CHCFC505A
Foster cognitive development in early childhood

Learner guide
Version 2

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Section 1: Monitor cognitive development

Elements and performance criteria:

1. Assist children to develop thinking and problem solving skills
   1.1 Provide varied and appropriately challenging opportunities and resources related to each child’s stage of development and interests
   1.2 Provide opportunities for children to experience the consequences of their choices, actions and ideas
   1.3 Encourage children to explore, understand and solve problems in their environment
   1.4 Use a variety of strategies to maintain children’s interest in solving problems
   1.5 Provide challenging and engaging experiences for each child to develop their attention span and give them time to stay with the activity until they are ready to move on
   1.6 Introduce new ideas/activities that may build on existing knowledge, skills and interests
   1.7 Use questioning and non-verbal communication to develop children’s abilities to observe what is happening around them
   1.8 Identify and monitor children’s cognitive development and thinking skills

Welcome to the learning section ‘Monitor cognitive development’. In this important learning section we will be looking at much of the fundamental underpinning knowledge relating to cognitive development, in particular thinking skills and problem solving skills. We will be examining the work of a number of world renowned theorists who have shaped how we view and interact with children.

We will also be looking at the stages of development for children aged from birth up to 6 years old. By being aware of typical development you are able to plan appropriate experiences to challenge and extend children.

Fostering thinking and problem solving skills

So, we are looking at ‘the thinking child’ and will be examining the cognitive development – particular the thinking and problem solving skills of children aged from birth up to 6 years old. For the purposes of this module we will refer to the following stages:
Activity 1.1

Thinking about what you are thinking about can be like asking someone to tell a joke - every joke you've ever heard suddenly flies out of your mind. It might be easier to remember (and that is a thinking skill in itself) what you were thinking about in the last half hour before you sat down to do some work.

Note down what you have been thinking about.

Thinking skills include our ability to:

- Think through tasks i.e. don't just hit it harder, try another approach.
- Solve problems through trial and error and deduction e.g. boxes usually open. If this side doesn't, another side might.
- Understand logical consequences of actions eg. I spilt the drink on the chair. If I sit on the chair I will get wet.
- Anticipate change through remembered past experiences and logical thought e.g. last time I heard that 'vroom vroom' sound daddy arrived home. If I go to the door he might come through it.
- Imagine and be creative about the problems we face. Through imagining the consequences of different approaches we can choose the one we feel will be most effective, and perhaps at the same time come up with a solution no one has previously considered.
• Remember and to reflect on our memories

It is important to think about how we think in order to encourage particular skills in the children we work with.

Theoretical perspectives

Influences and interrelations with other developmental areas

All the developmental areas - physical, social-emotional, language and cognitive, inter-relate and impact on each other. Vygotsky saw a strong link between cognitive development and the development of language. Certainly language is an important tool in learning. It is difficult to imagine how we would learn without the ability to ask questions, discuss ideas with others, compare outcomes, debate attitudes and positions, or talk our way through problems with inner speech.

Physical development allows us to further explore the world around us. Note the importance Piaget gives to sensory motor exploration for young children, and observe how much more complex our ability to explore and discover becomes as gross and fine motor skills are refined. Physical development allows us to play and cognitive theorists see play as an important tool for children's learning.

Problem solving goes hand-in-hand with the development of social skills. All social interaction involves solving complex problems. Infants must solve the problem of gaining the attention of adults around them and ensuring their needs are attended to. Toddlers must solve the problem of sharing space with others without conflict, preschoolers and school age children must begin to solve the problems associated with friendships, fairness, and finding a place in the world. This is all part of social problem solving.

Theory of Mind is a theory that refers to a child's understanding of the mental states and processes underlying people's behaviour. This understanding indicates an early stage of metacognition, or understanding how you think, which we will discuss later in this section. Children as young as 3 or 4 can understand that you cannot predict what others will do just from observing the situation, but you must take into account the other person's desires and beliefs. Young children develop theories about the ideas, beliefs and desires of others, and how these will impact on their behaviours. Research from this theory shows that preschoolers can problem solve and predict outcomes using their social awareness of others.

