acknowledged that any play involving one or more senses similarly offers enhanced learning potential. As US childcare expert Angie Dorrell comments, this can sometimes be essential: 'Imagine trying to teach a group of four-year-olds about melting without allowing them to hold an ice cube as it melts in their hands, or to watch cheese on bread in the microwave.'

In some play/learning contexts practitioners can provide a rich sensory environment whilst encouraging a variety of problem solving activities, such as how to make sand stick together, or how to build a boat which will float. Piaget's self-discovery approach would see wholesale trial-and-error engagements, which might then be followed by some light-touch adult scaffolding – of which Vygotsky would very much approve. Though the outcomes would be different, in each case there is clear potential for cognitive development.

Opportunities for Cognitive Development

As Bronfenbrenner's diagram shows, learning takes place in multiple contexts and parents too can promote a host of cognitive learning opportunities from within everyday activities. Such 'active learning' opportunities at home, or in the nursery, might include offering a choice of food, identifying a selected range of noises, or playing either 'Peek-a-Boo' or age-related board games as appropriate.

Rather than offering competing or contradictory claims, the theories and research outlined above are always best considered as different perspectives on child development. For practitioners, such information provides a variety of ways of viewing and describing examples from their own practice. For example, when considering how a baby's natural reflexes at birth develop into controlled conscious movements, Piaget and Vigotsky would almost certainly account for the same progression in very different ways.

LINGUISTIC DEVELOPMENT

'The limits of my language means the limits of my world.' Ludwig Wittgenstein

As a great philosopher of language, Wittgenstein understood the critical importance of linguistic ability. Without language, human communication would be limited to the level of basic instincts, but even more importantly, as Fontana points out, 'a world without language would be a world without thought'. The acquisition of language is thus a major human attribute which has enabled us to build a complex civilisation far beyond the limits of development elsewhere in the animal kingdom.

How humans actually acquire language early in life, though the subject of much research, remains one of the mysteries of our existence. The Book of Genesis, recounting the language story about the Tower of Babel, begins by telling us 'now the whole world had one language and a common speech'. This implies the ancients perhaps knew, and modern linguistic researchers have confirmed, that a new born child at the babbling, pre-speech stage can hear and make all the sounds which exist in all the languages of the world. How infants filter the syllables, then the words, they need from this scarcely imaginable mass of linguistic data seems miraculous before one even considers the child, virtually unaided, then accomplishes the feat of developing enough grammar to speak and understand their native language. For parents and childcare professionals this dramatically underlines the huge learning potential young children possess.

Skinner's Theory

An early enquiry into language acquisition by Skinner (1957) proposed that infants develop language through 'operant conditioning' by receiving reward and reinforcement for their efforts. For example, the easily observable phenomenon of 'motherese' where a mother/parent/carer will constantly echo and respond to their child's vocalisms, often extending and elaborating upon them, clearly rewards infants and encourages them to attempt further communication. As words emerge, asking for a 'dink', produces a drink and the young child receives further stimulation to develop speech in response to such environmental factors.

Chomsky's Theory

A major figure in linguistic research, Chomsky found Skinner's environmental explanation for language development to be insufficient, arguing that it would be impossible to acquire the necessary skills to produce an infinite variety of speech and responses just by means of environmental input. Chomsky3 (1965) instead advanced the idea of a Universal Grammar, believing that humans were born with an innate understanding of some basics of language construction: in virtually every language, for example, the subject of the sentence comes before the object.

According to Chomsky, the child learns the vocabulary of his native language, and the biological Universal Grammar feature takes care of the rest. Chomsky's theory proposes Universal Grammar is most active during the early biological period leading to maturity, which would help to explain why young children learn languages so easily, whilst adults find the process much more difficult.

Shaffer's model of language development

Focusing on the mechanics of linguistic development, Shaffer (1993) established four types of knowledge children need to acquire in order to learn language – usually in the following sequence:

- Phonology: the set of sounds the language uses.
- Semantics: the meaning carried by words and sentence constructions.
- Syntax: the rules of grammar governing how words and sentences are combined.
- Pragmatics: how a language needs to be modified in different contexts (e.g. commands, informal conversation etc.).

