

INTRODUCTION

HOW PEOPLE LEARN

Learning can be defined formally as the act, process, or experience of gaining knowledge or skills. Burns ‘conceives of learning as a relatively permanent change in behaviour, with behaviour including both observable activity and internal processes such as thinking, attitudes and emotions’. Burns (1995) considers that learning might not manifest itself in observable behaviour until some time after the educational program has taken place. Learning helps us move from novices to experts and allows us to gain new knowledge and abilities.

There are many different theories on how people learn. This paper will summarize in the next chapter, a range of conventional learning theories. In the third chapter, this paper will discuss on how children learn, concentrating on Piaget’s theory and Vygotsky’s social cognition theory. Finally the fourth chapter will discuss on the subject of adult learning theories particularly on Knowles’ theory of andragogy.

CHAPTER 2

THEORIES OF LEARNING

SENSORY STIMULATION THEORY

Traditional sensory stimulation theory has as its basic premise that effective learning occurs when the senses are stimulated (Laird, 1985). Laird quotes research that found that the vast majority of knowledge held by adults (75%) is learned through seeing. Hearing is the next most effective (about 13%) and the other senses – touch, smell and taste – account for 12% of what we know.

By stimulating the senses, especially the visual sense, learning can be enhanced. However, this theory says that if multi-senses are stimulated, greater learning takes place. Stimulation through the senses is achieved through a greater variety of colours, volume levels, strong statements, facts presented visually, use of a variety of techniques and media.

REINFORCEMENT THEORY

This theory was developed by the behaviourist school of psychology, notably by B. F. Skinner (Laird 1985, Burns 1995). Skinner believed that behaviour is a function of its consequences. The learner will repeat the desired behaviour if positive reinforcement (a pleasant consequence) follows the behaviour.

Positive reinforcement, or 'rewards' can include verbal reinforcement such as 'That's great' or 'Well done' through to more tangible rewards such as certificate at the end of the course or promotion to a higher level in an organization.

Negative reinforcement also strengthens a behaviour and refers to a situation when a negative condition is stopped or avoided as a consequence of the behaviour. Punishment, on the other hand, weakens a behaviour because a negative condition is introduced or experienced as a consequence of the behaviour and teaches the individual not to repeat the behaviour which was negatively reinforced. Punishment creates a set of conditions which are designed to eliminate behaviour (Burns 1995). Laird (1985) considers this aspect of behaviourism has little or no relevance to education. However, Burns says that punishment is widely used in everyday life although it only works for a short time and often only when the punishing agency is present.

FACILITATION THEORY

Carl Rogers and others have developed the theory of facilitative learning. The basic premise of this theory is that learning will occur by the educator acting as a facilitator, that is by establishing an atmosphere in which learners feel comfortable to consider new ideas and are not threatened by external factors (Laird 1985).

Other characteristics of this theory include:

- A belief that human beings have natural eagerness to learn
- There is some resistance to, and unpleasant consequences of, giving up what is currently held to be true
- The most significant learning involves changing one's concept of oneself.

Facilitative teachers are:

- Less protective of their constructs and beliefs than other teachers
- More able to listen to learners, especially to their feelings
- Inclined to pay as much attention to their relationship with learners as to the content of the course
- Apt to accept feedback, both positive and negative and to use it as constructive insight into themselves and their behaviour

Learners:

- Are encouraged to take responsibility for their own learning
- Provide much of the input for the learning which occurs through their insights and experiences
- Are encouraged to consider that the most valuable evaluation is self-evaluation and that learning needs to focus on factors that contribute to solving significant problems or achieving significant results

OBSERVATIONAL LEARNING

Observational learning, also called social learning theory, occurs when an observer's behavior changes after viewing the behavior of a model. An observer's behavior can be affected by the positive or negative consequences (called vicarious reinforcement or vicarious punishment) of a model's behavior.

There are several guiding principles behind observational learning, or social learning theory:

- The observer will imitate the model's behavior if the model possesses characteristics (things such as talent, intelligence, power, good looks, or popularity) that the observer finds attractive or desirable.
- The observer will react to the way the model is treated and mimic the model's behavior. When the model's behavior is rewarded, the observer is more likely to reproduce the rewarded behavior. When the model is punished, an example of vicarious punishment, the observer is less likely to reproduce the same behavior.
- A distinction exists between an observer's "acquiring" a behavior and "performing" a behavior. Through observation, the observer can acquire the behavior without performing it. The observer may then later, in situations where there is an incentive to do so, display the behavior.
- Learning by observation involves four separate processes: *attention*, *retention*, *production* and *motivation*.
 - Attention: Observers cannot learn unless they pay attention to what's happening around them. This process is influenced by characteristics of the model, such as how much one likes or identifies with the model, and by characteristics of the observer, such as the observer's expectations or level of emotional arousal.
 - Retention: Observers must not only recognize the observed behavior but also remember it at some later time. This process depends on the observer's ability to code or structure the information in an easily remembered form or to mentally or physically rehearse the model's actions.

