Chapter 1

Development of Children: Basic Concepts and Principles in Museum Context

THE CONCEPT OF DEVELOPMENT

The concept of 'development' is often used interchangeably with the term 'growth'. 'Growth' denotes the act or process of growing and is marked by augmental changes in the body. These changes, usually called as quantitative changes refer to the change in the amount or rate of change of some variables such as height, weight, body size, and internal organs. These quantitative changes involve additions rather than transformations are observable and can be measured in terms of inches or centimeters, and pounds or kilograms. They bring about changes in physical structure and appearance of an individual and occur as a result of interaction between two important factors namely heredity and environment.

'Development' is a broad term that includes a series of qualitative and progressive changes. These qualitative changes lead to enhancement of various abilities and enable one to function effectively. The changes rely on the quantitative changes brought about by growth. Progressive changes imply that the changes are advancing in nature, moving forward than backward and occur gradually. This means that there is a definite relationship between the changes taking place and those that precede or will follow. Progressive changes also mean that the changes are enduring; that is, they persist over a period of time. Glenn R. Hawkes and Damaris Pease (1962: 255), consider development as 'an ongoing, dynamic process

involving the total integration of the whole child. It is more than social, emotional, intellectual, and physical growth. It encompasses all these areas and possesses additional strength arising from their interrelatedness'.

Hawkes and Pease give an essence of the concept of development. They talk about the nature of development as a continuous and integrated process that is an outcome of simultaneous changes happening in different areas or domains. These multiple and concurrent changes, cohesively improve the overall capacity of the individual. The underpinning thought of their statement is congruous with the adage 'the whole is more than the sum of its parts' which means that the impact of overall development is more than the development in individual parts or domains. This is also one of the principles of development and is discussed under one of the subsequent subheadings of this chapter. To understand the concept further, it would be prudent to look at perspectives given by other experts.

Guy R. Lefrencois (2001: 18) explains development as a process of adaptation that depends on the interaction of natural forces and environmental influences. He considers development as, 'a total process whereby individuals adapt to their environment. Development includes growth, maturation and learning.' This means that development by itself is incomplete and occurs in context of the surroundings of the individual. It includes three sub-processes of growth, maturation and learning.

Tina Bruce (2004) believes development is an integral part of living and is always taking place whether one notices it or not. As a process of continuous adaptation, development helps one to gain cognitively, emotionally and socially. These multidimensional gains brought about by

developmental changes empower the individual to successfully understand the people around, develop sensitivity to the changes in the environment and adjust or adapt to their surroundings. In her words development 'carries a sense of direction that is broad and general rather than narrow and specific. It is a word that empowers a person to be able to keep adjusting and responding to the experiences of life' (2004: 28). Implicitly, development is fundamental to all human beings and it makes life meaningful and worthwhile.

Developmental psychologists have given certain guiding principles of development (Hawkes and Pease, 1962; Lansdown, 1984; Hurlock, 1997; Lightfoot, Cole, and Cole, 2009; NAEYC, 2009; Keenan and Evans, 2009; Berk, 2013). Some of these principles are debatable and there is no consensus among the psychologists. Keeping aside the controversies, eight principles which are relevant to museum learning are discussed here.

PRINCIPLES OF DEVELOPMENT

1. Interaction of heredity and environment

'Heredity' refers to the biological inheritance of an individual and includes the traits a child receives from the parents through the mechanism of genes contained in the chromosomes. The heredity or genetic influences lead to similarities between parents, their children and between siblings. Conversely, they also lead to differences between two individuals. These genetic influences on development are internal, occur naturally and are difficult to modify.

‘Environment’ on the other hand comprises all the external factors, excluding hereditary, which influence growth and development. These external influences help in gaining experience of the social and cultural world. They include aspects such as emotional climate of the family, relationships between family members and with others such as relatives, peers and neighbours, exposure to educational and other learning opportunities, diet intake, and all other stimulations that can have an impact on the child. Together these are also called the contexts of development and are discussed under a separate heading in this chapter.

The two basic sources of development namely: heredity and environment, also called ‘nature and nurture’, are in a continuous process of interaction with each other. They offer the best possible reasons to the process of development and remain the most discussed and debated issue (Keenan and Evans, 2009). The authors discuss this interplay through two approaches, namely ‘epigenesis and canalization’. ‘Epigenesis’ states that growth takes place upon the biological foundations which are already there and the interactions between the organism and the environment. ‘Canalization’ as originally coined by biologist C. H. Waddington (1975, cited in Keenan and Evans, 2009: 17) is explained as the process which studies the extent to which biological tendencies can be altered through environmental experiences. These two concepts emphasise the reciprocal relationship between heredity and environment; heredity determines the probable biological limits and lays the foundation for development, whereas environment creates the opportunities, provides the necessary practice and experience, and sets the level up to which these limits can be utilised. These external stimulants that come in the form of training, practice or experience comprise ‘learning’. Learning helps a person gain competence in utilising

their hereditary potentials through exercise and effort. A child born with high intellect would be unable to utilise its full potential until it receives adequate boost from the environment. Similarly, chances of development become weak if environmental conditions provided are suitable but the child lacks genetic intellectual ability. As Thomas Keenan and Subhadra Evans (2009: 17) point out, 'nature and nurture are engaged in a continuous, reciprocal interaction. Attempting to separate their influences . . . leads to an over-simplified and incomplete picture of human development'. Putting it the other way round, for optimum development to happen, it is essential that a balance between the interactions of both these factors is maintained. This is the current 'interactionist' view of development which pertains to the fact that both heredity and environment are equally important to understand children. Below is a table given by D. Bruce Gardner (1964: 68), who believes that most of the development is a result of interaction between the two processes. The table 1.1 compares the characteristic role of both these sources in development.

Table 1.1: Relative significance of heredity and environment for basic human characteristics (source: Gardner, 1964: 68)

Quality	**Role of heredity**	**Role of environment**
Eye color, complexion, body build	very high	very low
Intelligence, aptitudes, Talents	high	low
Skills and abilities Based on training	low	high
Attitudes, values, Beliefs, prejudices	very low	very high

Table 1.1 connotes the current 'interactionist' view and justifies the vital role of heredity and environment for optimal development. Both these forces individually, as well as together, give rise to a host of implications for museums as discussed here.

Genetic factors, as already discussed, cause differences in abilities and pace of learning in individuals. The implications of these differences in museums are many: One, museums need to integrate school teachers in their programmes for children because teachers have greater understanding of the unique needs and abilities of children due to their association with them. Two, museums should offer a variety of activities allowing children to choose according to their interests. For example, a learning session can include storytelling, drama, art and craft, clay modeling, dance and music. Such a variance in programming would provide children with opportunities to choose and explore diverse forms of creative expressions, deepen their understanding of the subject, and aid in sustaining their interest levels for longer periods. Three, museums should adopt a healthy adult learner ratio in their programmes to satisfy individual needs. For example, a group of preschool children need more adults than a group of primary school children.