Remembering, of course, that developing children understand more language than they can actually reproduce in their own speech, Shaffer's phonology category covers a baby's initial vocalisations, leading to 'echolalia' when the child repeats babbled syllables – "mamama", "dadada" – developing embryonic word sounds in the process. By eight months, babbling clearly reflects many aspects of the child's native language, and around one year old, some words are acquiring significant meaning, providing evidence of an early vocabulary.

Linguistic Progression

At about eighteen months, so-called telegraphic speech begins. This is a basic form of speech leaving out all but the essentials to convey a meaning, e.g. 'Daddy sit.' Nevertheless, those with experience of caring for children will know the range of meaning which a child can add to even a single word using different vocal inflections, for example, to cover an array of different emotions. Building on telegraphic speech, children start to recognise nouns and verbs, adding more to their expanding vocabulary and experimenting with what Braine (1963) called 'pivot words' combined with a range of 'open' words – all gone, all messy, all clean, all done. Pronouns also appear about this time and are deployed in the same way – 'me hot', 'me toy' etc.

Between 2½ and 5, a child's language develops enormous scope and fluency as simple 'in' and 'on' prepositions are then followed by greater complexity. A frequently noticed error at this stage: 'The cat runned away' and similar situations where '-ed' is wrongly added, is believed to be caused by 'over regularisation' where children initially apply a rule they know, even where it is inappropriate.

Recent linguistic researchers are often a little uneasy about the Universal Grammar hypothesis, many feeling that biology, psychology and evolution provide scant evidence for something as concrete as nouns and verbs. Whilst those championing the Universal Grammar perspective stress the emergence of full-blown, adult-style aspects of language learning, constructivist researchers, on the other hand, envisage a developmental process driven by more general cognitive and learning abilities, especially the ability to infer and 'make sense' of things by comparing details of a new context with what is already known.

Language in Practice

As mentioned, the development of language is critical to the development of thought, and thus in turn to the development of learning and intelligence in general. Therefore, as those caring for and nurturing the development of pre-school children will appreciate, it is hardly an exaggeration to claim that developing a child's language develops everything else too. Language development is an extensive field and the National Literacy Trust has an extensive database covering all aspects of language development and resources. In addition, Valenti has a practical range of ideas tailor-made for parents and childcare professionals looking to develop and enhance a range of language skills.

An additional, and sometimes revealing, activity for childcare professionals would be to occasionally review children's progress purely from a language perspective to evaluate how it compares with an overall progress assessment. It must, of course, be underlined that individuals advance at different rates, and it is never satisfactory to make sweeping comparisons on narrow evidence. Nevertheless, an exercise which periodically looks at a child's language development in isolation, when measured against general predictions and expectations, could be a useful indicator of the likely benefits of enrichment opportunities or other interventions.

SOCIAL & EMOTIONAL DEVELOPMENT

'It is vital that when educating our children's brains, we do not neglect to educate their hearts.' Dalai Lama

Any young child raised with parents and carers able to respond with love, understanding, and clear common-sense guidance, has an excellent chance of learning how to relate to other people. At first the child discovers other people are fun to be with, that they will look after you, and make you happy. Later, the child learns others have rights and needs of their own, and that, by studying the feelings of these others, it's possible to make them happy too. So begins the child's pathway to being at ease with himself and with others, in all likelihood leading to the development of a confident and articulate adult who can be independent and yet also respect other people.

