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Learning Theory of Cognitivism and its Implications on Students' Learning

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Abstract

For the first half of the 20th century, conditioning theories of behaviourism held sway. During the decades of 50 and early 60, they were challenged on many fronts, particularly by Albert Bandura's studies on observational learning. A central tenet of his theory was the people can acquire new behaviours only by observing other people. Reinforcement was not necessary for learning to occur. People acquire knowledge, skills, strategies, attitudes and beliefs by observing others. Modelling behaviours of other individuals, teachers and parents lead to new learning. Further, people seek control over important events of their lives through self-regulation of their thoughts and actions. The basic processes involved are setting goals, judging anticipated outcomes of actions, evaluating progress towards the goals, emotions and actions. This paper discusses the theory of social cognitivism with its underlying assumptions.

Keywords: Cognitive learning, Self-regulation, Modelling, Observational learning

Introduction

Bandura (1982a) discussed human behaviour within a framework of triadic reciprocity - i.e., the interactions among behaviours, environmental factors and cognition. An individual's self efficacy beliefs influence the choice of tasks, persistence to make effort for it and skill acquisition (Schunk, 2001). Not only the self efficacy of a person influences the perceived achievement of a goal but the level of achievement also enhances the feeling of self-efficacy. When students note their progress, they perform even better and develop the attitude of continuous learning. Students with learning disabilities have a lower self efficacy for performing any task (Licht & Kistner, 1986). Simultaneously, teachers also bring down their expectations of academic performance for such students, even in the areas where these students are doing well (Bryan & Bryan, 1983). Self-efficacy and environmental factors go hand in hand. At any given time, one factor may predominate. When environmental factors are weak, personal factors dominate. For example, students who have to choose a book for report writing, may select one that they like. Here, the personal factors matter. However, when an accident such as fire takes place in a house, a person caught unaware will evacuate quickly. Thus in the latter example, the environment dictates the behaviour.

Most of the times, the three factors of person, environment and behaviour interact. For example, as the teacher teaches in the class, the students try to absorb what the teacher is saying (environment interacting with individuals). Those who have difficulties in understand a concept, may raise their hands to ask questions (cognition affecting behaviour). In social cognitive theory, learning is basically a cognitive process in which the environmental factors and behaviour get translated into representations which help in further action (Bandura, 1986). Learning occurs either by actual doing (*enactively*) or by observing how other people perform (*vicariously*). When learning occurs as a result of one's action, it is *enactive* learning. For example, behaviour that succeed are retained while those which fail, are discarded or refined. Skinner (1953) has also posited that cognition can lead to behaviour change but it can not influence it. This is at variance with the conditioning theories which says that consequences strengthen behaviours. Social cognitive theory contends that consequences serve as a source of information and motivation. They inform people about the appropriateness of their behaviour. When people get rewarded, they understand that they are

doing well. When they are reprimanded, they know they are doing something wrong. People, then strive to learn behaviours which will yield desirable results and avoid learning those that are not satisfying.

Most of the human learning happens vicariously by observing others or listening to models who are live (in person), symbolic (cartoon characters), through electronic medium (television, computer etc.) or print (eg., books, magazines). Vicarious learning accelerates it and saves people from negative consequences. For example, we learn how dangerous the lions are through many vicarious sources. So, we will be wary of them without experiencing them. We can see how children react to them when they visit the zoo. Complex learning skills occur through a combination of observation and performance. Students first observe models explain and demonstrate skills and then practice them (Schunk, 2008). Sporting activity is learnt by direct practicing, more than by any observation. Only a few components of complex skills can be learnt by observation. Practice provides direct feedback to help sportsmen learn better. Thus, in their case, enactive learning is more important than learning vicariously. Also, observers are more inclined towards learning modelled behaviours leading to success than those leading to failures. When people believe that modelled behaviours are useful, they mentally rehearse those behaviours. Whether or not we learn from modelling behaviours, depends on our motivation, interest, incentives to perform and perceived need. For example, students who learn at the school that skimming is a good strategy for learning a written text, they may not employ that knowledge until the exams close in, which act as motivating or reinforcing factor.