Brain research

Formerly it was thought that when a baby was born, his or her brain was essentially complete. Scientists agreed that genetics determined brain capacity and that there was little anyone could do to change it. Brain research has discovered new information. We now know that the environment in which a child is raised directly impacts the way the brain develops.

Many environmental and social factors are known to negatively affect brain development. Environmental toxins, infection, malnutrition, prenatal exposure to drugs and premature birth are all known to be harmful to the developing brain. A child's emotional well being will also directly impact on that child's ability to learn.
Recent research on brain development has shown that the brain is sensitive to stresses and traumas, particularly in the first few years. Negative experiences such as trauma or abuse can result in tendencies to anxiety, depression and the inability to form healthy attachments later in life. Ongoing negative childhood experiences can result in poor processing and problem solving abilities. These outcomes are the result of chemical responses to stress in young children, which alters their ability to deal with later stresses.

A child’s brain is particularly susceptible to the environment in the first three years of life. In a deprived environment, a child born with a normal IQ may never develop to his potential. A child born with developmental delays who receives appropriate early intervention may actually catch up to his or her peers. This flexibility in the developing brain gives definite hope for intervening with children with disabilities and emphasises the importance of healthy, nurturing environments for all children.

Brain research has also uncovered that the brain keeps developing right through to late adolescence and that there are periods of optimum learning for different tasks throughout childhood.

Can you see the links between cognitive development and

- physical development
- language development
- social-emotional development?

Here are some suggestions:

**Physical development**
- Allows the child to explore their environment through movement around it.
- Allows the child to explore using their fine motor skills.
- Allows child to learn kinaesthetically through movement of their whole body.
- Provides information through the senses.

**Language development**
- Allows children to interact with and engage others in their learning, even if only making gurgling noises to attract attention.
- Allows children to question others.
- Supports child’s thinking process through the development of internal speech.

**Social-emotional development**
- Allows the child to problem solve with others, thus increasing their learning.
• Applies problem solving skills to human interactions.
• Increases self-confidence with learning.

**Stages of cognitive development**

**Infancy**

An infant is developing many cognitive skills in the first 18 months of their lives. In this section we will look at the perceptual skills of infant, their development of object permanence and the development of their memory or thinking skills.

**Perceptual abilities of the infant**

At birth an infant is called a neonate. They have already entered the world with a variety of perceptual abilities that will be enhanced and refined over the period of their infancy. Researchers have found that visually, neonates can follow moving objects, but not in a refined or smooth way. At this stage although infants can see, they do not have 20:20 vision. This will not develop for a number of years. Their focal distance is approximately the distance from your face to your elbow (around 14cm) when holding a baby in the crook of your arm.

Neonates can discriminate between voices and recognise their mother’s voice as well as recognising her smell. They will react to strong smells. They also have the ability to distinguish between sweet, sour, bitter or salty tastes.

At one month, the infant’s ability to scan the environment becomes more refined. They particularly enjoy looking at faces and when tested by researchers have been shown to prefer to look at complex patterns.

By six months, infants can discriminate colours as well as depth. Researchers have tested the infant’s ability in this area by designing a ‘visual cliff’ exercise. The researchers tried to get babies to crawl across an area of clear glass which showed the floor several feet below them. Most infants refused to cross the glass surface showing they had a good understanding of depth perception (Berk, 1996).

The infant’s vision will develop over the period of infancy and beyond. At birth the muscles responsible for eye movement are not developed enough to give full vision. It is common to see infants blinking to prevent damage to their retina by over exposure to light. They are very nearsighted. An object that we can see clearly away 200 metres, infants would need to be six meters away from it to see it with the same amount of detail.

**Piaget’s substages of the sensorimotor stage**

Between the ages of 2 - 18 months, the infant will continue to learn and develop. The use of senses is of the utmost importance to this infant exploring and learning about the world around them. When you complete the next activity you will remember not only that the infant is in the sensorimotor stage, but this child will be negotiating five specific substages during the first 18 months.