Dominant Research Theories

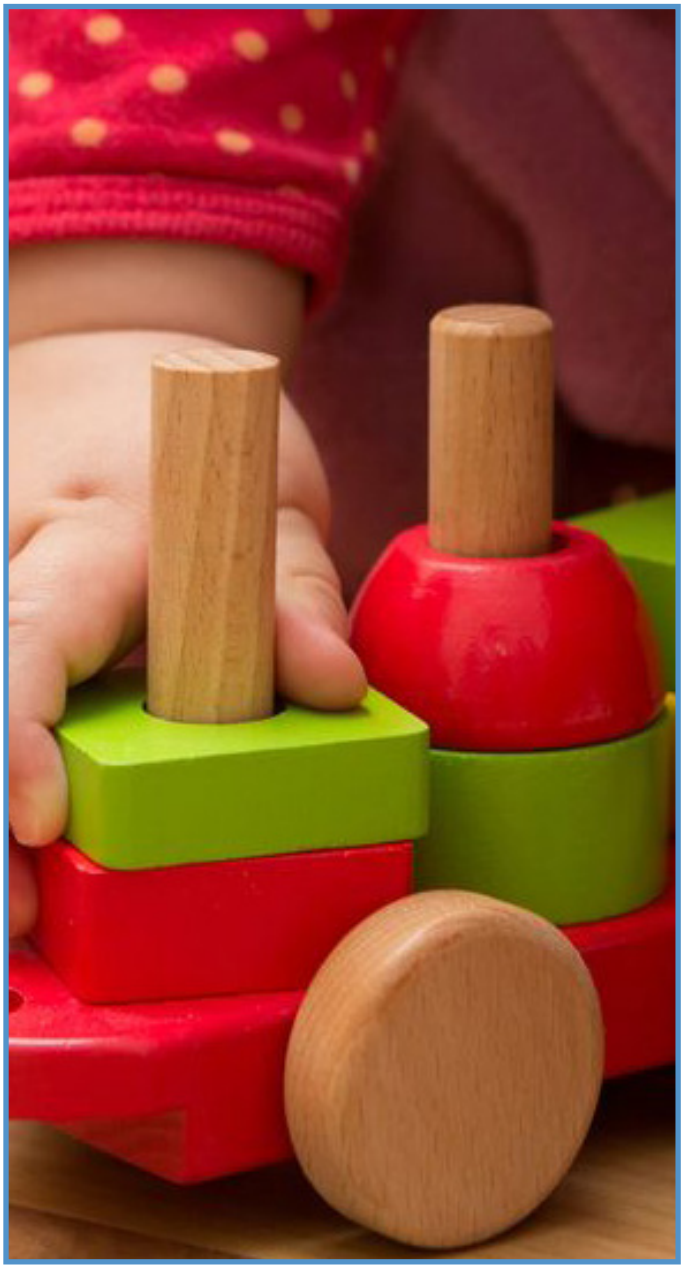
Amongst the large volume of early years research into social and emotional development, current practice is primarily informed by the work of three major practitioners:

Bowlby's Theory

Bowlby's attachment theory proposes that the establishment of relationships with caregivers is a critical feature of child development which has a lifelong influence on social relationships. Defining attachment as a 'lasting psychological connectedness between human beings', Bowlby believed 'the propensity to make strong emotional bonds to particular individuals (is) a basic component of human nature' and identified four characteristic features of this phenomenon:

- Proximity Maintenance – the need to remain physically close to those the child is attached to.
- Safe Haven – seeking out the attachment figure(s) for comfort and security when fearful or threatened.
- Secure Base – the attachment figure(s) provide a safe base for exploring the immediate environment.
- Separation Distress – the typical anxiety which results from the absence of the attachment figure.

In support of his observations, Bowlby noted that a child able to rely on a primary carer was less fearful than those lacking such reassurance. He also asserted this confidence was the outcome of healthy development from the infant to the adolescent stage and had a lifelong effect. Moreover, Bowlby was sure this was a learned expectation: because a carer has been responsive, a carer will always be responsive.



Bandura's Theory

According to Bandura's social learning theory, children's behaviours are influenced by observing others being rewarded (or disadvantaged) – both parents and peers – for behaving in a certain way, and then imitating the rewarded behaviours. He also believed older children begin to 'self-regulate': developing observed new behaviour via intrinsic reinforcement to conform to acquired internal standards – a sense of pride, satisfaction and personal achievement – and experiencing a sense of personal failure if they do not meet those standards.

Vygotsky's Theory

Vygotsky considered the child to be an apprentice who learns higher order functions directly from social interaction with parents, carers, and peers, and argued that: 'Any function in the child's cultural development appears twice... First it appears on the social plane, and then on the psychological plane.' Whilst both Piaget and Vygotsky describe children as active, hands-on learners, Piaget believed child development was universal, whilst Vygotsky maintained each culture provides different 'tools of intellectual adaptation'. Thus, for example, some societies rely on note-taking to store information, whereas oral cultures value memorisation and rote learning – an idea which has implications for teachers in multicultural contexts. For Vygotsky, child learners had a 'zone of proximal development' representing all the skills and knowledge a child alone cannot presently understand, but is capable of learning through guided social interaction. This concept explains, for example, why a child appears to lack certain knowledge, yet demonstrates the expected competence with prompting, or often just in the presence of a teacher or other learners.

