Book Review

Ormrod, J E (1999) *Human learning (3rd edition),* Sydney, New South Wales: Merrill, Prentice Hall Australia Pty Ltd.

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In her book *Human learning*, Jeanne Ormrod presents an interesting perspective on how learning theories should be used. She suggests that 'Different theories are applicable in different situations, depending on the environmental factors under consideration, the specific content being learned, and the objectives should use various theories to guide them in designing the classroom environment, content of instruction' (p 7). Rather than consider whether or not a theory is correct, teachers to be learned and the instruction. Theories should be used to assist people to learn more effectively and efficiently.

This book provides a contemporary view of the continuum of theories, from a behaviourist approach to learning, ie classical and operant conditioning; through the middle ground of behaviourist and cognitive ideas, ie social learning theory; and finally to the cognitive approach to learning, ie internal mental processes of learning and the nature of knowledge. There are also numerous examples of the application of these theories to education and learning, to assist the reader to apply them in classroom situations.

Ormrod aims to provide the reader with a better understanding of the factors that influence learning and the processes that enable learning to occur. The better that educators understand these principles and theories, the more they are able to promote the kinds of learning that will facilitate students' long-term success. In Part 1, 'Introduction to human learning', Ormrod defines what learning is and why it is important to consider it as a component of education, and complementary to teaching. This section also contains substantial explanations on why theories and principles should be used by those responsible for instructional practices. The author provides a broad perspective on these issues, allowing readers to use the information pertinent to their needs. She is careful not to make a value judgement about what learning is, or which theory is 'correct'.

Part 2 is a presentation of the 'Behaviourist view of learning'. Here, Ormrod sufficiently covers a description of the early theorist through to the contemporary theories and their implications for education. Contemporary behaviour theorists have accepted that motivation is a major factor affecting learning and performance; aversive consequences (ie punishment) do influence behaviour; learning and performance must be considered separately; and to effectively understand human behaviour, consideration of both cognitive factors and environmental events must be taken into account.

Ormrod juxtaposes classical and operant conditioning, allowing the reader to make easy comparisons and explore contrasts. Many common classroom strategies used today have their rationale in a classical conditioning model. For example, a positive classroom climate is necessary: when learning is associated with pleasant feelings, ie enjoyment, enthusiasm and excitement, students will pursue learning on their own. Also, students should experience more success than failure when learning. Teachers or schools are a source of excessive anxiety in students when they are associated with punishment, humiliation, failure or frustration. The concepts of classical conditioning are necessary to explain test anxiety, fear of failure and school phobia.

Traditionally, operant conditioning has dealt with behaviours that can be reinforced. However, the contemporary view suggests that behaviour is better understood by looking at the larger context and a longer timeframe. Behaviour occurs in relatively complex environmental conditions, where several different behaviours, each leading to a different reinforcement, are possible. Operant conditioning involves cognition and behaviour. Teachers should consider both non-observable mental processes and observable stimuli and responses when building expectations as to what reinforcements should follow particular responses.

Operant conditioning has provided the education community with such strategies as instructional objectives, programmed instruction, mastery learning, contracts and applied behaviour analysis. Ormond suggests that operant and/or classical conditioning cannot completely determine behaviour and may not be effective for all students. Operant conditioning techniques have been shown to benefit students with a history of academic failure, poorly motivated students, anxious students and students for whom nothing else works. However, bright students or highly motivated students may find operant conditioning techniques slow and tedious.

A more suitable theory for the bright or highly motivated student is 'Social learning theory' (Part 3). In addition to the use of reinforcement and punishment in learning, social learning theorists emphasise the importance of cognitive factors to learning. The use of modelling, self-efficacy and self-regulation are thoroughly explained. Social learning theorists describe how and what people learn by observing those around them. People can learn solely through these observations or 'models' and thus their learning will not be reflected in a change of behaviour, although they may demonstrate the desired behaviour at a later time.

In this section, Ormrod makes a clear comparison between social learning theory and operant conditioning and cognitive factors. Attention, rehearsal and memory coding are all important cognitive conditions to social learning theory. Also, expectations or the concept of incentives suggest that reinforcement influences the learning of a behaviour it precedes. Ormrod's extensive description of types of models, behaviours that can be learned through modelling, conditions and characteristics of effective models provide the reader with the necessary information to apply modelling to their instructional programs. The four essential conditions for good modelling are: attention, retention, motor reproduction and motivation.

Self-efficacy is the belief that a person is able to successfully execute a behaviour. Self-efficacy is situational specific. Influential factors in developing self-efficacy include previous successes and failures, messages from others and the successes and failures of others. This last factor suggests that a student seeing a classmate model a behaviour successfully is often more effective than seeing a teacher do it, especially if he/she perceives the other student to be similar to him/herself.