- Production: Observers must be physically and/intellectually capable of producing the act. In many cases the observer possesses the necessary responses. But sometimes, reproducing the model's actions may involve skills the observer has not yet acquired. It is one thing to carefully watch a circus juggler, but it is quite another to go home and repeat those acts.
- Motivation: In general, observers will perform the act only if they have some motivation or reason to do so. The presence of reinforcement or punishment, either to the model or directly to the observer, becomes most important in this process.
- Attention and retention account for acquisition or learning of a model's behavior; production and motivation control the performance.
- Human development reflects the complex interaction of the person, the person's behavior, and the environment. The relationship between these elements is called *reciprocal determinism*. A person's cognitive abilities, physical characteristics, personality, beliefs, attitudes, and so on influence both his or her behavior and environment. These influences are reciprocal, however. A person's behavior can affect his feelings about himself and his attitudes and beliefs about others. Likewise, much of what a person knows comes from environmental resources such as television, parents, and books. Environment also affects behavior: what a person observes can powerfully influence what he does. But a person's behavior also contributes to his environment.

EXPERIENTIAL LEARNING

Kolb proposed a four-stage learning process with a model that is often referred to in describing experiential learning (McGill & Beaty 1995). The process can begin at any of the stages and is continuous, i.e. there is no limit to the number of cycles you can make in a learning situation. This theory asserts that without reflection we would simply continue to repeat our mistakes.

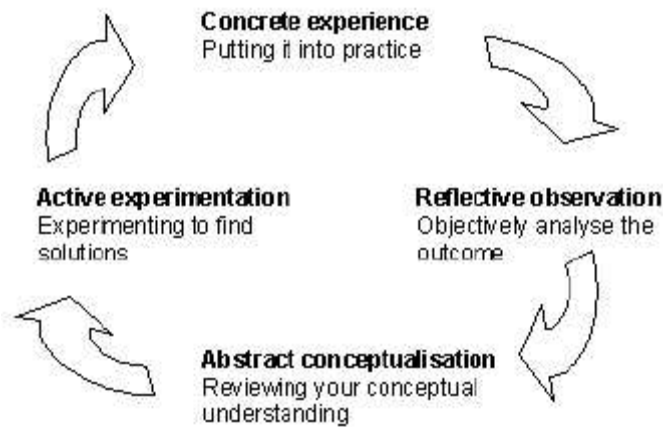


Figure 1: Kolb's experiential learning cycle

Kolb's research found that people learn in four ways. As shown in the 'experiential learning cycle' model above, learning is:

- Through concrete experience
- Through observation and reflection
- Through abstract conceptualization
- Through active experimentation

This approach to learning emphasizes the fact that individuals perceive and process information in very different ways.

DIFFERENCES IN LEARNING STYLES

As already discussed, the idea that people learn in different ways has been explored over the last few decades by educational researchers. Kolb, one of the most influential of these, found that individuals begin with their preferred style in the experiential learning cycle (Figure 1). Honey and Mumford (1986), building on Kolb's work, identified four learning styles:

- Activist (enjoys the experience itself)
- Reflector (spends a great deal of time and effort reflecting)
- Theorist (good at making connections and abstracting ideas from experience)
- Pragmatist (enjoys the planning stage)

There are strengths and weaknesses in each of these styles. Honey and Mumford argue that learning is enhanced when we think about our learning style so that we can build on strengths and work towards minimizing weaknesses to improve the quality of learning. The learning styles theory implies that how much individuals learn has more to do with whether the educational experience is geared toward their particular style of learning than whether or not they are "smart."

CHAPTER 3

HOW CHILDREN LEARN

Children differ from adult learners in many ways, but there are also surprising commonalities across learners of all ages. This chapter will provide some insights into children as learners.

It was once commonly thought that infants lack the ability to form complex ideas. For much of this century, most psychologists accepted the traditional thesis that a newborn's mind is a blank slate (*tabula rasa*) on which the record of experience is gradually impressed. It was further thought that language is an obvious prerequisite for abstract thought and that, in its absence, a baby could not have knowledge. Since babies are born with a limited repertoire of behaviors and spend most of their early months asleep, they certainly appear passive and unknowing. It is now known that very young children are competent, active agents of their own conceptual development.