Turning to the environmental factors, the implications arise from the implicit nature of the existence of museums as public learning centers. The rich and diverse museum environment which is non-threatening, non-captive, non-compulsive and informal, offers autonomy to learners with regard to choice and pace of learning, and has innumerable advantages over formal learning in schools. Through its original resources, they offer holistic learning encounters and make learning stimulating and

meaningful. In this context, Alison L. Grinder and E. Sue McCoy (1985: 42) assert: ‘The excitement of contact with the original objects, animals, historic or natural environments, and so on, stirs the imagination and creates interest in an object or subject’. This implies that if visitors are allowed to follow their curiosity and encouraged in active learning engagements, the learning environment in museums can be adventurous and can foster a lifelong interest in museums. Against the restrictive environment of formal schools and colleges, which is more compartmentalised, threatening, imposing and less self-directed, learning in museums is unique, intriguing and captivating.

2. Development is a lifelong process

Development is a continuous process which begins at conception and ends with life. The rate of developmental changes and the pace of the process may become slow or might gain momentum at certain times but it never ceases completely provided the environment is conducive for development. This means that for development to happen, it is necessary that the environmental conditions are favourable following which a person continues to develop throughout life. However, it would be prudent to note that though the process is pervasive and ongoing, it might come to a halt for a number of reasons such as sickness, adverse circumstances, lack of desire, willingness and motivation.

The foremost reason that leads to development is the motivational aspect of the individual which may be either intrinsic or extrinsic or both. Betty D. Roe, Elinor P. Ross, and Paul C. Burns (1989: 154–155) assert that intrinsic motivation is ‘driven by the need to be popular, the desire to excel,

or the fear of failure. Intrinsic motivation is generally long lasting; it is a part of the individual that drives him toward his goals.' Contrary to this, the authors explain external or extrinsic motivation as the one that 'originates in the learning environment and causes the student to want to do certain things'. In other words, extrinsic motivators originate from the environment. They can be controlled, modified and used as an agent to motivate individuals internally and change attitudes, perceptions and behaviours. This continuity of development assists in coping up with the changing circumstances that one experiences in life. A more detailed account of museums as centers of lifelong learning is included in the latter half of this chapter.

Though development happens throughout life, the nature of these changes has been another debatable factor for developmental psychologists; whether the process of change is continuous or discontinuous. Laura E. Berk (2013: 7) defines continuity as 'a process of gradually adding more of the same type of skills that were there to begin with' and discontinuity as 'a process in which new ways of understanding and responding to the world emerge at specific times'. Psychologists who perceive it as a continuous process consider it as a gradual and smooth transient journey involving small accumulating quantitative changes of the same nature where the same existing concept matures to a more complex one. John W. Santrock (2013) explains the aspect of continuity by citing an example of an oak tree. He compares speech development in children through an example of an oak tree and states that the way in which an oak seedling grows into an oak tree, a child's vocabulary, though initially abrupt and sparse, improves to gain perfection with age and practice.

Contrary to this is the belief is that development is a discontinuous process in which heredity influences are a distinct force which bring about qualitative changes of sudden, radical and transforming nature. Crawling refines to walking in children, the way in which a caterpillar grows to a butterfly. Similarly, the thinking capacity of children transforms from concrete to abstract as they reach adolescence. These are drastic changes which bring remarkable differences in the experience of an individual in the outside world. This notion of development in which qualitatively new patterns emerge across time in an abrupt or discrete manner are characterised as the stages of development.

This principle has led to the development of the concept of lifelong learning which implies that 'learning is a part of living'. It has a direct implication for museums because they are considered as ideal place for lifelong learning. This means that as learning spaces they promote and cater to people of all ages and create all types of learning opportunities: informal, non-formal and formal. Based on J. Delor's (1996) definition of education, the Lifelong Learning Council Queensland Inc. (n.d.) describes the concept as 'learning that is pursued throughout life: learning that is flexible, diverse and available at different times and in different places. Lifelong learning crosses sectors, promoting learning beyond traditional schooling and throughout adult life (i.e. post-compulsory education)'. It is 'learner centric' and arises from the desire to learn regardless of the stage of life. This means that as public learning centers, museums can greatly contribute to all age groups by offering valuable learning encounters that can eminently improve the quality of their lives.

3. Development is unique for all individuals

Universally, no two persons are identical in any of their observable aspects. In the words of Hawkes and Pease (1962: 256), ‘Children are more alike than they are different. Yet each child is unique, differing in many respects from any other child’. They have made this statement in the context of development of children and mean that whether it is physical, mental or behavioural characteristics, each child has its own unique way and rate of development. For some development occurs in a smooth, gradual, step-by-step manner, while for others it happens in spurts. Therefore all children do not reach the same point of development at the same age. This is also asserted by National Association for the Education of Young Children (NAEYC) (2009: 11–12): ‘Given the enormous variation among children of the same chronological age, a child’s age is only a crude index of developmental abilities and interests. . . . decisions about curriculum, teaching, and interaction should be as individualised as possible’. The statement implies that due to the remarkable differences among the children of the same age in their learning capacities, preferences and interests levels, the age should not be considered as a benchmark to decide about the kinds of learning offerings.

The implication of this principle in museums lies in reducing the differences by grouping or dividing the audience on the basis of similarities and focusing on their common characteristics. This division or grouping is known as ‘visitor segmentation’. As it is practically difficult to design programmes for each individual, the process of segmentation enables museum educators in developing segment specific programmes based on the knowledge of the needs, expectations and abilities of the targeted

segment. Besides this, other significant implications that can minimise individual differences include collaborations with the school teachers, adopting a healthy adult learner ratio in programmes and maintaining a small group size, as pointed out earlier. All these strategies can help a museum in utilising its resources optimally and maximising its benefits.

4. Plasticity

The principle that 'development is plastic' is emphasised by many theorists. They consider the process of development as open to change due to influence of experiences and this plasticity exists throughout life (Berk, 2013). Though this plastic nature is pervasive, there are crucial periods for optimal development. Cynthia Lightfoot, Michael Cole and Shiela R. Cole (2009) refer to these periods as 'sensitive' or critical periods. 'Sensitive periods' are defined as those specific times when the presence or absence of a specific condition or stimulus experience has a more pronounced effect on the organism than the same condition occurring at a different time. NAEYC (2009: 12) have recognised this and assert: 'Ensuring that children get the needed environment inputs and supports for a particular kind of learning and development at its "prime time" is always the most reliable route to desired results'. Similar views are expressed by other authors. Lightfoot, Cole and Cole (2009) state that the most appropriate time for a child to acquire any language that it is regularly exposed to is by the age of 6 or 7 years. Kuhl, P. (1994, cited in NAEYC 2009: 12) remarks that within the age bracket of early years, the 'first three years of life . . . appear to be an optimal period for oral language development'. Gardner (1964: 171) takes a similar view and points out the significance of early years in terms of physical development and writes that 'early childhood . . . is a significant

period in laying a foundation for the smooth performance of body action that will later be put to use in organized athletics'. The United Nations Children's Fund (UNICEF) in *'Facts for Life'* (2002: 1) supports the views shared by the above authors and reports that: 'The first eight years of childhood are critically important, particularly the first three years. They are the foundation for future health, growth and development'.