Tolman & Honzik (1930) experimentally demonstrated that learning-performance distinction, by investigating 'latent learning', which doesn't lead to any overt response immediately. It occurs without any reinforcement of a behaviour that is learned. In one of their classic experiments, they experimented with the behaviour of three groups of hungry rats which had to navigate a maze. The first group always received a food reward at the end of the maze, so its reward was immediate. The second group didn't receive any food reward, thus having no incentive to make effort. The third group also didn't receive any food for the first ten days but on the eleventh day, food was kept at the end of the maze. The rats in the first group were successful in navigating the maze. The second group however, kept wandering aimlessly through it. The third group of rats unsuccessfully wandered for the first ten days but as soon as they found the food on the eleventh day, they learnt navigation. This is an example of learning that is neither reinforced nor demonstrated, until there is any motivation to do so. Students also learn a lot by observing the behaviour of their parents but do not demonstrate it necessarily, till the learned material is needed. For instance, using the bus that takes the same route everyday to go to the school, the students inadvertently learn the way, without driving themselves. If on a day, the school bus does not arrive, the student can go with his father, directing the route himself. Carlson et al. (2010) suggest that what is placed in the cognitive map, can have a lot of impact on how successfully we would be able to navigate through the environment.

Self-regulation is an important assumption of social cognitive theory since people want to have a complete

control on the events of their lives (Bandura, 1997). This sense of agency can be found in intentional acts and cognitive processes. The process by which people activate and sustain behaviours that help in attainment of goals is self-regulation (Zimmerman & Schunk, 2001). When learners know they have choices, they exercise their personal agency. However, in schools, choices are not always available to the students since teachers control many aspects of learning. Teacher may give clear parameters on which the students work gets assessed due to which the latter may perform the given task exactly how they are expected to. When all or most tasks are controlled, external regulation takes place. Thus, the capacity to self-regulate will depend on what and how many choices are available to the learners. Zimmerman (2000) emphasises that self-regulation encompasses three phases - *forethought*, *performance control* and *self-reflection*. The *forethought* phase occurs before actual performance to initiate an action. The learner prepares for self-regulated learning by setting goals with the help of strategic planning. At this stage, the learner must have enough motivation. The performance phase involves processes that occur during learning and affect action on the part of the learner. With the help of self-control, the learner begins to monitor his own learning and in the process, re-develops and modifies strategies of learning. People respond behaviourally and mentally to their own efforts while doing self-reflection. There are two aspects - Cognitive (Self-judgement) and Affective (Self-reaction). The learner evaluates his learning and thinks about what caused him to succeed or fail in learning. The learner is able to diagnose whether or not he has achieved the learning goal and also the measure of self-satisfaction. This stage occurs after the performance has already taken place. Thus, self-regulation is a systematic learning process.

Modelling is yet another important process of social cognitive theory. It refers to behavioural, cognitive and affective changes deriving from observing one or more models (Bandura, 1977a, Schunk, 1998, Zimmerman, 1977). Much before the concept of modelling, however, *imitation* was thought to be a key process of transmitting behaviours (Rosenthal & Zimmerman, 1978). The theories of *imitation* have four views with their own assumptions. At the beginning of the 20th century, the dominant scientific view was that people possessed a natural *instinct* to imitate the actions of others (James, 1890). However, behaviourists rejected the *instinct* notion because people's behaviours that were labelled 'instinctive' resulted largely from training and therefore were learned. (Watson, 1924). Piaget (1962) offered a *development* view of imitation. He believed that human beings acquire cognitive structures that organise their thought and action. Development precedes imitation. In the *conditioning* view of imitation, each response affects the next response (Humphrey, 1921). A limitation of this view is that one can imitate only those responses one can perform (Rosenthal & Zimmerman, 1978). Miller and Dollard (1941) presented another view of *imitation* which contends that imitation is *instrumentally learned behaviour* because it leads to reinforcement. Initially, the imitator responds to behavioural cues in trial and error fashion, but eventually the imitator performs the correct response and is reinforced. All these narrow conceptions of *imitation* restrict the concept's usefulness as compared to that of *modelling*.

