



Education

Education encompasses teaching and learning specific skills, and also something less tangible but more profound: the imparting of knowledge, positive judgement and well-developed wisdom. Education has as one of its fundamental aspects the imparting of culture from generation to generation (see socialization). Education means 'to draw out', facilitating realisation of self-potential and latent talents of an individual. It is

an application of pedagogy, a body of theoretical and applied research relating to teaching and learning and draws on many disciplines such as psychology, philosophy, computer science, linguistics, neuroscience, sociology and anthropology.

The education of an individual human begins at birth and continues throughout life. (Some believe that education begins even before birth, as evidenced by some parents' playing music or reading to the baby in the womb in the hope it will influence the child's development.) For some, the struggles and triumphs of daily life provide far more instruction than does formal schooling (thus Mark Twain's admonition to "never let school interfere with your education"). Family members may have a profound educational effect — often more profound than they realize — though family teaching may function very informally.

Etymology

The word Education is derived from the Latin word 'Educare' which means 'to nourish' or 'to bring up'.

Education systems

Schooling occurs when society or a group or an individual sets up a curriculum to educate people, usually the young. Schooling can become systematic and thorough. Sometimes education systems can be used to promote doctrines or ideals as well as knowledge, and this can lead to abuse of the system.

Primary education



Primary School in "open air". Teacher (priest) with class from the outskirts of Bucharest, around 1842.

Primary or elementary education consists of the first years of formal, structured education that occur during childhood. In most countries, it is compulsory for children to receive primary education (though in many jurisdictions it is permissible for parents to provide it). Primary education generally begins when children are four to eight years of age. The division between primary and secondary education is somewhat arbitrary, but it generally occurs at about eleven or twelve years of age (adolescence); some educational systems have separate middle schools with the transition to the final stage of secondary education taking place at around the age of fourteen. In the United Kingdom, Ireland, New Zealand, Australia, South Africa, etc., schools which provide primary education are referred to as primary schools. Primary schools in these countries are often subdivided into infant schools and junior schools.

Secondary education

In most contemporary educational systems of the world, secondary education consists of the second years of formal education that occur during adolescence. It is characterised by transition from the typically compulsory, comprehensive primary education for minors to the optional, selective tertiary, "post-secondary", or "higher" education (e.g., university, vocational school) for adults. Depending on the system, schools for this period or a part of it may be called secondary or high schools, gymnasiums, lyceums, middle schools, colleges, or vocational schools. The exact meaning of any of these varies between the systems. The exact boundary between primary and secondary education varies from country to country and even within them, but is generally around the seventh to the tenth year of education. Secondary education occurs mainly during the teenage years. In the United States and Canada primary and secondary education together are sometimes referred to as K-12 education. The purpose of secondary education can be to give common knowledge, to prepare for either higher education or vocational education, or to train directly to a profession.

Higher education

Higher education, also called tertiary, third stage or post secondary education, often known as academia, is the non-compulsory educational level following the completion of a school providing a secondary education, such as a high school, secondary school, or gymnasium. Tertiary education is normally taken to include undergraduate and postgraduate education, as well as vocational education and training. Colleges and universities are the main institutions that provide tertiary education (sometimes known collectively as tertiary institutions). Examples of institutions that provide post-secondary education are vocational schools, community colleges and universities in the United States, the TAFEs in Australia, CEGEPs in Quebec, and the IEKs in Greece. They are sometimes known collectively as tertiary institutions. Tertiary education generally results in the receipt of certificates, diplomas, or academic degrees. Higher education includes teaching, research and social services activities of universities, and within the realm of teaching, it includes both the *undergraduate* level (sometimes referred to as tertiary education) and the *graduate* (or *postgraduate*) level (sometimes referred to as graduate school). In the United Kingdom post-secondary education below the level of higher

education is referred to as further education. Higher education in that country generally involves work towards a degree-level or foundation degree qualification. In most developed countries a high proportion of the population (up to 50%) now enter higher education at some time in their lives. Higher education is therefore very important to national economies, both as a significant industry in its own right, and as a source of trained and educated personnel for the rest of the economy.

Adult education

Lifelong, or adult, education has become widespread in many countries. However, education is still seen by many as something aimed at children, and adult education is often branded as *adult learning* or *lifelong learning*. Adult education takes on many forms, from formal class-based learning to self-directed learning. Lending libraries provide inexpensive informal access to books and other self-instructional materials. The rise in computer ownership and internet access has given both adults and children greater access to both formal and informal education.