The implication of this principle in museums is that knowledge of these sensitive periods can help museum educators to decide the kind of exposure that can be provided to children of a particular age. This understanding can then be useful in concentrating their efforts in structuring specific programmes and activities for children.

5. Follows an orderly sequence

The changes brought about by the process of development follow a sequential order. This sequence or order is generally the same for all. In the words of Anita Woolfolk (2004: 58), infants 'sit before they walk, babble before they talk, and see the world through their own eyes before they can begin to imagine how others see it'. She further explains that 'in school, they will master addition before algebra, Bambi before Shakespeare, and so on'.

A sequence is also observed in the stage wise progression of development. A child undergoing a normal course of growth and development would pass through infancy, middle and late childhood, adolescence, adulthood and finally to the old age. This stage wise progression of development is similar to development that takes place in each individual domain. A

greatly acknowledged and influential contribution in this regard is that of a Swiss psychologist Jean Piaget who in his theory of cognitive development, views children's cognitive development as progressing through four stages namely sensorimotor, preoperational, concrete operational and formal operational, where each stage is characterised by thought patterns which provide the foundation for further development in the next stage. These stage specific thought patterns which emerge at specific ages, define the child's performance at that stage. For example, Piaget characterises a child's thinking between the age of 2–7 years by a process called 'centering' that confines them to focus on only one aspect of a given criteria (Hill, 1977; Jain and Mondal, 2013). This means that in a game of classification, they can classify things using one criterion only. They can use color, shape, size or material and not two or more simultaneously. Knowledge of the characteristics of different stages of children can help in determining appropriate activities for them.

6. Interrelationship of different domains

'All the domains of development and learning—physical, social and emotional, and cognitive—are important, and they are closely interrelated' (NAEYC, 2009: 11). Development in one domain is accompanied and greatly influenced by that which occurs in the other domains. Though it is easy to study discrete developmental outcomes, the changes in different domains are not independent but are interrelated and occur simultaneously. Knowledge of this interrelationship is necessary to understand the development of children. For example, day-to-day activities of children such as playing, studying or socialising with peers involve activity in multiple areas or domains. Hence, engaging in a simple activity such as

playing with age mates, a child gains cognitively, linguistically, socio-emotionally and as well as physically, and thus progresses as a unified whole.

The straightforward implication of the principle of interrelationship of different domains of development for museums is that multiple learning goals can be accomplished from a single activity. For example, a story telling session for children can aim to:

- Increase knowledge (cognitive)
- Improve vocabulary and pronunciation (cognitive; physical and motor)
- Generate curiosity and imagination (emotional; cognitive)
- Improve attitudes (cognitive; emotional)
- Generate emotions such as: enjoyment, delight, satisfaction (emotional)
- Inculcate moral values (cognitive; social; emotional)
- Improve skills of listening and concentration (cognitive)

Thus, a story telling session can provide knowledge, enjoyment, and vicarious pleasure to its listeners which make the learning experience more mesmerising and engaging. It can also broaden the horizons of understanding of other cultures and disseminate morality and social tolerance. The method is elaborated in ‘Chapter 3: Development of Children: Learning approaches and Strategies in Museums’.

7. Early years play a vital role in development

This principle of development emphasises the significant role of the early years of life in the process of development and implies that experiences gained early in childhood, leave an impression for life and go a long way to determine the kind of adult one would grow up to be.

Elizabeth B. Hurlock (1997) and Keenan and Evans (2009) justify this concept by citing studies conducted by Sigmund Freud and Erik Erikson. Hurlock explains the significance of early foundations as under:

1. Tapping of early experiences can assist children in reaching their full potentials and making good adjustments.
2. The quality of children's personal and social adjustments is determined by their early experiences which later develop into habits.
3. The desirable or undesirable traits in children's life at later periods are due to seeds sown early in life.
4. The undesirable behavioural tendencies of children can be modified easily owing to the malleable nature of the early years.

The implication of this aspect in museums is to focus on programmes for young children because if their learning is expanded to include museums from an early stage in life, they are more likely to grow up as culturally sensitive, historically aware and visually literate adults. This would also inculcate the ability to appreciate art and develop healthy and positive attitudes towards museums. The principle in turn emphasises the need for museums or sections in museums especially devoted to young children.

8. Predictability of development

As the stages of development occur in a sequential order, the developmental outcomes of each stage can be predicted. This results in similar learning characteristics of children across a particular age group. These similarities thus become standards for guidance and practice. For example, following a normal course of development, according to Jean Piaget, children proceed through the following stages of cognitive development:

1. Sensorimotor stage (Infancy—from 0–2 years)
2. Pre-operational stage (Toddler and early childhood—from 2–7 years)
3. Concrete operational stage (Elementary and early adolescence—from7–11 years)
4. Formal operational stage (Adolescence and adulthood—from about 11 years)

The implication for museums is that when educators know these abilities of children at different stages, they can define their strategies as per the learning characteristics of children at that stage.

DOMAINS OF DEVELOPMENT

The above discussion gives an overview of the concept of development. It talks about the general principles that underlie development and characterise it as a lifelong, interrelated, unique, multifaceted and sequential process of change that occurs in various dimensions or domains.

Referring to Hawkes and Pease (1962) again whose definition of development was taken as a benchmark to the previous discussion, the authors also refer to four main domains of development: cognitive (intellectual), physical and motor, emotional and social. These domains are discussed next.

Cognitive Development

Cognition refers to all kinds of thought processes such as perceiving, memorising, learning, analysing, categorising, synthesising, recalling, problem solving, fantasising, applying and evaluating (Schaffer, 2004; Keenan and Evans, 2009; Berk, 2013). These mental activities involve 'thinking' and are quite vital for adaptation and survival. In the words of H. Rudolf Schaffer (2004: 160), cognition embraces 'all those aspects of human intelligence that we use to adapt to and make sense of the world'. The development of these cognitive processes which help in acquiring and using knowledge is called cognitive development. Cognitive development thus is a broad term that includes all kinds of interrelated mental operations and thinking skills.

