Learning Theories in Psychology

During the course of this lecture we covered 5 main psychological learning theories.

There are a number of main learning theories in psychology that have had the greatest impact on the teaching/learning instruction and they are:

- Behaviourism, which includes classical and operant conditioning
- Cognitive Learning Theories
- Social Learning Theories
- and am eclectic theory that combines elements of the above.

These are dealt with in these notes in as simpler a manner as possible. You'll find more precise details in the sources cited or indicated at the end.

All of these theories are used one way or another in teaching paradigms. Sometimes not appropriately! The learning theories definitely point to different 'schools' of psychology. These schools are entirely exclusive to each other, but it helps initially to think of them as having different consequences to what the propose about how we do things in a practical world - such as the way we teach.

Behaviourism

In it's most radical form, behaviourists state that what we actually feel, or think inside our heads is completely unimportant and in fact does not really occur except as a sort of accident. As such one should only look at the kind of 'stimulus' that elicits a response according to the various laws of association and the shaping that occurs due to operant conditioning which is a result of different reward (or punishment) schedules.

Behavioursim assumes that there are *laws of association,* and that these allow a 'pairing' to occur between a *stimulus* and a *response*. The theory of *classical* and *operant conditioning* are based on this theory. In it's extreme form it assumes that people are a *tabula rasa* or blank slate. B.F. Skinner (operant conditioning theoriser) famously said that in principle he could take any newborn and turn them into any sort of human being with the right stimulus and response environment.

However, most behaviourists did not take behaviourism to this extreme form, rather taking a more pragmatic approach which stated that it was more likely that there were cognitive or internal contributions to a person's behaviour, but since we cannot 'flip-top' open a persons head and see for ourselves what they are actually thinking, we can effectively only look at the behaviour of the person.

Classical Conditioning

Russian psychology researcher Ivan Pavlov noticed that his dogs would salivate at the scent of the meat that they were being offered, but furthermore they would salivate to the sound of their caretakers coming to give them the food. In other words they had come to associate the sound of the door opening to their holding rooms with being fed. Pavlov was able to demonstrate this experimentally by pairing the sound of a bell with the food being delivered. Subsequently he only needed to ring the bell to get the dogs to salivate.

The important points to this process is that initially there was an already existing paired association (meat smell, giving rise to the salivation); you'll see it referred to in the literature as an '*unconditioned stimulus*' or 'UCS' and an '*unconditioned response*' or UCR. When the original stimulus the meat smell (or UCS) is paired with a new stimulus such as a bell ringing (UCR) then the bell ringing can act as if it was the same as the meat smell (a '*conditioned stimulus'* or CS), and cause the dog to salivate to it (now this is the '*conditioned response*' or CR.

Pavlov and others found that there were certain effects that made this pairing stronger, or weaker in how it was learned. It was also possible to 'unlearn' the association, or 'forget' it, but it could be relearned far quicker than the original learning protocol. Much of this had to do with how close in time the conditioned stimulus was paired with the unconditioned stimulus; and how consistently the pairings occurred.

Operant Conditioning

Operant conditioning builds on the pairings in classical conditioning. Made famous by a psychologist called B.F. Skinner, Skinner thought that additional pairings would occur in any organism because it 'operates' on the environment. That means that it's own action can come to be a 'stimulus' that elicits a 'response'. In other words in real life there isn't an overseer who artificially pairs stimuli to form new 'conditional stimuli & responses', but rather we as organisms are constantly interacting with the environment - including other people. Skinner's break through was to consider that organisms get reinforced for associative pairings which makes us either do the behaviour more frequently (*positive reinforcement*) or less frequently (*negative reinforcement*).

Skinner used mainly pigeons and rats who were either pecking items or pushing levers respectively to obtain positive reinforcements (food or water), to avoid negative reinforcements (electric shocks).