Alternative education

Alternative education, also known as *non-traditional education* or *educational alternative*, is a broad term which may be used to refer to all forms of education outside of traditional education (for all age groups and levels of education). This may include both forms of education designed for students with special needs (ranging from teenage pregnancy to intellectual disability) and forms of education designed for a general audience which employ alternative educational philosophies and/or methods.

Alternatives of the latter type are often the result of education reform and are rooted in various philosophies that are commonly fundamentally different from those of traditional compulsory education. While some have strong political, scholarly, or philosophical orientations, others are more informal associations of teachers and students dissatisfied with certain aspects of traditional education. These alternatives, which include charter schools, alternative schools, independent schools, and home-based learning vary widely, but often emphasize the value of small class size, close relationships between students and teachers, and a sense of community.

In certain places, especially in the United States, the term *alternative* may largely refer to forms of education catering to "at risk" students, as it is, for example, in this definition

Education curriculum

An academic discipline is a branch of knowledge which is formally taught, either at the university, or via some other such method. Functionally, disciplines are usually defined and recognized by the academic journals in which research is published, and by the learned societies to which their practitioners belong. Professors say schooling is 80% psychological, 20% physical effort.

Each discipline usually has several sub-disciplines or branches, and distinguishing lines are often both arbitrary and ambiguous. Examples of broad areas of academic disciplines include the natural sciences, mathematics, computer science, social sciences, humanities and applied sciences.

Education process

Learning modalities

There has been a great deal of work on learning styles over the last two decades. Dunn and Dunn focused on identifying relevant stimuli that may influence learning and manipulating the school environment, at about the same time as Joseph Renzulli recommended varying teaching strategies. Howard Gardner identified individual talents or aptitudes in his Multiple Intelligences theories. Based on the works of Jung, the Myers-Briggs Type Indicator and Keirsey's Temperament Sorter focused on understanding how people's personality affects the way they interact personally, and how this affects the way individuals respond to each other within the learning environment. The work of David Kolb and Anthony Gregorc's Type Delineator follows a similar but more simplified approach.

Education can be physically divided into many different learning "modes" but the learning modalities are probably the most common:

- Kinesthetic learning based on hands-on work and engaging in activities.
- Visual learning based on observation and seeing what is being learned.
- Auditory learning based on listening to instructions/information.

Depending on their preferred learning modality, different teaching techniques have different levels of effectiveness. Effective teaching requires a variety of teaching methods which cover all three learning modalities. No matter what their preference, students should have equal opportunities to learn in a way that is effective for them.

Teaching

Teachers need the ability to understand a subject well enough to convey its essence to a new generation of students. The goal is to establish a sound knowledge base on which students will be able to build as they are exposed to different life experiences. The passing of knowledge from generation to generation allows students to grow into useful members of society. Good teachers are able to translate information, good judgment, experience, and wisdom into a significant knowledge of a subject that is understood and retained by the student. As a profession teaching has very high levels of Work-Related Stress (WRS) which are listed as amongst the highest of any profession in some countries, such as the United Kingdom. The degree of this problem is becoming increasingly recognized and support systems are put into place.

Parental involvement

Parental involvement is an important element in a child's educational development. Early and consistent parental involvement in the child's life, for example by reading to children at an early age, teaching patterns, interpersonal communication skills, exposing them to diverse cultures and the community around them, and educating them about a healthy lifestyle, is critical. The socialization and academic education of a child are aided by the involvement of the student, parent(s), extended family, teachers, and others in the community. Parent involvement is more than the parent being the field trip helper, or the lunch lady. Parents need to be asked about how their child learns best. They need to share their career expertise with the children. Today's educators need to remember that parents are the child's first and foremost teacher; parents, too, are experts, and teachers should learn from them.

Academic achievement and parental involvement are strongly linked in the research. Many schools are now beginning parental involvement programs in a more organized fashion. In the US this has been led in part by the No Child Left Behind legislation from the US Department of Education.