Cognitive development has been approached differently by different theorists. Where some theories focus on the internal mechanisms that lead to the change, others study the external determinants. The most influential and widely accepted is the theory of cognitive development given by Jean Piaget who insists that thinking pattern of children is significantly different from adults. As mentioned previously, Piaget, in his widely quoted empirical work, exemplifies the process of children's cognitive development by dividing it into four progressive stages namely

sensorimotor, preoperational, concrete operational and formal operational, where accomplishments at one stage provide the basis of development for more mature stages later. He asserts that children's ability to perform a task at one stage greatly depends on their cognitive maturity which evolves as the child grows. In the context of Piaget's theory, Berk (2013: 226) says that 'children move from simpler to more complex cognitive skills, becoming more effective thinkers with age'. She further explains that this age related immaturity should not be considered a limitation as it is this trait which empowers children in the younger years to understand simple phenomena and further paves the way to grasp difficult concepts later.

Lev Vygotsky, one of the theorists who focused on the external forces that regulate a child's thinking capacity, has given the 'socio-cultural theory' of cognitive development. In expansion of Piaget's view, Vygotsky adds that besides inner readiness that determines cognitive development, social and cultural surroundings are also potent factors. He explains this through the concepts of 'zone of proximal development' (ZPD) and 'scaffolding' which stress on the role of adults in enhancing cognition of children. Vygotsky terms the gap which exists between what children can achieve independently, without the assistance of adults, and what they can accomplish with the assistance of a more knowledgeable adult, as the 'Zone of proximal development' (Schaffer, 2004). Adults, including parents, scaffold learning experiences of children and help them in achieving optimum levels of knowledge. Vygotsky also emphasises on the role of peers who through 'collaborative learning' and 'peer tutoring' assist age mates in grasping difficult concepts and thus benefit from knowledge and skills of each other.

Another influential theory is the theory of 'Multiple Intelligences' by Howard Gardner (1938) who groups abilities of children into specific intelligences: musical, spatial, bodily kinesthetic, naturalist, linguistic, mathematical, intrapersonal and interpersonal abilities. All these intelligences are possessed by human beings but in varying degrees of prominence. Gardner attributes these variations to children's biological make-up and environmental factors. In his words (quoted in Knud Illeris, 2009: 106):

> Because of their biological and cultural backgrounds, personal histories, and idiosyncratic experiences, students do not arrive in school as blank slates, nor as individuals who can be aligned unidimensionally along a single axis of intellectual accomplishment. They possess different kinds of minds, with different strengths, interests, and modes of processing information.

Gardner insists that planning across the different intelligences can aid in tapping, developing and expanding the unique potentials of children through a wide range of abilities and in creating multifaceted teaching strategies to cater to different styles of learning.

Piaget, Vygotsky and Gardner present different perspectives of cognitive development of children. Piaget asserts that cognitive development in children is a natural, independent, gradual and stage wise process of maturity; Vygotsky considers it a collaborative social process in which the external stimulants especially interactions with parents and peers play an important role; and Gardner recognises the unique intellectual capabilities of children. These theories are being extensively applied in both formal

and non-formal institutes such as schools and museums, respectively, for designing appropriate learning strategies for children. For example, Piaget's theory has made museums to design programmes based on the maturity level of children. It is discussed in detail in 'Chapter 3: Development of Children: Learning approaches and Strategies in Museums'. Vygotsky's theory has led to the inclusion of socio-cultural methods in learning through initiatives such as family programmes, dramas, interactive sessions and group activities, which use adults and peers as a learning resource. Likewise, Gardner's theory has promoted multiple learning strategies and provision for multiple opportunities such as writing, dance, drama, music and painting in learning spaces for children.

Physical and Motor Development

Physical growth refers to the changes in general physical appearance of an individual which are a result of biological processes that take place inside the body. These visible changes are denoted by change in body size (height and weight), body proportions, body build and growth of bones, muscles and teeth. Such changes occur in context of the surroundings, lead to enhanced abilities and embrace physical development. Keenan and Evans (2009: 88) point out that physical development is regulated by both; environmental factors and hereditary influences. They say that 'physical growth occurs within an environmental context. Environments, including factors such as cultural practices, nutrition, and opportunities for experience play an important role in physical development'.

An important aspect of physical domain is motor development which refers to the development of control over body movements i.e. strength, speed, accuracy and steadiness which is a coordinated activity of the nerves and muscles. As explained by Gardner (1964: 145):

> Motor *development* . . . is a long-term process leading toward improved coordination of the *sensory receptors* (eyes, ears, and so on), with the *central nervous system*, and in turn with the *muscles* themselves. All three of these are essential components of motor action, and the development of all three components–*sensory, neural,* and *muscular*–is essential to the achievement of body control.

Motor development is the development of mind body coordination that helps in performing all kinds of physical tasks. It comprises two types of skills: gross and fine. Gross skills help in mobility of a child and are controlled by the movement of the large muscles or limbs such as lifting one's head, rolling the body, walking, running, jumping, swimming etc. Fine motor skills include the ability of the fingers to perform delicate tasks such as grasping things, holding, throwing, catching, writing, cutting and coloring. Normally, gross body movements begin early and are succeeded by development of fine muscles and this pattern generally remains the same for all. All motor and physical developments are interrelated. This is because all motor activities depend upon maturity of nerves and muscles which are an outcome of biological processes. Similar to Piaget's assertion on stage wise progression of the process of Cognitive development, Keenan and Evans (2009: 103) quoting D. L. Gallahue (1989) state that the process of 'motor skill development progresses through three stages.'

According to them, the early unrefined and unskilled behaviour passes through a transitional phase and gradually results in skillful and refined behaviour. They suggest persistent practice as the key factor in development of all physical or motor skills.

'Practice' has been recognised by educators as one of the fundamental principles of learning, particularly skills. It is a salient feature of school learning which gives children ample opportunities to repeat and master a skill because of their incremental approach to learning and long term association. In the case of museums in India, there is a tendency to organise 'one-off' programmes with limited learning goals. The survey of the educational programmes for children of fifteen museums presented in 'Chapter 4: Case Studies of Educational Activities of Indian Museums', reveals that the learning goals of their programmes are quite narrow and mainly focus on imparting knowledge. Another limiting factor observed is that these museums tend to be stuck up in the 'activity trap'—a concept given by Peter F. Drucker (1954), a renowned management expert in his book *The Practice of Management*. 'Activity trap' is a state in which one gets so absorbed doing things that the actual goal of the activity often gets lost. Museum educators need to be cognisant of the potentials of their public offerings and define their learning goals in broader terms which aim to include changes in all the domains of development. This apart, they need to consider organising multi-session programmes for children which are spread over a period of time, and offer children ample time to practice, learn and hone various skills.