Bandura (1986) distinguished three functions of modelling: response facilitation, inhibition/disinhibition and observational learning. *Response facilitation* refers to those actions which serve as a prompt for observers to modify behaviour accordingly. For example, when a pre-primary teacher wants to draw the attention of students towards the learning centres in the class, she can place a big, colourful and attractive toy car in the classroom which will capture their attention. This will act as a social prompt and slowly everyone will gather around the car. Bright and gigantic displays help students to get their attention focused on what the teacher wants them to learn. It is very commonly seen that when many students are looking at a particular direction, everyone spontaneously starts looking at the same direction. Another common example of a social prompt is when the people are giving charitable donations in a room. If they see currency notes of big denomination placed in the donation box, they also start doing the same thing. It is not true learning but serves as a cue for observer's actions. They gain information about the appropriateness of behaviour and may get encouraged to perform the behaviours which will have positive consequences. Observing a model can also impact the behaviours, either by strengthening or weakening the behaviours previously learnt (Bandura, 1986). *Inhibition* occurs when models are punished for performing certain actions which acts as a deterrent for observers from performing the same action. *Disinhibition* occurs when models perform activities that are harmful to others, without experiencing any negative consequences. That can lead the observers to perform the same behaviours since they know they will not be adversely affected. For example, when students know that any violent action towards peers will lead to suspension from the lessons or going to the principal, they will refrain from indulging in disruptive activities. However, if such actions go unnoticed and unpunished, it will cause many more students to do the same. Teachers have to be mindful that their actions can inhibit or disinhibit classroom misbehaviour.

Observational learning through modelling occurs when observers perform new behaviours that have a low probability of occurrence even when motivation was high (Bandura, 1969). For example, by observing a professor teaching a class, we can learn how to teach ourselves, how to create assignments, how to lecture, present research, write papers and also inspire students to learn. At any given moment, one can attend to many activities. The model characteristics and the observer influence one's attention to models. The first process in observation learning is *attention* to relevant events so that they are meaningfully perceived. When models' functional value is perceived to be high, attention is given by the learners. Also, when learners know that they are likely to get rewards, they pay greater attention. Highly competent teachers naturally get more attention than their less effective peers. Similarly, the model's title or position greatly influences the attention given, just as principals get more attention when a speech is delivered to the students. The second process is *retention*, which requires cognitively organising, rehearsing, coding and transforming modelled information for storage in memory (Schunk, 2008). For example, to retain learning, students may draw a picture, write some points, make a flow chart or a mind map. Students often learn dance steps by coding them as per the movements. *Rehearsal* of learnt

information helps in the retention of knowledge (Bandura & Jeffrey, 1973). Students who code and rehearse have the best recall of learning. However, coding without rehearsal and rehearsal without coding are less effective.

The third observational learning process is *production*, which involves conceptions of modelled behaviour into overt behaviour. Many simple actions may be learnt simply by observing them. However, it's rare to learn complex behaviours through observation alone. For such complex skills, learners refine their skills with practice, corrective feedback and re-teaching (Bandura, 1977a). Any sporting skill will need practice and feedback from the coach to be mastered. Basic understanding of a sport is not enough without production. The fourth process which influences observational learning is *motivation*. Unless people feel motivated, they will neither pay attention to retain and produce the learning. They perform only those actions which they think are rewarding and avoid any other which will be responded to negatively or not yield any benefits (Schunk, 1987). People also act on their beliefs, performing activities that they find satisfying and ignoring those that are unsatisfying, regardless of the consequences. That is why many people do not engage in unethical practices even if they can bring prestige and power. Motivation is a very critical process to get the students to learn for which teacher makes interesting learning materials, provide feedback and give appreciation. In senior classes, teachers use handouts, charts, power point presentations, statistical analysis etc to present data. A theatre teacher can use voice modulation, body movements, eye expressions etc to portray each character of a drama.