Behaviour can be '*shaped*' because the behaviour tends to vary a little bit and these tiny variations can be 'shaped' more towards the desired direction by reinforcing approximations. Most animal actors that you see in the movies are trained using this methodology. Classical conditioning allows an unconditioned stimulus to be used as the positive reinforcer. This in turn is then used with a *reinforcement schedule* in order to shape an animal's behaviour.

Every time a child is praised (positive reinforcement) or scolded (negative reinforcement) whilst doing their school work, elements of operant conditioning are being used.

Behaviourism Conclusions

If there's only a few things that I think teachers should take away from this is that 'punishment' or 'negative reinforces' only work under very controlled conditions:

- the negative reinforcement has to be applied immediately (otherwise the learned behaviour is 'extinguished' very quickly.
- it has to be applied with an extremely high frequency schedule - in other words it has to be applied pretty much each and every time - no exceptions.
- the negative reinforcement has to be sufficiently 'negative' so that the children will actively avoid it. Folks we're taking being branded with glowing irons, or having the soles of your feet beaten, or splints inserted in your fingernails. I presume that none of you come across (nor would you entertain) such behaviour.

On the last point, how many children have you come across who get sort of 'immune' to any scolding (which is a negative reinforcement) that a teacher dishes out?

So good example of a negative reinforcement that does not work just by itself - giving out detention. The 'punishment' is applied long after the offence has occurred. I ask you, can you guarantee that each and every similar offence by all children is always caught; as well as whether the actual detention is really that terrible a punishment? Note that we're talking here about scientific evidence informing teaching/learning practice, not just some well wishing UN policy format (human rights and so on). I would go as far as to say that I'd be quite willing to use negative reinforcement on my own children in their school learning practice if it was demonstrated that this made their own learning more effective.

Cognitive Psychology

I've always thought that cognitive psychology was really a 'response' (ha ha!) to the 'stimulus' of behaviourism - in other words there were psychologists who just plain didn't like the fact that the behaviourists treated humans (and animals) as simply black boxes. This theory is the MOST dominant one in psychology today. The official text book recommended is very heavily based in cognitive psychology. Massively over simplified but cognitive psychology believes that we 'think' by making constructions of the world in our heads and that we do mental operations on this mental model. Teaching under a cognitive psychological paradigm, think that children will learn best by allowing them to explore the world as much as possible so that they can actively 'construct' their conception of the world.

This is the theory that effectively has informed the teaching/learning policy that states that children need to 'explore' teaching/learning materials in order that they can more easily actively encode the relevant material.

One of the most powerful aspects of cognitive theory is the idea that information needs to be encoded (we'll learn more about this later in the memory section). This encoding of information ultimately succeeds not just as a wild collection of facts and figures but as an ordered system which is 'scaffolded' or attached to a 'framework'. The technical term of this is 'schema theory' but if you've come across 'scaffolding' in your teaching practice, this is what it is referring to. The previously recommended '*Educational Psychology: Constructing Learning*' has a large focus on cognitive psychology (constructivism). Check out Chapter 4 (p. 62-87).

Social Learning Theory

Humanism is probably the closest modern day version to the original 'introspection' that was part of the original psychology laboratories in the 19th century. Social Learning Theory is very much steeped in humanistic psychological principles.

> There have been some psychologists that subscribed to the behaviourist style of acknowledging the strong environmental causes of behaviour and hence personality, and yet still acknowledging an 'inner' life. This approach is sometimes called Social Learning Theory. If one takes 'expectancy' of a reward/punishment to function as a 'reinforcer' the laws of behaviourism may still apply.
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> Julien Rotter was one of the first proponents of this theory and he did this by acknowledging not only an expectancy acting as a reinforcer for behaviour (either positive or negative) with an associated subjective anticipation of success (of the behaviour), but also in recognising that the reinforcer can have a variety of differing 'attractiveness' as a reinforcer. In other words a person may understand that if they do a certain behaviour [read their school text book journals] they will possibly/probably/definitely get a higher mark in their final exam; and this is slightly/moderately/highly rewarding for them.

