EDUCATIONAL PSYCHOLOGY

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Session 4

Conditioning and learning

An abacus provides concrete experiences for learning abstract concepts.

To understand the characteristics of learners in childhood, adolescence, adulthood, and old age, educational psychology develops and applies theories of human development. Often represented as stages through which people pass as they mature, developmental theories describe changes in mental abilities (cognition), social roles, moral reasoning, and beliefs about the nature of knowledge.

For example, educational psychologists have conducted research on the instructional applicability of Jean Piaget's theory of development, according to which children mature through four stages of cognitive capability. Piaget hypothesized that children are not capable of abstract logical thought until they are older than about 11 years, and therefore younger children need to be taught using concrete objects and examples. Researchers have found that transitions, such as from concrete to abstract logical thought, do not occur at the same time in all domains. A child may be able to think abstractly about mathematics, but remain limited to concrete thought when reasoning about human relationships. Perhaps Piaget's most enduring contribution is his insight that people actively construct their understanding through a self-regulatory process.[16]

Piaget proposed a developmental theory of moral reasoning in which children progress from a naïve understanding of morality based on behavior and outcomes to a more advanced understanding based on intentions. Piaget's views of moral development were elaborated by Kohlberg into a stage theory of moral development. There is evidence that the moral reasoning described in stage theories is not sufficient to account for moral behavior. For example, other factors such as modeling (as described by the social cognitive theory of morality) are required to explain bullying.

Rudolf Steiner's model of child development interrelates physical, emotional, cognitive, and moral development[38] in developmental stages similar to those later described by Piaget.[39]

Developmental theories are sometimes presented not as shifts between qualitatively different stages, but as gradual increments on separate dimensions. Development of epistemological beliefs (beliefs about knowledge) have been described in terms of gradual changes in people's belief in: certainty and permanence of knowledge, fixedness of ability, and credibility of authorities such as teachers and experts. People develop more sophisticated beliefs about knowledge as they gain in education and maturity.[40]

Motivation

Motivation is an internal state that activates, guides and sustains behavior. Motivation can have several impacting effects on how students learn and how they behave towards subject matter:[41]

- Provide direction towards goals
- Enhance cognitive processing abilities and performance
- Direct behavior toward particular goals
- Lead to increased effort and energy
- Increase initiation of and persistence in activities

Educational psychology research on motivation is concerned with the volition or will that students bring to a task, their level of interest and intrinsic motivation, the personally held goals that guide their behavior, and their belief about the causes of their success or failure. As intrinsic motivation deals with activities that act as their own rewards, extrinsic motivation deals with motivations that are brought on by consequences or punishments. A form of attribution theory developed by Bernard Weiner[42] describes how students' beliefs about the causes of academic success or failure affect their emotions and motivations. For example, when students attribute failure to lack of ability, and ability is perceived as uncontrollable, they experience the emotions of shame and embarrassment and consequently decrease effort and show poorer performance. In contrast, when students attribute failure to lack of effort, and effort is perceived as controllable, they experience the emotion of guilt and consequently increase effort and show improved performance.[42]

The self-determination theory (SDT) was developed by psychologists Edward Deci and Richard Ryan. SDT focuses on the importance of intrinsic and extrinsic motivation in driving human behavior and posits inherent growth and development tendencies. It emphasizes the degree to which an individual's behavior is self-motivated and self-determined. When applied to the realm of education, the self-determination theory is concerned primarily with promoting in students an interest in learning, a value of education, and a confidence in their own capacities and attributes.[43]

Motivational theories also explain how learners' goals affect the way they engage with academic tasks.[44] Those who have *mastery goals* strive to increase their ability and knowledge. Those who have *performance approach goals* strive for high grades and seek opportunities to demonstrate their abilities. Those who have *performance avoidance* goals are driven by fear of failure and avoid situations where their abilities are exposed. Research has found that mastery goals are associated with many positive outcomes such as persistence in the face of failure, preference for

challenging tasks, creativity and intrinsic motivation. Performance avoidance goals are associated with negative outcomes such as poor concentration while studying, disorganized studying, less self-regulation, shallow information processing and test anxiety. Performance approach goals are associated with positive outcomes, and some negative outcomes such as an unwillingness to seek help and shallow information processing.[44]

Locus of control is a salient factor in the successful academic performance of students. During the 1970s and '80s, Cassandra B. Whyte did significant educational research studying locus of control as related to the academic achievement of students pursuing higher education coursework. Much of her educational research and publications focused upon the theories of Julian B. Rotter in regard to the importance of internal control and successful academic performance.[45] Whyte reported that individuals who perceive and believe that their hard work may lead to more successful academic outcomes, instead of depending on luck or fate, persist and achieve academically at a higher level. Therefore, it is important to provide education and counseling in this regard.[46]

Technology
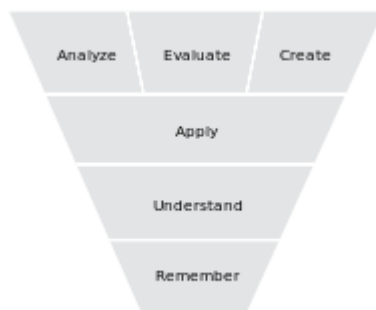
Bloom's taxonomy of educational objectives: categories in the cognitive domain[47]