Education technology



A typical Managed Learning Environment with a navigation menu and icons

Technology is an increasingly influential factor in education. Computers and mobile phones are being widely used in developed countries both to complement established education practices and develop new ways of learning such as online education (a type of distance education). This gives students the opportunity to choose what they are interested in learning. The proliferation of computers also means the increase of programming and blogging. Technology offers powerful learning tools that demand new skills and understandings of students, including Multimedia literacy, and provides new ways to engage students, such as classroom management software. Technology is being used more not only in administrative duties in education but also in the instruction of students. The use of technologies such as PowerPoint and interactive whiteboard is capturing the attention of students in the classroom. Technology is also being used in the assessment of students. One example is the Audience Response System (ARS), which allows immediate feedback tests and classroom discussions.

Information and communication technologies (ICTs) are a “diverse set of tools and resources used to communicate, create, disseminate, store, and manage information.” These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephony. There is increasing interest in how computers and the Internet can improve education at all levels, in both formal and non-formal settings. Older ICT technologies, such as radio and television, have for over forty years been used for open and distance learning, although print remains the cheapest, most accessible and therefore most dominant delivery mechanism in both developed and developing countries. The use of computers and the Internet is still in its infancy in developing countries, if these are used at all, due to limited infrastructure and the attendant high costs of access. Usually, various technologies are used in combination rather than as the sole delivery mechanism. For example, the Kothmale Community Radio Internet uses both radio broadcasts and computer and Internet technologies to facilitate the sharing of information and provide educational opportunities in a rural community in Sri Lanka. The Open University of the United Kingdom (UKOU), established in 1969 as the first educational institution in the world wholly dedicated to open and distance learning, still relies heavily on print-based materials supplemented by radio, television and, in recent years, online programming. Similarly, the Indira Gandhi National Open University in India combines the use of print, recorded audio and video, broadcast radio and television, and audioconferencing technologies.

Computer assisted learning (CAL), CAL has been increasingly used to describe the use of technology in teaching.

Education history

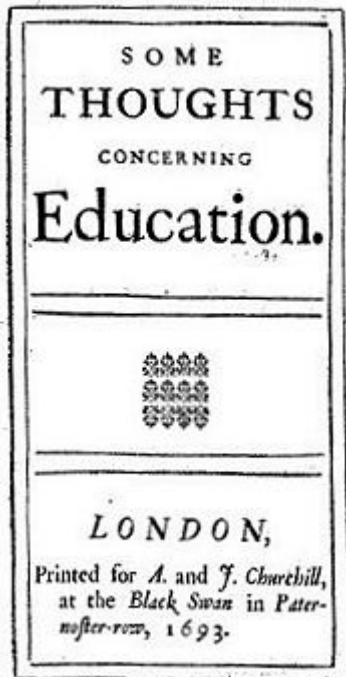


A depiction of the world's oldest university, the University of Bologna, Italy

The history of education according to Dieter Lenzen, president of the Freie Universität Berlin 1994 "began either millions of years ago or at the end of 1770". Education as a science cannot be separated from the educational traditions that existed before. Education was the natural response of early civilizations to the struggle of surviving and thriving as a culture. Adults trained the young of their society in the knowledge and skills they would need to master and eventually pass on. The evolution of culture, and human beings as a species depended on this practice of transmitting knowledge. In pre-literate societies this was achieved orally and through imitation. Story-telling continued from one generation to the next. Oral language developed into written symbols and letters. The

depth and breadth of knowledge that could be preserved and passed soon increased exponentially. When cultures began to extend their knowledge beyond the basic skills of communicating, trading, gathering food, religious practices, etc, formal education, and schooling, eventually followed. Schooling in this sense was already in place in Egypt between 3000 and 500BC.

Education philosophy



John Locke's seminal work *Some Thoughts Concerning Education* was written in 1693 and still reflects traditional education priorities

The philosophy of education is the study of the purpose, nature and ideal content of education. Related topics include knowledge itself, the nature of the knowing mind and the human subject, problems of authority, and the relationship between education and society. At least since Locke's time, the philosophy of education has been linked to theories of developmental psychology and human development.

Fundamental purposes that have been proposed for education include:

- The enterprise of civil society depends on educating young people to become responsible, thoughtful and enterprising citizens. This is an intricate, challenging task requiring deep understanding of ethical principles, moral values, political theory, aesthetics, and economics, not to mention an understanding of who children are, in themselves and in society.
- Progress in every practical field depends on having capacities that schooling can educate. Education is thus a means to foster the individual's, society's, and even

- humanity's future development and prosperity. Emphasis is often put on economic success in this regard.
- One's individual development and the capacity to fulfill one's own purposes can depend on an adequate preparation in childhood. Education can thus attempt to give a firm foundation for the achievement of personal fulfillment. The better the foundation that is built, the more successful the child will be. Simple basics in education can carry a child far.