Emotional Development

Emotions are the feelings generated as an effect of the circumstances, experiences or relationships of an individual with others. They are spontaneous, instinctive and intuitive reactions that come naturally to all and contribute to personal and social adjustments of an individual. In the words of John Gabriel (1968: 164) emotional development 'implies the growth of children's ability to understand and to control the emotions of joy, sorrow, love, hate, anger, fear and so on'. This is a broad perspective of emotional development which encompasses all the dimensions of emotional behaviour.

Emotional development relies heavily on the process of socialisation and proceeds in a stepwise manner. Berk (2103) and Keenan and Evans (2009) state that certain basic emotions such as fear, disgust, happiness, sadness, surprise, anger and interest, are present since birth. However, their further understanding, expression, regulation and evolution comes with age, partly due to maturation and greatly due to learning. 'To judge children's emotions fairly, it is essential to realise that they differ from adult emotions in intensity, in frequency of appearance, in permanency, in strength, in individually, and in their ability to be detected by behavioral symptoms' (Hurlock, 1997: 221). This realisation of the differences in emotional tendencies between the adults and children can help in managing and comprehending behaviour of children.

Emotions are instrumental in determining behavioural responses. Most authors (Campos et al., 2004, quoted in Keenan and Evans, 2009: 238; Berk, 2013) discuss this interrelationship through the 'functionalist

approach' which significantly explains emotions as the key stimulating agent in systematising our performance in other domains of development namely—cognitive, social and physical. The approach also stresses the relevance of emotions to an individual in three ways: the role of predetermined goals or targets which direct performance, behaviour of others which determines social responses, and sensory stimulations or mental states such as reactions to specific sounds, tactile experiences, smells, imaginations or thoughts which come out instinctively.

Another noteworthy point about the functionalist approach is its emphasis on the decisive role of events occurring in the surroundings of an individual that regulate arousal of particular emotions. In other words, emotional reactions are situational and occur in context of our experiences that emanate from the surroundings. John Dewey, an authority on education, in his book *Experience and Education* (1954) elucidates significant points about nature, continuity and quality of experiences and stresses on the role of educators in creation of conducive learning spaces. He asserts that: 'It is not enough to insist upon the necessity of experience, nor even of activity in experience. Everything depends upon the *quality* of experience which is had'. About quality of experience Dewey (1954: 16) says that it 'has two aspects. There is an immediate aspect of agreeableness or disagreeableness, and there is its influence upon later experiences'. He emphasises on the necessity to focus on creation of positive experiences as they are vital and lead to arousal of positive emotions, behavioural outcomes, fruitful and cherishable experiences in the future.

Emotional development in children promotes the ability to express and regulate their emotions and understand and respond to emotions of others. The implication for museums is to offer activities which center on inciting, expressing and interpreting emotions. Though all educational programmes have some emotional content, activities such as drama, role-play and storytelling heavily rely on management of emotions. Museum educators need to understand the importance of emotional experience and make conscious efforts to include emotional goals along with cognitive, physical and social goals. One such noteworthy effort was the two day workshop 'Let's Make Faces' (figure 1.1), conducted by National Museum, New Delhi, as a part of their annual Summer Camp 'Playtime 2015' (May–June). The activity was designed keeping in mind attainment of multiple learning goals for children aged 7–17 years. It began in the North East Gallery of the museum where children were first introduced to original tribal masks through a curator led talk with a handling opportunity. Following this hands-on learning session, each participant chose a mask and one-by-one imitated its facial expression which was great fun. To satisfy their inquisitiveness almost every participant put up questions about masks and their relevance in North East culture. This interactive gallery tour set the pace for the main learning activity of the day: the art of cartoon making. The group then proceeded to the workshop area where under the guidance of a professional cartoonist, they drew 'cartoon masks' using basic geometrical shapes such as a circle, triangle, square, oval and rectangle; and named them. Finally, the participants worked in teams and knitted a story with their cartoon characters and narrated it. The most remarkable and memorable feature of the entire event was the unique 'emotive' method of gathering feedback where each participant exhibited their experience through facial expressions. The activity is an excellent

example of how museum educators can work in the emotional domain without sacrificing accomplishment of goals related to other domains.

Figure 1.1: 'Let's Make Faces': An educational activity at National Museum, New Delhi

Social Development

Every society has its norms, values, ethos and culture; and its own pattern of social conduct and behaviour which members of the society need to learn and adapt. Social development refers to the learning of this ability which enables one to communicate, interact and maintain healthy relationships with members of the society including parents, siblings, peers, teachers, and other adults. According to Gabriel (1968: 164), social development 'implies the growth of [children's] ability to co-operate with others in such a way that their social life contributes towards their own growth while, at the same time, their membership of social groups contributes towards the growth of their companions'. This means that social development occurs through a process of social interaction, called socialisation, which facilitates the younger members to get familiarised and

learn to function as per the norms, values, ethos and culture of the social group. The specific sites or contexts such as parents, peers etc. which lead to the process of socialisation are called the agents of socialisation and are discussed under the next heading.

Social development occurs through the process of socialisation which can happen naturally or in a planned manner. Natural socialisation, as the name suggests, occurs naturally as children explore, play and discover the social world around them. This kind of learning is unplanned and occurs informally such as children playing in the play area of a school or in a society with minimum of adult supervision and interventions. In contrast to this is planned socialisation which takes place when deliberate actions are taken to teach or make others learn. It is the key aspect of all formal centers like schools and colleges and non-formal ones like libraries, art galleries and museums.

Another way of looking at socialisation is through the impact of social experiences on the psyche of an individual. Experiences that yield positive feelings comprise positive socialisation and those generating negative outcomes lead to negative socialisation. Positive social encounters are always pleasurable and exciting and are thus welcomed. These are rewarding, motivating and educative too.

Negative socialisation happens through bad experiences and unconducive learning surroundings. It may also occur when harsh criticisms or anger are employed. Here it would be prudent to mention Dewey (1954: 13) again who believes that all experiences are not educative and considers an experience ‘that has the effect of arresting or distorting the growth of

further experience' as 'mis-educative'. Thus, the experiences which are perceived to be positive, appealing or rewarding are educative in nature and lead the learner to similar and extended experiences. In contrast, the experiences which are perceived as negative, frustrating or dissatisfying avert the learner from participating in further learning, and adversely affect the developing personality, attitudes and children's growing zest for life.

Straightforward implication of development in the social domain is to offer educative social experiences which encourage children to learn through social engagements. Programmes such as storytelling, theatre, group activities, discussions, and social games such as reading facial expressions etc. are all examples of activities that develop social as well as emotional skills of children as they interact, communicate and express their thoughts and feelings to others. Another implication for museums is to conduct family and adult assisted programmes, which as Vygotsky emphasises, expose children to higher learning experiences than those they can explore independently. In this context, Barbara Wolf and Elizabeth Wood (2012) point out that adults are essential members of the learning cohort and incorporating them into learning events presents the potential to expand the children's experience beyond the museum.