Instructional design, the systematic design of materials, activities and interactive environments for learning, is broadly informed by educational psychology theories and research. For example, in defining learning goals or objectives, instructional designers often use a taxonomy of educational objectives created by Benjamin Bloom and colleagues.[47] Bloom also researched mastery learning, an instructional strategy in which learners only advance to a new learning objective after they have mastered its prerequisite objectives. Bloom[48] discovered that a combination of mastery learning with one-to-one tutoring is highly effective, producing learning outcomes far exceeding those normally achieved in classroom instruction. Gagné, another psychologist, had earlier developed an influential method of task analysis in which a terminal learning goal is expanded into a hierarchy of learning objectives[49] connected by prerequisite relationships. The following list of technological resources incorporate computer-aided instruction and intelligence for educational psychologists and their students:

- Intelligent tutoring system
- Educational technology
- Cognitive tutor
- Cooperative learning

- Collaborative learning
- Problem-based learning
- Computer-supported collaborative learning
- Constructive alignment

Technology is essential to the field of educational psychology, not only for the psychologist themselves as far as testing, organization, and resources, but also for students. Educational Psychologists whom reside in the K-12 setting focus the majority of their time with Special Education students. It has been found that students with disabilities learning through technology such as IPad applications and videos are more engaged and motivated to learn in the classroom setting. Liu et al. explain that learning-baed technology allows for students to be more focused, and learning is more efficient with learning technologies. The authors explain that learning technology also allows for students with social-emotional disabilities to participate in distance learning.[50]

Applications

Teaching

Effect of Small Elementary Classes on High School Graduation Rate
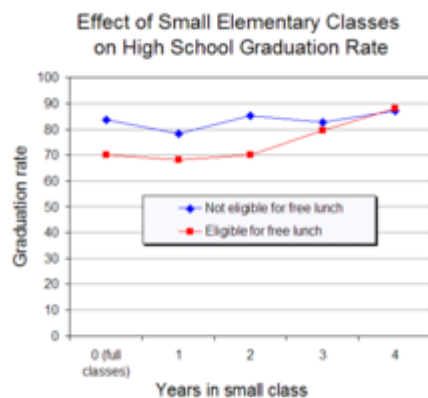
A class size experiment in the United States found that attending small classes for 3 or more years in the early grades increased high school graduation of students from low income families.[51]

Research on classroom management and pedagogy is conducted to guide teaching practice and form a foundation for teacher education programs. The goals of classroom management are to create an environment conducive to learning and to develop students' self-management skills. More specifically, classroom management strives to create positive teacher–student and peer relationships, manage student groups to sustain on-task behavior, and use counseling and other psychological methods to aid students who present persistent psychosocial problems.[52]

Introductory educational psychology is a commonly required area of study in most North American teacher education programs. When taught in that context, its content varies, but it typically emphasizes learning theories (especially cognitively oriented ones), issues about

motivation, assessment of students' learning, and classroom management. A developing Wikibook about educational psychology gives more detail about the educational psychology topics that are typically presented in preservice teacher education.

- Special education
- Lesson plan

Counseling

Training

In order to become an educational psychologist, students can complete an undergraduate degree in their choice. They then must go to graduate school to study education psychology, counseling psychology, and/ or school counseling. Most students today are also receiving their doctorate degrees in order to hold the "psychologist" title.Educational psychologists work in a variety of settings. Some work in university settings where they carry out research on the cognitive and social processes of human development, learning and education. Educational psychologists may also work as consultants in designing and creating educational materials, classroom programs and online courses.Educational psychologists who work in k–12 school settings (closely related are school psychologists in the US and Canada) are trained at the master's and doctoral levels. In addition to conducting assessments, school psychologists provide services such as academic and behavioral intervention, counseling, teacher consultation, and crisis intervention. However, school psychologists are generally more individual-oriented towards students.[53]

Employment outlook

Employment for psychologists in the United States is expected to grow faster than most occupations through the year 2014, with anticipated growth of 18–26%. One in four psychologists are employed in educational settings. In the United States, the median salary for psychologists in primary and secondary schools is US$58,360 as of May 2004.[54]

In recent decades the participation of women as professional researchers in North American educational psychology has risen dramatically.[55]

Methods of research

Educational psychology, as much as any other field of psychology heavily relies on a balance of pure observation and quantitative methods in psychology. The study of education generally combines the studies of history, sociology, and ethics with theoretical approaches. Smeyers and Depaepe explain that historically, the study of education and child rearing have been associated with the interests of policymakers and practitioners within the educational field, however, the recent shift to sociology and psychology has opened the door for new findings in education as a social science. Now being its own academic discipline, educational psychology has proven to be helpful for social science researchers.[56]

Quantitative research is the backing to most observable phenomenon in psychology. This involves observing, creating, and understanding a distribution of data based upon the studies subject matter. Researchers use particular variables to interpret their data distributions from their

research and employ statistics as a way of creating data tables and analyzing their data. Psychology has moved from the "common sense" reputations initially posed by Thomas Reid to the methodology approach comparing independent and dependent variables through natural observation, experiments, or combinations of the two. Though results are still, with statistical methods, objectively true based upon significance variables or p- values.[56]