Erikson's Theory

In an overarching work about the ego which adopted a developmental focus, the American psychologist and psychoanalyst Erikson proposed a psychosocial theory. This attempted to classify social maturation as an eight-stage model of psychosocial development spanning infancy to adulthood. Erikson's theory held that each developmental phase required the individual to resolve a conflict between ego development and social factors. According to Erikson, everyone's development will follow the same path, but each individual experiences varying (positive or negative)

outcomes during each phase, and a child suffering negative setbacks will have to deal with unresolved crises in later life. (The teenage 'identity crisis', for example, is Erikson's own phrase describing the 'adolescent' phase).

The first four stages relevant to early childhood are set out below:

1. ***Infancy (0-1 year)*** – the infant develops ***trust or mistrust*** in itself and others; the attachment figure is central.
2. ***Toddler (2-3 years)*** – the child develops ***autonomy or shame***, becoming either more independent or developing shame and doubt; parents and significant carers are central.
3. ***Pre-school (4-5 years)*** – the child shows ***initiative or guilt***, and is on a quest to discover what sort of person he or she is; the family are central.
4. ***Childhood (6-12 years)*** – the child is ***industrious or feels inferior***, with an attitude proclaiming 'I am what I learn'; in an expanding social world, home, school and friends are all important.

Opportunities for Social & Emotional Development

In nursery and similar contexts it is true to say that every social interaction is a developmental opportunity. However, the reality is that children's play – even, or perhaps especially, the free, unstructured type of play – usually provides the optimum chance for the reinforcement and extension of such vital life skills.

Here are four sources offering some further information related to children's social and emotional development:

- PBS Parents: Skills through sensory play; a general online resource with a social development section.
- Scholastic: Social development 0-2 years; theory plus some suggested activities.
- Supporting Teaching and Learning in Schools: detail about social/emotional development, plus excellent guidance on promotion and support.
- Social and Emotional Aspects of Development: EYFS detailed guidance for practitioners.

Relating Theory to Practice

Childcare professionals are, of course, aware that although theories inform practice they should never be interpreted as a set of instructions on how to do the job. It would be entirely wrong to suggest any psychological theory has the final answer to every question facing those with children in their care on a daily basis. Theory is of most use to professionals as a tool-kit to analyse care and learning situations, evaluate resources, and as a language to describe what is taking place. Simple discussions between colleagues about shared experiences are often the best means of unpicking the underlying theory related to any context. And whilst such exchanges can highlight the useful limits of a certain theory, they can also suggest productive new approaches too.

And Finally...

Consider how the above theories might explain (or fail to explain) the following:

Behind a Child's Emotions

Mad: Things didn't work out as I planned.

Sad: I'm feeling a loss of some kind.

Anger: I want to control something I can't.

Scared: There's something about this I don't understand.

Embarrassed: I can see I didn't meet the expectation.

PHYSICAL DEVELOPMENT

'Play is the work of the child.' Maria Montessori.

With very few exceptions, a child's physical development will occur through formal or informal play, alone, in a family setting, or amongst his peers. And as most parents and childcare professionals know, the pre-school years are a truly 'Golden Age' of motor development when, as research literature shows, 'the freedom to explore and play... paves the way for learning.'

Nevertheless, the purpose of play from a child's perspective is simply enjoyment: a child never consciously engages in play in order to hone a skill, discover how things work, or any of a myriad other things researchers claim to have identified in the varied characteristics of this play. To a child, play is fun and learning and development quite incidental. Even, or especially, when play is structured (organised by adults in order to progress development), it only 'works' if it retains the essential spirit of playful activities. In this respect, all adults must take care to avoid presenting such experiential learning as merely a preparation for adulthood: childhood emotions have a unique sharp and intense quality, and to deny children this form of vivid experience is to rob them of an opportunity which may never again occur in quite the same form.

Play and Physical Development

An early attempt to describe play, by Buhler (1935), identifies four different categories of play according to its content:

- Functional play emerges first as the practise of primarily physical movements and functions – generally rudimentary kicking and clapping, plus some finer hand movements.
- Fictional play, noticeable in the second year of life, often involves behaviours such as, for example, treating a doll as a real baby.
- Receptive play, in which a child looks at pictures or listens to stories, follows shortly afterwards.
- Constructive play appears around the end of the second year, and involves playing with bricks, drawing, plus playing with sand, mud, and similar natural materials.