Self-regulation, or students choosing actions according to their own ideas about appropriate and inappropriate behaviour, is becoming more and more important in social learning theory. Setting standards and goals, self-observation, self-judgment and self-reaction are all aspects of self-regulation. Promoting self-regulation involves self-instruction, self-monitoring, self-reinforcement and self-imposed stimulus control. Self-regulated learning has been an important area of concern when teaching students to become more independent learners. Social learning theorists provide abundant explanations of how effective teaching complements self-regulated learning in order to make learning more effective and efficient.

In Part 4, 'Cognitive view of learning', Ormrod describes how, through their cognitive processes, humans perceive, interpret, remember and think about environmental events. A historic perspective of the development of cognitive theory leads into a contemporary view of cognitivism. Ormrod identifies five important implications of cognitive theory for educators. Since cognitive processes affect learning, teachers must be aware of what students are trying to learn and how they are trying to learn it. Through this monitoring, teachers are able to assist students to improve their processing of information - both students that are struggling and those that are excelling.

The nature of thinking is developmental. As students improve their thinking skills, they are able to conceptualise more and more abstract ideas. Educational programs must match the thinking level of students, or frustration during learning will occur. Learners organise and assimilate information with existing knowledge. Teachers should be aware of how information can be organised for better learning and be aware of students' prior knowledge. Strategies to promote both these issues will improve learning. Since learning is mental activity and students control this through their cognitive processing, they in fact control their learning. This is an

important consideration in many classrooms, ie how to get students engaged in and controlling their own learning.

Proponents of the dual-store model of memory deal with the structures of the human mind, ie its different components and their interrelationships. In this section, Ormrod describes three components: sensory register, short-term/working memory and long-term memory. The control processes within these components are considered, for example attention, organisation, retrieval, maintenance rehearsal and storage. Ormrod also briefly describes the debate regarding differences in working memory and long-term memory, before addressing the more important issue of how information is processed. Attending to the learning material is critical to the long-term retention of information, regardless of which memory model is being endorsed.

Teachers make a difference in initiating and maintaining attention. Strategies - such as using a variety of topics and presentation styles, providing frequent feedback, asking questions, minimising distractions when students are working independently, maximising teacher proximity with low attending students, and monitoring student attention - will enhance student attention to the information. Attention to material can vary across students. Teachers should use classroom tasks that require students to pay attention to the things that are most important for completion of tasks. This will also assist in students selecting the information they need to focus on. Also, students can only process a limited amount of information and thus lesson pacing and instructional materials must be chosen to support memory. Practise in condensing, organising and synthesising information will assist students to work with their limited capacity of working memory.

The bulk of information is stored in long-term memory. The importance of understanding long-term memory and its various processes and dichotomies, and facilitating these in the classroom, are considered here in the chapters on storage, the nature of knowledge, retrieval, forgetting, classroom practice and promoting effective memory processes. A variety of classroom practices have been identified that will assist in promoting effective learning: expository instruction, mnemonics, questioning by the teacher, and learning a few key ideas rather than rote learning vast amounts of material. All these practices must facilitate effective storage processes through meaningful learning, emphasising how the material is structured and identifying various interrelationships.

Part 5, ‘Complex learning and cognition’, provides a variety of strategies and approaches that can be used in classrooms of all levels. Knowledge and use of effective learning and cognitive processes, ie metacognition, promote academic achievement. Ormrod describes a number of skills students apply in order to be self-regulated learners. Setting standards and goals, selecting behaviours that will achieve these and evaluating the effects of actions contribute to student success.

In addition, in this section, the author considers effective learning and study strategies as well as how students' epistemological beliefs affect their learning.

Teachers are concerned with teaching the information of their subject areas. The concepts and ideas presented in this section will assist teachers to teach the necessary material - but more importantly, will provide students with the skills to learn more effectively. These skills also promote independent learning in students. One part of this section is a presentation of guidelines for promoting effective learning strategies. Like information, these skills must be taught, practised, modelled, monitored and evaluated, to mention only a few guidelines.

Education is concerned with gaining skills and knowledge that can be applied to the real world. This transfer of information can be used to solve problems. These two areas, transfer and problem solving, are described in detail and various strategies are provided to assist the classroom teacher in promoting them: for example, information should be learned in a meaningful fashion. Also, Ormrod suggests that, 'Breadth of coverage occurs at the expense of depth of coverage ... and at the expense of successful transfer and problem solving ...' (p 379).

An area of education that has been gaining more and more credibility with the classroom teacher, at all levels of education, is learning through interactions with others. Building a community of learners, peer tutoring, cooperative learning and classroom discussions are just a few areas Ormrod covers in the 'Application of cognitivism II'. Features and guidelines for applying these in the classroom provide the reader with enough information to commence. As a teacher adjusts these techniques for the particular characteristics of the students in the class, she/he will develop more insight into how students are learning. The interactions will develop and become richer, fuller and promote more than just the learning of information.