A major move away from the *tabula rasa* view of the infant mind was taken by the Swiss psychologist Jean Piaget. Beginning in the 1920s, Piaget argued that the young human mind can best be described in terms of complex cognitive structures. From close observations of infants and careful questioning of children, he concluded that cognitive development proceeds through certain stages, each involving radically different cognitive schemes. While Piaget observed that infants actually seek environmental stimulation that promotes their intellectual development, he thought that their initial representations of objects, space, time, causality, and self are constructed only gradually during the first 2

years. He concluded that the world of young infants is an egocentric fusion of the internal and external worlds and that the development of an accurate representation of physical reality depends on the gradual coordination of schemes of looking, listening, and touching.

After Piaget, others studied how newborns begin to integrate sight and sound and explore their perceptual worlds. For perceptual learning theorists, learning was considered to proceed rapidly due to the initial availability of exploration patterns that infants use to obtain information about the objects and events of their perceptual worlds (Gibson, 1969). As information processing theories began to emerge, the metaphor of mind as computer, information processor, and problem solver came into wide usage (Newell et al., 1958) and was quickly applied to the study of cognitive development.

Although these theories differed in important ways, they shared an emphasis on considering children as active learners who are able to set goals, plan, and revise. Children are seen as learners who assemble and organize material. As such, cognitive development involves the acquisition of organized knowledge structures including, for example, biological concepts, early number sense, and early understanding of basic physics. In addition, cognitive development involves the gradual acquisition of strategies for remembering, understanding, and solving problems.

The active role of learners was also emphasized by Vygotsky (1978), who pointed to other supports for learning. Vygotsky was deeply interested in the role of the social environment, included tools and cultural objects, as well as people, as agents in developing thinking. His social cognition learning model asserts that culture is the prime determinant of individual development. Humans are the only species to have created

culture, and every human child develops in the context of a culture. Therefore, a child's learning development is affected in ways large and small by the culture--including the culture of family environment--in which he or she is enmeshed. Vygotsky's theory mentioned that:

1. Culture makes two sorts of contributions to a child's intellectual development. *First*, through culture children acquire much of the content of their thinking, that is, their knowledge. *Second*, the surrounding culture provides a child with the processes or means of their thinking, what Vygotskians call the tools of intellectual adaptation. In short, according to the social cognition learning model, culture teaches children both what to think and how to think.
2. Cognitive development results from a dialectical process whereby a child learns through problem-solving experiences shared with someone else, usually a parent or teacher but sometimes a sibling or peer.
3. Initially, the person interacting with child assumes most of the responsibility for guiding the problem solving, but gradually this responsibility transfers to the child.
4. Language is a primary form of interaction through which adults transmit to the child the rich body of knowledge that exists in the culture.
5. As learning progresses, the child's own language comes to serve as her primary tool of intellectual adaptation. Eventually, children can use internal language to direct their own behavior.

6. Internalization refers to the process of learning--and thereby internalizing--a rich body of knowledge and tools of thought that first exist outside the child. This happens primarily through language.
7. A difference exists between what child can do on her own and what the child can do with help. Vygotskians call this difference the zone of proximal development.
8. Since much of what a child learns comes from the culture around her and much of the child's problem solving is mediated through an adult's help, it is wrong to focus on a child in isolation. Such focus does not reveal the processes by which children acquire new skills.
9. Interactions with surrounding culture and social agents, such as parents and more competent peers, contribute significantly to a child's intellectual development.

As a result of theoretical and methodological developments, great strides have been made in studying young children's learning capacities. To summarize an enormous body of research, there have been dramatic increases in knowledge in four major areas of research:

1. *Early predisposition to learn about some things but not others* No evidence exists that infants come into the world as "blank slates" capable only of registering the ambient events that impinge on their senses in an undisciplined way. Young children show positive biases to learn types of information readily and early in life. These forms of knowledge, referred to as *privileged domains*, center on broadly defined categories, notably physical and biological concepts, causality, number, and language (Carey and Gelman, 1991).

2. *Strategies and metacognition* Outside of these privileged domains children, like all learners, must depend on will, ingenuity, and effort to enhance their learning. It was previously thought that young children lacked the strategic competence and knowledge about learning (metacognition) to learn intentionally, but the last 30 years have witnessed a great deal of research that reveals hitherto unrecognized strategic and metacognitive competence in the young (Brown and DeLoache, 1978; DeLoache et al., 1998).

3. *Theories of mind* As they mature, children develop theories of what it means to learn and understand that profoundly influence how they situate themselves in settings that demand effortful and intentional learning (Bereiter and Scardamalia, 1989). Children entertain various theories of mind and intelligence (Dweck and Legget, 1988). Indeed, not all learners in schools come ready to learn in exactly the same way. Some theorists argue that there is more than one way to learn, more than one way to be "intelligent." Understanding that there are multiple intelligences (Gardner, 1983) may suggest ways of helping children learn by supporting their strengths and working with their weaknesses.