A central tenet of education typically includes “the imparting of knowledge.” At a very basic level, this purpose ultimately deals with the nature, origin and scope of knowledge. The branch of philosophy that addresses these and related issues is known as epistemology. This area of study often focuses on analyzing the nature and variety of knowledge and how it relates to similar notions such as truth and belief.

While the term, *knowledge*, is often used to convey this general purpose of education, it can also be viewed as part of a continuum of knowing that ranges from very specific data to the highest levels. Seen in this light, the continuum may be thought to consist of a general hierarchy of overlapping levels of knowing. Students must be able to connect new information to a piece of old information to be better able to learn, understand, and retain information. This continuum may include notions such as data, information, knowledge, wisdom, and realization.

Education psychology

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.

Educational psychology is the study of how humans learn in educational settings, the effectiveness of educational interventions, the psychology of teaching, and the social psychology of schools as organizations. Although the terms "educational psychology" and "school psychology" are often used interchangeably, researchers and theorists are

likely to be identified as educational psychologists, whereas practitioners in schools or school-related settings are identified as school psychologists. Educational psychology is concerned with the processes of educational attainment in the general population and in sub-populations such as gifted children and those with specific disabilities.

Educational psychology can in part be understood through its relationship with other disciplines. It is informed primarily by psychology, bearing a relationship to that discipline analogous to the relationship between medicine and biology. Educational psychology in turn informs a wide range of specialities within educational studies, including instructional design, educational technology, curriculum development, organizational learning, special education and classroom management. Educational psychology both draws from and contributes to cognitive science and the learning sciences. In universities, departments of educational psychology are usually housed within faculties of education, possibly accounting for the lack of representation of educational psychology content in introductory psychology textbooks (Lucas, Blazek, & Raley, 2006).

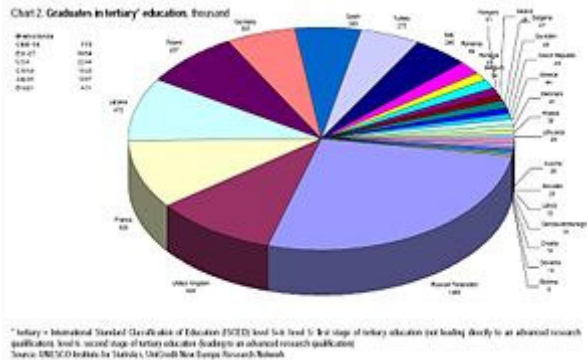
Education economics

If we look at a sorted list of nations with the highest level of secondary schooling we notice these are the richest countries in the world, based on GDP per capita. High rates of education are essential for countries to achieve high levels of economic growth. In theory poor countries should grow faster than rich countries because they can adopt cutting edge technologies already tried and tested by rich countries. But economists argue that if the gap in education between a rich and a poor nation is too large, as is the case between the poorest and the richest nations in the world, the transfer of these technologies that drive economic growth becomes difficult, thus the economies of the world's poorest nations stagnate.

Education sociology

The sociology of education is the study of how social institutions and forces affect educational processes and outcomes, and vice versa. By many, education is understood to be a means of overcoming handicaps, achieving greater equality and acquiring wealth and status for all (Sargent 1994). Learners may be motivated by aspirations for progress and betterment. Education is perceived as a place where children can develop according to their unique needs and potentialities (Schofield 1999). The purpose of education can be to develop every individual to their full potential. However, according to some sociologists, a key problem is that the educational needs of individuals and marginalized groups may be at odds with existing social processes, such as maintaining social stability through the reproduction of inequality. The understanding of the goals and means of educational socialization processes differs according to the sociological paradigm used.

Developing countries



Russia has more academic graduates than any other country in Europe

According to The Borgen project, 115 million children lack access to education. In developing countries, the number and seriousness of the problems faced are naturally greater. People are sometimes unaware of the importance of education, and there is economic pressure from those parents who prioritize their children's making money in the short term over any long-term benefits of education. Recent studies on child labor and poverty have suggested that when poor families reach a certain economic threshold where families are able to provide for their basic needs, parents return their children to school. This has been found to be true, once the threshold has been breached, even if the potential economic value of the children's work has increased since their return to school. Teachers are often paid less than other similar professions.