CONTEXTS OF DEVELOPMENT

To crystallise our understanding about the contexts of development, it would be prudent to refer to the following thoughts expressed by Robert M. Gagne´ (1985: 1), an authority acclaimed for his notable contributions in the domain of human learning:

Experience, as we are told, is the great teacher. This means the events the developing person lives through—at home, in the geographical environment, in school, and in various other social environments—will determine what is learned and therefore to a large extent what kind of person he or she becomes.

Gagne´ stresses on the dominant role of environment in the life of a developing person and the experiences that result from interactions between the person and the environmental sources as ultimate shapers or determinants of development. He refers to different areas or the types of environment that lead to development. These elements together, ranging from the immediate environment including the family, peers, and neighbourhood, and extending to the community, society, schools, and museums, along with the circumstances, conditions, events and experiences, are called ‘contexts of development’. Berk (2013: 8) defines context as ‘unique combinations of personal and environmental circumstances that can result in different paths of change’. The environment and set of circumstances for each individual are different. Since the environment and the emergent set of conditions are distinct for each individual, the resultant developmental changes that are an outcome of the interactions between these components are also unique.

The contexts of development are categorised into two—physical and social. Physical context consists of the elements or resources of the physical world such as the actual physical space, its overall design, furnishings, materials and other physical conditions that provide a setting for development. Social context on the other hand includes the people that

inhabit these physical settings, and their interactions within these settings. The major contexts that influence learning in museums are discussed here.

Family

'Every family is a system—a complex whole made up of interrelated and interacting parts' (Santrock, 2013: 396). It is a multigenerational and multifunctional organisation in which a group of people related to each other either through 'blood, residence or close personal associations' (Borun, 2008: 6) interact, strive, and sustain to satisfy the needs of growth and development of each other. Its members and the interactions among them provide a social context for development of children.

One of the principal functions of a family is 'Advocacy: through ensuring children's access to education, health care, and a safe and secure environment' (Westman 1991a quoted in Lefrancois 2001: 352). The responsibility of nurturing, care, and learning by fulfilling the physiological and psychological needs of a child is a shared responsibility of all the members. However, the most prominent role is played by parents who serve as models of 'grown-ups' till children step out into the world outside the safe confines of their homes. Children learn to love, develop attachments, perceive different roles, support each other unconditionally, take responsibility and sustain relationships, from their family. Besides, they also learn language, discipline, moral and cultural values, mannerisms, expressing and controlling emotions. Most of these learnings are informal, subtle and happen naturally as children observe their family members and serve as facsimiles of those in the outside world.

One important way in which learning is facilitated in a family is through the means of 'scaffolding' (Santrock, 2013; Wolf and Wood, 2012). Scaffolding is a technique of adult assistance in which the amount of information and nature of guidance is adjusted and simplified in accordance with the level of understanding and performance of the child. The technique is naturally and subconsciously applied in rearing children at home as well as outside particularly in other physical and social contexts of learning such as schools and museums.

In the context of museums, families are considerably important as majority of young children who visit museums accompany their families. Such family groups come for a 'family outing' (Hilke, 1989) to socialise, learn and have fun. During these family outings the members interact and converse to mediate learning for each other. To facilitate the learning process, family members', especially parents' close association and deep understanding of the peculiar learning needs, interests and comprehension level of their children assists them. Recognising these familial strengths, museum educators who meet young children for a brief span can take advantage of the experience and understanding of these family groups, use them as a resource, and structure multigenerational family programmes that engage all the members.

Peers

'Peers' are people roughly of the same age, mostly at the same stage of development and maturity, and share close proximity with each other. Several theorists and authors acknowledge the benefits of interactions with peers. Theorists such as Jean Piaget and Harry Stack Sullivan (Keenan and

Evans, 2009; Santrock, 2013) have valued peer interactions over adult-child interactions. Piaget explains that interactions with adults take a vertical dimension where adults dominate and assert control over children. In comparison, relationships between peers are more egalitarian and balanced, and arranged on a horizontal plane (Keenan and Evans, 2009). Sullivan further adds that though children are initially resentful towards their peers but such friendships and relationships set the course of personality development and future relationships during adulthood (Keenan and Evans, 2009).

Berk (2013) assesses the benefits of peer interactions in terms of its impact on development in various domains. She considers that: 'Peer sociability is supported by and contributes greatly to cognitive, emotional and social milestones' (2013: 602). As children interact with their peers, they learn to accommodate and understand other's interests, emotions and thoughts. They also learn to handle conflicting situations and try to adjust themselves in a social group. They learn appropriate use of language, ways to express their emotions, and various other social mannerisms from their peers. Such skills of empathy and social understanding go a long way in making social adjustments.

In the context of museums, the implication is to conduct group activities where children belonging to a similar age bracket get the opportunity to work collaboratively and learn through each other. Such activities are in line with Vygotsky's idea of 'peer learning' and occur along Piaget's 'horizontal plane' where learning experiences are mediated through age mates on more equitable lines as compared to those with adults. However, emphasising group activities for children of the same age group does not

belittle the advantages of learning in multiage groups. Ruiting Song, Terry E. Spradlin, and Jonathan A. Plucker (2009) have discussed the benefits and advantages of multiage groups on the basis on research findings and are enumerated here:

- Promotion of social and emotional skills due to enhanced social and natural settings
- Higher language development due to higher rates of language exchange
- Creation of a caring environment as elders help younger

Museums should explore ways to accommodate diversity of age and maturity levels and design educational programmes where several simultaneous activities are conducted at the same time, and some activities may be carried out by younger children with assistance of older children. Along with multi age groups, museum should also consider specific activities for specific age groups or grades based upon their stage of cognitive development.

School

A school provides the first formal and systematic learning environment for children as soon as they step out into the outside world beyond their home. It imparts education, knowledge and understanding about life and its various facets. 'The common view of schooling is that its concern is preparation for a life to be lived in the future, the life of the adult as worker, citizen, parent' (Entwistle, 1970: 77). Schools mainly function as academic institutions that help children develop skills of reading, writing, numeracy,

language, and gain basic knowledge and understanding of various subjects which lay the foundation for higher education in future. They impart basic knowledge and create a base for higher learning and career pursuits. They induce an approach of systematic learning in pupils and teach them discipline, equality, moral, cultural and social values. Schools serve a long term purpose and focus on overall development of children.

The formal learning that happens in schools has certain specific features. Elaine Heumann Gurian, an eminent museum person, in her article: 'Museums' relationship to education' (ICOM, 1982) describes the main features of schools which characterise formal learning:

- Homogeneous learners
- Bonded groups of children
- 'Coercive' learning and 'Start stop' approach
- Incremental learning
- Autocratic environment
- Use of mainly words and two dimensional pictures

HOMOGENEOUS LEARNERS: Schools have homogenous audiences that comprise children studying in one class who have similar learning needs and abilities. Such similarities among children simplify the task of the teacher and make teaching relatively easy.