4. *Children and community* Although a great deal of children's learning is self-motivated and self-directed, other people play major roles as guides in fostering the development of learning in children. Such guides include other children as well as adults (caretakers, parents, teachers, coaches, etc.). But not only people can serve as guides; so, too, can powerful tools and cultural artifacts, notably television, books, videos, and technological devices of many kinds (Wright and Huston, 1995). A great deal of research on such assisted learning has been influenced by Vygotsky's notion of zones of proximal

development and the increasing popularity of the concept of "communities of learners,"
be they face-to-face or through electronic media and technologies.

CHAPTER 4

ADULT LEARNING

Malcolm Knowles (1978, 1990) is the theorist who brought the concept of adult learning (andragogy) to the fore. He has argued that adulthood has arrived when people behave in adult ways and believe themselves to be adults. Then they should be treated as adults. He taught that adult learning was special in a number of ways. For example:

- Adult learners bring a great deal of experiences to the learning environment.
Educators can use this as a resource
- Adults expect to have a high degree of influence on what they are to be educated for, and how they are to be educated
- The active participation of learners should be encouraged in designing and implementing educational programs
- Adults need to be able to see the applications for new learning
- Adult learners expect to have a high degree of influence on how learning will be evaluated
- Adults expect their responses to be acted upon when asked for feedback on the progress of the program

Burns (1995) says:

‘By adulthood people are self-directing. This is the concept that lies at the heart of adult learning. Adult learning is therefore student-centered, experience-based, problem-

oriented and collaborative very much in the spirit of the humanist approach to learning and education... the whole educational activity turns on the student.'

Some authors think that while children at approximately the same age are at approximately the same stage of development, the same cannot be said of adults. Adults would vary in levels of knowledge and also in their life experiences. There could be said to be tremendous variation in adult experience.

An adult's emotional response can affect learning. Some adults can approach formal educational settings with anxiety and feelings of high or low self-efficacy. Their approach to new learning contexts can be influenced by how they appraise or evaluate the new experience.

For example: given two adults in a classroom where an exercise is about to begin, one individual may interpret the exercise in such a way that leads to a feeling of 'excitement', while the other person interprets the exercise in such a way that leads to the feeling of 'embarrassment'. It is self evident that the way the individual interprets the situation and the subsequent emotion that arises, will affect the kind of action the individual is to take (Burns 1995). Burns considers that such appraisals, coupled with labels such as 'fear' or 'anxiety' can lead some learners to emotionally disengage from the source of discomfort that is the learning experience. However, when coupled with labels such as 'excitement' or 'challenge' the learner is led to take actions that focus on the task.

Another aspect of adult learning is motivation. At least six factors serve as sources of motivation for adult learning:

- Social relationships: to make new friends, to meet a need for associations and friendships.
- External expectations: to comply with instructions from someone else; to fulfill the expectations or recommendations of someone with formal authority.
- Social welfare: to improve ability to serve mankind, prepare for service to the community, and improve ability to participate in community work.
- Personal advancement: to achieve higher status in a job, secure professional advancement, and stay abreast of competitors.
- Escape / Stimulation: to relieve boredom, provide a break in the routine of home or work, and provide a contrast to other exacting details of life.
- Cognitive interest: to learn for the sake of learning, seek knowledge for its own sake, and to satisfy an inquiring mind.

Unlike children and teenagers, adults have many responsibilities that they must balance against the demands of learning. Because of these responsibilities, adults have *barriers against participating in learning*. Some of these barriers include lack of time, money, confidence, or interest, lack of information about opportunities to learn, scheduling problems, "red tape," and problems with child care and transportation. The best way to motivate adult learners is simply to *enhance* their reasons for enrolling and *decrease* the barriers. Instructors must learn why their students are enrolled (the motivators); they have to discover what is keeping them from learning. Then the instructors must plan their motivating strategies. A successful strategy includes showing adult learners the relationship between training and an expected promotion.

CONCLUSION & RECOMMENDATIONS

This paper has summarized a range of theories on how people learn (which differs between children and adults) that can be applied in educational contexts. Teaching and learning activities can be designed and implemented to take principles of learning into account. Also it is interesting to think about individual differences among learners and to work towards including activities that have variety and interest for the specified learners in educational program.

Although adult learning is relatively new as field of study, it is just as substantial as traditional education and carries and potential for greater success. Of course, the heightened success requires a greater responsibility on the part of the teacher. Additionally, the learners come to the course with precisely defined expectations.

Knowles emphasizes that adults are self-directed and expect to take responsibility for decisions. Instruction for adults needs to focus more on the process and less on the content being taught. Strategies such as case studies, role playing, simulations, and self-evaluation are most useful. Instructors adopt a role of facilitator or resource rather than lecturer or grader.

Unfortunately, there are barriers to their learning. The best motivators for adult learners are interest and selfish benefit. If they can be shown that the course benefits them pragmatically, they will perform better, and the benefits will be longer lasting.

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