A lack of good universities, and a low acceptance rate for good universities, is evident in countries with a relatively high population density. In some countries, there are uniform, overstructured, inflexible centralized programs from a central agency that regulates all aspects of education.

- Due to globalization, increased pressure on students in curricular activities
- Removal of a certain percentage of students for improvisation of academics (usually practised in schools, after 10th grade)

India is now developing technologies that will skip land based phone and internet lines. Instead, India launched EDUSAT, an education satellite that can reach more of the country at a greatly reduced cost. There is also an initiative started by a group out of MIT and supported by several major corporations to develop a \$100 laptop. The laptops should be available by late 2006 or 2007. The laptops, sold at cost, will enable developing countries to give their children a digital education, and to close the digital divide across the world.

In Africa, NEPAD has launched an "e-school programme" to provide all 600,000 primary and high schools with computer equipment, learning materials and internet access within 10 years. Private groups, like The Church of Jesus Christ of Latter-day Saints, are working to give more individuals opportunities to receive education in developing countries through such programs as the Perpetual Education Fund. An International

Development Agency project called naabur.com, started with the support of American President Bill Clinton, uses the internet to allow co-operation by individuals on issues of social development.

Internationalisation

Education is becoming increasingly international. Not only are the materials becoming more influenced by the rich international environment, but exchanges among students at all levels are also playing an increasingly important role. In Europe, for example, the Socrates-Erasmus Programme stimulates exchanges across European universities. Also, the Soros Foundation provides many opportunities for students from central Asia and eastern Europe. Some scholars argue that, regardless of whether one system is considered better or worse than another, experiencing a different way of education can often be considered to be the most important, enriching element of an international learning experience (Dubois et al. 2006).

Challenges

The goal of education is fourfold: the social purpose, intellectual purpose, economic purpose, and political/civic purpose. Current education issues include which teaching method(s) are most effective, how to determine what knowledge should be taught, which knowledge is most relevant, and how well the pupil will retain incoming knowledge. Educators such as George Counts and Paulo Freire identified education as an inherently political process with inherently political outcomes. The challenge of identifying *whose* ideas are transferred and what goals they serve has always stood in the face of formal and informal education.

In addition to the "Three R's", reading, writing, and arithmetic, Western primary and secondary schools attempt to teach the basic knowledge of history, geography, mathematics (usually including calculus and algebra), physics, chemistry and sometimes politics, in the hope that students will retain and use this knowledge as they age or that the skills acquired will be transferable. The current education system measures competency with tests and assignments and then assigns each student a corresponding grade. The grades, usually a letter grade or a percentage, are intended to represent the amount of all material presented in class that the student understood. Pre- and post-tests may be used to measure how much was learned.

Educational progressives or advocates of unschooling often believe that grades do not necessarily reveal the strengths and weaknesses of a student, and that there is an unfortunate lack of youth voice in the educational process. Some feel the current grading system lowers students' self-confidence, as students may receive poor marks due to factors outside their control. Such factors include poverty, child abuse, and prejudiced or incompetent teachers.

By contrast, many advocates of a more traditional or "back to basics" approach believe that the direction of reform needs to be the opposite. Students are not inspired or

challenged to achieve success because of the dumbing down of the curriculum and the replacement of the "canon" with inferior material. They believe that self-confidence arises not from removing hurdles such as grading, but by making them fair and encouraging students to gain pride from knowing they can jump over these hurdles. On the one hand, Albert Einstein, the most famous physicist of the twentieth century, who is credited with helping us understand the universe better, was not a model school student. He was uninterested in what was being taught, and he did not attend classes all the time. On the other hand, his gifts eventually shone through and added to the sum of human knowledge.

There are a number of highly controversial issues in education. Should some knowledge be forgotten? Should classes be segregated by gender? What should be taught? There are also some philosophies, for example Transcendentalism, that would probably reject conventional education in the belief that knowledge should be gained through more direct personal experience. A recent book argues that children are being expected to learn too much. "There is an ongoing tendency to increase the length of textbooks. There are various reasons why people want to add to the education of children. People who work on education often believe, nobly enough, that the most important contribution is to get children to learn more. Publishers want to sell new books and adding new material is an important aspect of an effective sales pitch". Also, the cost of higher education in developed countries is increasingly becoming an issue.