BONDED GROUPS: Children in each class spend a good amount of time socialising and mingling with each other. This fosters great understanding and bonding among them as eventually they come to understand each other and form groups based on their choices. This peer interaction yields a

number of benefits which have already been discussed under the previous context of development.

COERCIVE LEARNING AND 'START STOP' APPROACH: School education implies a compulsion on children to go to school, attend classes, appear for examinations, and do home assignments. Coercion underlies the 'start stop' approach that makes teachers and pupils to study a particular subject according to a pre-structured timetable spread over an academic year. This does not allow any choice to children in terms of subject, method of learning, examination and timings.

Brian N. Lewis (1980: 155) points to the negative impacts of coercive learning environment and states that it 'produces the sort of person (child, adult . . .) whose primary concern is to win approval and avoid punishment. . . . His more of action is to proceed by blind rule following, rather than by sensitive awareness'. Coercion hampers the development of perception, understanding and sensitivities in an individual.

Kirti Trivedi (2007: 12) in her article 'Liberating Education', also discusses the downside of institutionalised teaching that happens in schools and universities and refers to it as 'straight jacketed learning'. In her opinion:

> Most people cannot learn what they want in spite of willing to pay for it . . . [and] spend one's life doing something else, and not what they really wanted to do. . . . It is decided for them by the system what they will learn, from whom they must learn and in how much time they must learn it.

The authors assess the shortcomings of formal education. They say that it takes advantage of the plight of an individual who has no choice but to pursue formal education to abide by the societal norms. The coercive nature of formal education restricts the right of individuals to live life on their own terms, and explore and learn what they desire to learn.

INCREMENTAL LEARNING: The incremental approach means that concepts are taught gradually in a sequential order where learning during each academic year serves as a base for learning in the next year. These concepts are followed-up with further extensions and in-depth studies through the following years. It is a comprehensive approach to curriculum learning that makes learning convenient for children.

AUTOCRATIC ENVIRONMENT: School environment is autocratic where the teacher controls learning and decides what is to be taught, when and how. This creates a rigid format for learners giving them very less autonomy to explore various subjects according to their interests, at a particular time and in a prescribed format.

USE OF MAINLY WORDS AND TWO DIMENSIONAL PICTURES: Education in schools is mainly based on textbooks that carry words and two dimensional pictures. The text contains secondary information and the images. The images being reproductions from originals, may have limitations of certain kinds.

In spite of all the characteristics that represent formal education in schools, its value cannot be underestimated. To quote Gurian (1982: 19) again, ‘Schools with their incremental teaching techniques are excellent for

certain kinds of subjects (e.g. how to read, computational skills) which could not be done well in another mode'. This means that the methodological approach of school learning becomes essential for studying certain subjects that are based on systematic building of concepts. The value of formalised school education can be enhanced by integrating it with non-formal context of museums.

Museums

The value of museum context is well described by Barbara S. Butler and Marvin B. Sussman (1989: 4–5):

> The museum is a great source of socializing and learning. Its experiential programs tap deeply into the psyche of its participants. What they see, smell and experience becomes embedded in a deepening consciousness. History and cultural transmission of values, images, myths, and archetypes, so sorely missed in other educational institutions, is now possible and, in fact, these ingredients are the heartbeats of the museum.

The authors have rightly recognised the social context of museums. A museum provides a multiple social context where families, peers and school groups gather, socialise, and learn together. As physical settings, museums offer encounters with original objects supported by secondary objects. Learners may see, smell, hear, read, touch and get engaged in numerous ways with these sources. The experiences thus generated here are real, novel, and multisensory in nature and intrigue learners across all

ages. These diverse characteristics of museums, the authors say, are its strengths over other educational institutions.

Museum learning has certain peculiar characteristic features which have been discussed by various authors: Molly Harrison, 1970; Gurian, 1982; Grinder and McCoy, 1985; Eilean Hooper-Greenhill, 1994; John H. Falk and Martin Storksdieck, 2005. These are summarised here:

PRIMARY SOURCES: Museums possess collections that are real evidences of human and natural history. Traudel Weber (n.d.) points out the strengths of these original objects in museums and states that they act as stimulants for further learning. He mentions that as only a few objects reveal their hidden stories in initial glances, most of these potentially invite new interpretations, close investigations, and further learning and research for viewers. The 'object-based' learning is the main feature of museums.

LEARNER-CENTRED: Unlike formal learning where the learning situation is controlled by the teacher, museum learning is driven by the interests, preferences and motivation of the learners. It is flexible and mainly self-directed as learners control their learning and decide what, when, where or how they wish to learn. Falk and Storksdieck (2005: 118) define this kind of museum learning as 'free-choice learning'.

NON-CAPTIVE AUDIENCE: Museums have non-captive audience who can freely explore its various spaces. Unlike in schools where children are compulsorily forced to sit and learn in a classroom setting, museum setting is unique as visitors do not have any external pressure and they are free to move and learn in informal ways.

LIFELONG LEARNING: Museums serve as ideal environments for lifelong learning. Lifelong learning, as discussed under one of the principles of development, refers to learning as a process that happens across all ages and spaces. It is fuelled by personal choices and circumstances. It can happen anywhere and everywhere beyond the structures of formal learning. Greenhill (1994: 169) emphasises that museums play a significant role in life-long learning. She writes:

> People are understood as resources for learning, as are places and activities. Learning throughout life occurs according to personal desire and opportunity and is paced according to the needs of the learner. In many ways learning is seen as a way of living, of continually expanding horizons and of tackling personal challenges, however small.

Museums, by offering a range and variety of learning opportunities to people across all ages, foster experiences that are holistic in nature. Such experiences assist people to enhance their potentials, gain knowledge of different disciplines and create further interest to continue learning.

HETEROGENEOUS AUDIENCE: Museums have diverse audiences who vary on sociocultural, educational and ethnic grounds on aspects such as age, gender, learning needs and characteristics, economic backgrounds, attitudes and interests. Such demographic variances make museum learning challenging as it requires recognition and understanding of the audience diversities, conducting audience research, presenting diverse perspectives drawn on the research findings, offering a wide array of

learning possibilities and developing ways to expand the relevance of museums to its diverse audiences.

NON-COERCIVE ENVIRONMENT: Museums offer a non-coercive learning environment where learning does not follow any strict format or timetable. There are no prescribed subjects to be studied for learners at any age or stage of life. It offers immense scope and possibilities to them to choose in terms of subjects, method, time and pace of learning.