Albert Bandura is perhaps the most famous advocate of social learning theory. However, he focusses on the *how* of social learning, rather than the theory itself. Learning can occur *without* observable reinforcers through *observational learning*. A four step conceptual scheme on this process is:

- Attentional processes: to attend to the thing to learn
- Retention processes: to be able to remember what you need to learn
- Motor reproduction processes: physical capability
- Motivational processes: having the motivation to want to learn

The learning is embedded in a person's own interpersonal & social context. This is something that is very interesting possibly to the Pacific, as the style of learning appears to be modelled very much on observational learning. A graphic personal example. A Solomon Islander tried to teach a number of us how to do a Solomon Island dance. He kept on instructing us by saying 'Watch!' and

then doing the movement. A number of the class (including myself obviously) were more 'Westnernised' and could not understand why he couldn't break down the movement into discrete serial steps: move you left leg like this, then sway your body, then swing your arms, then the right leg …' and so on. Instead he'd just say 'Watch!' and then when we tried to copy him he'd just say 'No, not like this … like this!' and again just do the movement. Not that I did a formal study on this, but I notice that the other members of the class that came from the Pacific, copied the movement far quicker than the rest of us Anglo-Europeans (on the other hand there is a cultural wisdom that 'white folks just can't dance'!).

Self efficacy is an important part of Bandura's scheme, and it is the belief that one can actually do a task. This appears to be similar but it is not the same as Rotter's outcome expectancy; you can believe that you can do a fine serve in a tennis match but this does not guarantee that you will win the point - especially if your opponent is very good. Children (as learners) would therefore need to feel that they could in principle do the learning activity, otherwise they probably would not try - or would not try hard enough.

Bandura's most famous application of social learning theory is in the acquisition of violent behaviour by viewing models on television. His 'bobo' doll experiments clearly showed young children emulating previously modelled violent behaviour. Eron has conducted famous longitudinal studies which showed that children that habitually viewed violent television at a young age, were more likely to be convicted of crimes involving violence of some sort. Strictly speaking, it's not clear which 'causes' what (ie the measures are correlations).

When children are taught by showing them how to do a particular behaviour - such as showing them how to do 'long division', the teacher is really acting as a role model. This kind of teaching is at least partly underpinned by Social Learning Theory

Social-Cognitive Theory

Like social learning theory, Social Cognitive Theory thinks that we learn by watching others do. However, there is more to the social learning theory because it blends the idea of the 'mental representation' that individuals have of the world (cognitive theory) along with it. Social cognitive theory suggests that people can plan their behaviour and delay an immediate or near to immediate 'reinforcement' because they can construct a sequence of cause & effect relationships.

So a child sitting in a classroom may figure that they do not particularly like English, but they do like the idea of becoming a barrister. So they work diligently in their English classes in order to do well enough to eventually be considered to enter university doing a law degree and then postgraduate work as a barrister. People are therefore constantly trying to figure out whether their behaviour now will give them a rewards or avoidance of negative consequences, which themselves might be quite far into the future (weeks, months or even years).

This suggests that children need to see a pathway as to what they are learning about, in order to see the relevance of things that might be quite abstract.

Sources

Bem, D.J., Allen, A. (1974) On predicting some people some of the time: The search for cross situational consistencies in behaviour. *Psychological Review*, **81**, 506-520.

Buss, D.M., Craik, K.H. (1984) Act prediction and the conceptual analysis of personality scales: Indices of act density, bipolarity, and extensity. J*ournal of Personality and Social Psychology*, **45**, 1081-1095.

McInerney, D.M. & McInerney, V. (1998) Educational Psychology: Constructing Learning, Prentice Hall, Australia.

From the Psychology Wiki

S-R Theory

Operant Learning

Cognitive psychology in learning

Social Learning Theory

Social-Cognitive Learning Theory

Glossary (terms you should know other than the theories)

Reinforcement (positive and negative)

Schema theory

Self efficacy

Extinction

Modelling