To these has been added a fifth category – Play involving rules – i.e. children's games, usually established around nursery-school age. The first four categories peak around seven years of age whilst games become more important, finally turning into 'sport' which may become a lifetime passion.

It can be observed that increasingly refined physical development underpins the satisfactory evolution of Buhler's categories, which in turn warns us of the danger of neglecting the optimal physical development of a physically or mentally impaired child. This serves not just to condemn the child to repetitive and stereotypical movements, it also denies them access to higher order skills and functions.

Piaget (1955) holds that, during a child's first two years, all intellectual functioning occurs via sensory and motor experience, and

Gallahue (1993) reminds us that: 'Movement is at the very centre of young children's lives. It is an important facet of all aspects of their development, whether in the motor, cognitive, or affective domains of human behaviour.'

Movement-oriented activities, such as group parachute play, have a rich potential for promoting a child's social skills. For example, creating an overhead dome whilst sitting inside requires not only co-ordinated movement, but also good teamwork and social skills, whilst elementary football games do the same in a more vigorous context.

The benefits of physical activity in the emotional domain are well understood, and energetic running and chasing activities outdoors are time-honoured positive methods of alleviating the pent-up emotions which crop up frequently in an early years context. Equally important, but more nuanced, creative painting, moulding and manipulating activities not only help to refine hand-eye co-ordination, accuracy, spatial understanding, two-handed co-ordination and fine motor skills, but also provide young children with physical opportunities to express and work through their emotions.

Further Observations

Eloquently discussing the relationship between physical activity and cognitive development, Henniger (2012) observes:

'... infants beginning to crawl are working hard to master a physical skill that will enable them to explore more fully the home or school environment. At a slightly older age, walking allows toddlers to have even greater opportunities for touching, manipulating, and creating with the objects around them. During the preschool years, building with a set of blocks allows young children to learn about such mathematical concepts as proportionality and number. Finally, the refinement of fine motor skills in play makes it possible for children to succeed with writing tasks in the primary classroom.'

Play in Educational Contexts

Fully committed to the unity of mental and physical activity, Montessori (1967) advocates the application of motor skills relevant to the learning task as the most comprehensive educational approach. The Department for Children Schools and Families (DCSF) likewise underline the importance of play-based learning because;

'i) Playful children use and apply their knowledge, skills and understanding in different ways and in different contexts; and

ii) Playful practitioners use many different approaches to engaging children in activities that help them to learn and to develop positive dispositions for learning.'

However, their guidance document also warns: 'Practitioners cannot plan children's play, because this would work against the choice and control that are central features of play. Practitioners can and should plan for children's play, however, by creating high quality learning environments, and ensuring uninterrupted periods for children to develop their play.' DCSF (2009).

Given the natural prevalence of physically-active play in child-focused settings, and the assertion by Fisher (2008) that parents routinely ascribe more educational value to structured learning activities than 'play sessions', it is particularly important for childcare professionals to discuss and examine their in-house arrangements. Not only will this help to clarify underlying educational objectives, it will also ensure a clear and consistent message is relayed to parents.

CREATIVE DEVELOPMENT

"You see things; and say, 'Why?' I dream things that never were; and say, 'Why not'?" – George Bernard Shaw

Creativity is an elusive concept that is often easier to recognise than to define, and its frequent association with behaviour which is novel, unusual, or unexpected can be problematic – especially for those with childcare responsibilities. Perhaps one of the most poignant reminders of the rich variety of human creativity is the case of the German-born boy from a disadvantaged background: unable to speak 'normally' until age four, and just beginning to read at seven, he was described by teachers as 'slow', showed a great dislike of school, and was given to solemnly repeating sentences under his breath. The boy, who was at first thought to be mentally handicapped, was named Albert Einstein and his 'problem' was he had a different way of thinking which allowed him to make the most extraordinary discoveries.

Gardner's Multiple Intelligences

Taking musical ability as an example, most would agree that music is a creative pursuit, though it is not necessarily true that skilled musicians either possess, or lack, intelligence and other aptitudes. In other words, being highly literate in music does not itself depend on other attributes, the same being true of art, poetry and similar arts activities. Gardner's (1983) work on multiple intelligences similarly alerted educationists to the idea that human potential can be expressed in a number of different ways, which Gardner categorised as:

Linguistic intelligence – a sensitivity to spoken and written language;

Logical-mathematical intelligence – a capacity for scientific and mathematical thinking;

Musical intelligence – performance and compositional skills;

Bodily-kinesthetic intelligence – the ability to employ mental abilities to coordinate body movements;

Spatial intelligence – the potential to recognise and employ spatial patterns and relationships;

Interpersonal intelligence – an ability to understand the aims, motivations and needs of others; and

Intrapersonal intelligence – the capacity to understand one's own feelings, fears and motivations.