NON-THREATENING: Learning in museums is non-threatening as there is no fear of appearing for examinations. Unlike schools where pupils are forced to appear for examinations and face a fear of failure, museum environment is non-intimidating and gives complete autonomy and freedom to learners. Many museums collect feedback at the end of the museum visit or activity but this is voluntary.

In short, learning in museums is a multifaceted phenomenon. It is an active and dynamic process that yields multiple benefits. Museums contextually cater to needs of heterogeneous audiences who can learn and have fun at the same time. They provide a context for other contexts of learning. By providing encounters with original objects, they make learning experiences 'real'. Moreover, they give an autonomy to learners to choose their learning. Such general characteristics make museum learning intriguing and interesting. Sir Nicholas Serota (2009: 23) considers museums as 'third space' other than home and school as they provide a context for learning. He justifies his view and says that though museums contribute to school education, the learning experiences offered here are broad in comparison to those occurring in formal education.

However, both museums and schools share an indispensable relationship. Both the institutions aim to provide learning experiences and create opportunities which enable pupils to explore their learning potentials. Ellis Morris and Martha Spurrier (2009: 60) discuss three main strengths of museums which make them essential to education: One, museums employ a unique method of teaching through real objects and images; two, they aid in developing relationships 'both between pupils and between pupils and adults'; and three, 'the content of museum education is built to nurture a sense of community, shared history and cultural value'. These multidimensional characteristics of museum learning make it authentic, flexible, and favourable over formal learning. Though these are in stark contrasts with the characteristics of formal education, these facets are museums' strengths and can be used advantageously to widen the scope of learning for children through planned museum visits.

Molly Harrison in her book *'Learning out of School'* (1970) gives an elaborate account of various practical aspects that need consideration to make a school visit to a museum successful. Other authors—Morris and Spurrier, 2009; Traudel Weber, n.d.; Grinder and McCoy, 1985, also present similar discussions. Below is a brief account of the essence drawn from these literary sources.

Planned school visits to museums are recommended to optimise the learning outcomes. In planned visits the museum and the school educators partner to achieve curricular and extra-curricular objectives by defining the learning goals before hand and designing appropriate learning strategies. Planned visit can be divided into the following stages:

PRE-VISIT: This involves preliminary arrangements between the museum and school educators before pupils actually visit the museum. It may be facilitated through teacher orientation programmes run by the museum to find the overlapping areas of interest, share the museum's resources, discuss its strengths, and working out various possibilities of engagement. The museum also briefs the school authorities with the administrative procedures, and terms and conditions of their visit. After this orientation, the school educator may proceed to carry out the official formalities with the school administration, parents and the museum which include filling the form, making arrangements for fee payments if the session is charged, seeking consent from the parents, making transport arrangements, seeking the approval of other subject teachers, briefing the students etc. The educator also provides details to the museum such as the date, time and duration of visit, number of pupils, their age group, and if any special arrangements are needed such as special provisions for differently abled children, if any, so that timely arrangements can be made by the museum. Following these formal procedures, the school educator may visit various physical spaces in the museum to check the location of toilets, lunch and assembly areas, museum galleries and activity areas.

VISIT: This is the event when children actually visit the museum. At the outset of their visit, the museum staff receives and greets the children. They introduce themselves, explain their roles, and brief children about the day's events and the various physical spaces that are meant to be used during the day. Children are also told about the dos and don'ts of behaving while they are in the museum. Following these, the educators carry on with the schedule of activities which may include a whole range of programmes such as gallery talks, storytelling, drama, art and craft activities,

demonstration, activity sheets, and object handling sessions. At this time, it is important that both the museum and the school educators work in collaboration to assist children in the activities, and supervise them. Besides, they must also satisfy their queries and discuss things informally so that children feel welcomed, are encouraged to think creatively and participate freely. During the visit, educators may also adopt various means to reinforce the learnt concepts through discussions and other planned activities, encourage children to visit again and take up follow-up activities in their school. Finally, as the visit ends, feedback can be collected either verbally or through feedback forms to evaluate the effectiveness of the programme and to seek suggestions that can assist in improving the quality of future programmes.

POST-VISIT: Post-visit activities may include evaluation and follow-up activities. Evaluation aims to analyse and assess the effectiveness of the museum visit in terms of achievement of learning outcomes, while follow-up activities aim to continue and reinforce the learning experience. In this class teacher plays a major role. The teacher may evaluate the visit in the school through discussions around the museum visit encouraging children to share their opinions and experiences.

Follow-up activities in the school may sometimes be initiated by the class teacher and assisted by the museum educator. They can include a range of activities that can be taken up in, and, or around the school or home. While some activities can be common and can be taken up anywhere, others can be specific. In general, in the classroom children can be engaged in activities such as: writing letters, essays, poems, stories; talks and discussions; use of loan kits; drawing, sketching, and painting; mimicry,

miming, role-play, dance and drama, all related to the museum visit. In the school, home or in its vicinity, children may also make field trips related to the subject. Besides, they may be encouraged to re-visit the museum, visit other museums, and use online learning resources such as videos or activity sheets for further learning.

The scope of follow-up activities depend on the nature of the museum because different types of museums offer different types of opportunities. For example, learning opportunities presented by an art museum, science museum, natural history museum, or philately museum, would be different in comparison. Besides some common activities such as those mentioned in the preceding paragraph, each museum offers some unique learning possibilities. An art museum can cultivate interest in drawing and painting, sculpture, ceramic etc. and encourage children to participate in such activities. Children may also prepare their own sketch books, art projects, or study specific art styles, mediums or artists. They may also make field visits to other art museums, artist studios and art centres. Similarly, a natural history museum could encourage children to go on field trips for collecting specimens of small insects, butterflies; for insect collections or different species of plants for making herbariums, and a philately museum could inspire stamp collections. The list is not exhaustive and there are numerous possibilities depending on the nature of the museum, its offerings and the initiatives by the museum and school educators. In general, all such attempts aim to encourage pupils to re-visit, cultivate interest and positive attitudes, improve perspective and understanding of the surroundings, and most importantly, extend the scope of museum learning beyond its four walls.

The chapter broadly described the fundamental concepts, principles, domains and contexts related to the development of children and discussed them in the context of museums. It began with a definition of the term development against the term growth, and explained its meaning using perspectives given by various authors. Following this brief introduction, eight principles were discussed which serve as guidelines for research and study in developmental sciences. Each principle illuminates a facet of the developmental process, and was explained in light of its meaning and implications in museums. The chapter further proceeded with descriptions of the four main domains where development occurs—cognitive, physical and motor, social and emotional. Each domain was elaborately discussed with definitions from authors and supported by relative theoretical and practical examples from museums. The final part of the chapter discussed the contexts of development which can be categorised as physical and social. The contexts included were—family, peers, school and museums, considering their relevance for current study. Their role is discussed individually and also in relation to museums.