Cognitive processes such as paying attention, engaging in meaningful learning, elaboration, monitoring, comprehension and identifying inconsistencies in information are paramount for learning to occur. Mere 'time on task' is not sufficient for learning. Students must be engaged in activities in a cognitive manner. Ormrod believes that '... cognitive engagement is one of the benefits of a high level of motivation' (p 408). In this section, she details the general effects of motivation, extrinsic and intrinsic motivation, individual differences in motivation, and cognitive perspectives of motivation. In addition, she examines Self-Worth Theory, human needs and the role of affect as they relate to motivation and student performance. Ormrod suggests that, '... intrinsic motivation is the optimal state of affairs in the classroom' (p 409). An intense form of intrinsic motivation, ie flow, is distinguished by a state of complete absorption, focus and concentration. Students lose track of time and completely ignore other tasks, as they are totally absorbed in this challenging activity. This is very much like the 'zone' described by coaches and athletes.

Learning for the sake of learning is, according to Maslow's Hierarchy of Needs, one of the higher needs human beings enjoy. Self-actualisation, or becoming all that one is capable of becoming, is a growth need and very rarely satisfied completely. Unfortunately, the deficiency needs of physiology, safety, love, belongingness and esteem must be met from external sources and before self-actualisation. Maslow (see p 414) suggests that only about 1% of the population

become fully self-actualised, and only in the later years of life. This area is worth pursuing from a classroom perspective and Ormrod offers a good basis for further investigation in the form of discussions about self-worth and self-efficacy.

Affect (ie pleasure, anxiety, excitement, pride, depression, anger and guilt), feelings and emotions play a role in motivating the individual student. While performing a particular task, an individual makes a judgement of like or dislike. A student will perform those tasks she/he likes again, avoiding disliked tasks. Successful attempts at tasks like problem solving will bring about feelings of excitement, pleasure and pride. Tasks students dislike will produce feelings of frustration and anxiety.

Although a temporary state, anxiety has been widely studied. The section in which Ormrod outlines anxiety provides the reader with a good understanding of its effects on learning, performance, cognition and common sources, ie tests and mathematics. One additional area that needs to be considered, particularly for the more mature learner, is computer anxiety.

Many of the suggestions for promoting student motivation have been used in classrooms and now need to be dealt with in a more individual fashion within a group/classroom environment. The role affect plays in learning is important but ignored by many teachers and students. Ormrod, again, provides a good initial coverage of this area. More in-depth information can be obtained from D Goleman's (1994) *Emotional intelligence* and, more recently, T Bennett-Goleman's (2001) *Emotional alchemy*.

Values, goals, interests and beliefs are among the many cognitive factors that contribute to the amount and type of motivation. The expectation of success will also contribute to motivation, as does an individual's interpretation of the causes of his/her successes and failures. Pride in success comes about when a person believes her/his efforts have been worthwhile. Alternatively, failure, when contributed to lack of effort or poor strategies, can be overcome through various changes or adjustments.

Intrinsic motivation results from a sense of competence and self-determination. Making choices and regulating the course of our own lives is an important factor in developing and maintaining intrinsic motivation. A sense of self-determination will also motivate an individual to engage in decision-making activities and produce self-perpetuating behaviours. Challenge and competition also contribute to motivation. Challenges are situations where an individual believes he/she has a good chance of success although there is some risk of failure. Success is more likely with more effort. Challenges heighten interest in a task and minimise boredom. When successful, the individual can take most of the credit, as it is difficult to attribute success to external factors. More importantly, in a learning situation, students get a greater sense of competency and self-efficacy.

Many educators speak of competition in a positive manner but it does have several negative side effects. Negative aspects of competition include: cheating,

reduced regard for equity or fairness, denying others of necessary resources, and seeing oneself as better than everybody else rather than improving one's own abilities and skills. Teachers can play a major role in developing motivation in their students. For example, teachers can encourage students set goals for themselves and have these goals orientated towards learning, not performance. Instruction and classroom material should assist students to value learning and be interesting to use. Also, teachers can ensure that students feel competent about learning activities and have high expectations of success.

Ormrod has written a fantastic book for beginning educators and the more experienced ones. For the beginning educator, this book covers the important aspects of behaviourist theory, social learning theory and cognitive theory. For each of these theories, Ormrod examines their contemporary approaches to learning and provides examples of how they are applied in classrooms. The beginning educator can gain a thorough understanding of how theories can be used to direct learning and engage all learners in the classroom. For the more experienced educator, this text is an excellent update on the three major theories of learning. Experienced educators will recognise many of the examples used and may be surprised at which theory applies. This book will also challenge those educators who consider themselves aligned to one theory or rejecting of another. Ormrod supports the notion that all theories should be used to guide the design of classroom environments, the content to be learned and the instruction.