Self-instruction has also been used to teach students to regulate their activities during learning (Meichenbaum, 1977). It involves the use of statements directed towards self for direct learning. Children often "talk themselves through" a given task or activity. This concept grew from Vygotsky's (1962) observation that children resort to verbalisation to get through the tasks given to them. With self-talk or private speech, children learn to regulate their behaviour. This is an important part of the developmental process. Meichenbaum & Goodman (1971) identified many processes of self guidance. In *Cognitive modelling*, adult tells the child what to do while the adult performs the task. In *Overt guidance* the children perform under an adult's guidance. In *Overt self-guidance*, children perform while instructing themselves aloud. In *Faded overt self guidance*, children whisper to themselves the instructions while performing task. In *Covert self-instruction*, children perform which the help of internal silent speech. In a classroom of pre-primary classes, these processes are often evident where children guide themselves through the task allotted to them. Self-instruction has been widely used with a variety of tasks and types of students (Fish & Pervan, 1985). It is especially useful for those students who have learning disabilities. Sawyer et al. (1992) also identified six types of self instruction processes. In *problem definition*, learners define the demands of the task. In *focusing attention*, they generate plans. Then they make a *strategy*, followed by *self-evaluation*. They also navigate their difficulties through *coping strategies* and finally reward themselves with *self-reinforcement*.

Observing models does not guarantee that learning will occur since it depends on developmental status, model prestige, its competence and vicarious consequences.

Developmental factors play a significant role (Wigfield & Eccles, 2002). Children as young as 6 to 12 months can perform behaviours displayed by models, even if they have difficulties attending to modelled behaviours for long duration. As they grow older, rehearsing, organising and elaborating improve with development and they become more capable of using memorisation techniques (Schunk, 2001). Motivation to induce actions also increases with development. Young children get motivated mainly by the immediate consequences of their actions. As children mature, they are more likely to perform modelled actions consistent with their own goals and values (Bandura, 1986). Students attend to a teacher not only because the teacher prompts them but also because they believe they will have to demonstrate the same skills and behaviours later. Teacher competence has a key role here. Another important attribute is *prestige* since models who gain distinction are more likely to command attention than those of lower prestige. That is why, we normally see that attendance is higher at a talk given by a well known person than by one who is less known. In most instances, high status models have ascended to their positions because they are competent and perform well. Their actions have greater functional value for observers who are apt to believe that rewards will be forthcoming if they act accordingly (Schunk, 2001). Parents and teachers are high-status models for most children. Although teachers are important models in developing children's intellect, their influence can also be seen in social behaviours, dressing and mannerisms (Schunk & Miller, 2002). Students who have experienced articulate teachers often learn to articulate well in life just as immaculately dressed teachers inspire pupils to turn out well.

The sense of *similarity* to models is important for children (Schunk 1995). When the observers find greater similarity to the models, there is a higher probability that observers will also consider similar actions to perform. Students of same grade level but from different schools are always curious to observe each other more than those of different classes. Brody and Stoneman (1985) found that when there is no competence information available, children were more likely to model the actions of same age peers. *Model gender* also has an effect on learning (Maccoby & Jacklin, 1974). Children learn from models of both the sexes, since the driving belief is that the behaviours they deem to be important will be rewarded, irrespective of the model gender (Schunk, 1987). The highest degree of model-observer similarity occurs when one is one's own model. *Self-modelling* develops social, vocational, motor, cognitive and instructional skills (Bellini & Akullian, 2007). When one records one's performance and subsequently views it, which acts like a review, it becomes particularly informative and rewarding. Self-modelling children feel more of self-efficacy for learning, motivation and achievement.

Conclusion

Cognitivism is the theory of learning which emphasises that human cognition is a social endowment for developing intellectually. The underlying assumption of cognitivism involve the way we think and acquire knowledge. Implications of cognitivism on the design of classroom instruction are prominent, since the learners develop knowledge by receiving, storing and retrieving information,

when needed. With this notion, it is imperative for instructional designers to thoroughly analyse and consider the appropriate tasks needed in order to facilitate learners for effectively and efficiently processing the information received. Learning becomes meaningful only when it can be related to concepts that already exist in a person's cognitive structure. The implications of cognitive learning theory on student learning should bear in mind that the instructional goals should include learner needs and interest, reflect the concerns of society and endeavour to ensure that goals are focused at least towards the present and, hopefully, towards the future needs of the learner.

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