Gardner's theory of multiple intelligences influenced the spread of creative teaching approaches within the educational sphere, as evidenced by the Foundation Stage Curriculum Guidance in 2000. Commenting on the inclusion of creativity as a curriculum aim, it states:

'Being creative enables children to make connections between one area of learning and another and so extend their understanding. This area includes art, music, dance, role-play and imaginative play.'

Creativity in Education

Whilst Gardner helped to promote an understanding of the importance of creativity and establish the idea that a variety of sensory inputs could substantially contribute to the acquisition of knowledge, many critics believed Gardner's theory helped to imply creativity was a remote, higher-level concept. This prompted Professor Kenneth Robinson, Chair of the National Advisory Committee for Creative and Cultural Education, to propose a more democratic, inclusive and accessible description of the role of creativity within education:

'All people are capable of creative achievement in some area of activity, provided that the conditions are right and they have acquired the relevant knowledge and skills' – Robinson Report (1999).

Though sympathetic to, and influenced by, the aims of expressive arts educators, the Robinson Report was nevertheless keen to avoid any suggestion creativity was the sole preserve of the arts, arguing that evidence of creativity could be found right across the curriculum, not least in science and mathematics.

Early Years Creativity

Most childcare and education professionals would accept Torrance's statement that creativity is a 'natural human process motivated by strong human needs', and share the view of Greenspan et al. (1997) that 'it is possible to identify potential for invention and creativity at a very early age.' Furthermore, many observers see the pre-school years as a golden age of creative activity which often tends to subside later when children enter school – some at least believing this is explained by their exposure to formal curriculum-orientated learning.

With young children, the notion of creativity has to be broad and democratic, and it is far more appropriate to encourage engagement in the creative process than it is to judge outcomes according to technical prowess, or adult concepts such as originality. Expanding this comment, Malaguzzi explains the inherent value of the activity by noting:

'Creativity becomes more visible when adults try to be more attentive to the cognitive processes of children than to the results they achieve in various fields of doing and understanding.'

A Child's Creative Voice

Others, such as neurologist and musician, Oliver Sacks, suggest our educational efforts generally do little more than scratch the surface of a child's creative potential. Discussing musical ability in particular, he believes there is 'an innate musicality in virtually everyone', pointing out:

'This has been shown most clearly by the use of the Suzuki method to train young children, entirely by ear and by imitation, to play the violin. Virtually all hearing children respond to such training.'

In cognitive terms, creative work with children is known to promote spontaneous, free-flowing, divergent ('soft') thinking which tends to throw up multiple, unrelated solutions to a problem, in contrast with convergent ('hard') thinking which adopts a linear approach inevitably leading to one 'correct' answer. In addition to such welcome diversity, children also learn to express ideas and feelings in another 'language' – a fact borne out, for example, by Gardner's belief that 'musical intelligence runs in an almost structural parallel to linguistic intelligence'. More importantly, for some children, creative work is a vital opportunity to voice and/or work through feelings and emotions they cannot, or will not, express through conventional verbal and written channels. As experienced practitioners in creative disciplines will know, for such children the value of this additional 'window to the soul' is simply incalculable.

Creativity In Practice

According to Sharp, creativity in a practical setting requires an 'optimum balance between structure and freedom of expression', and childcare professionals can foster creativity by support and interventions such as:

- asking open-ended questions;
- tolerating ambiguity;
- modelling creative thinking and behaviour;
- encouraging experimentation and persistence; and
- praising children who provide unexpected answers.' Sharp (2004).

Creativity is ultimately a blend of many components including an individual's personality traits, abilities and skills. But, even though building a creative 'environment for fun and curiosity' takes time, dedication and effort, research has identified that creative activity promotes the following extensive list of benefits:

collaborative skills, commitment, communication proficiency, confidence, dexterity, finesse, focus, healthy risk taking, improved memory, inspiration, passion, physical health, problem solving abilities, spatial acuity, and tolerance.

So, what more could you ask for?'