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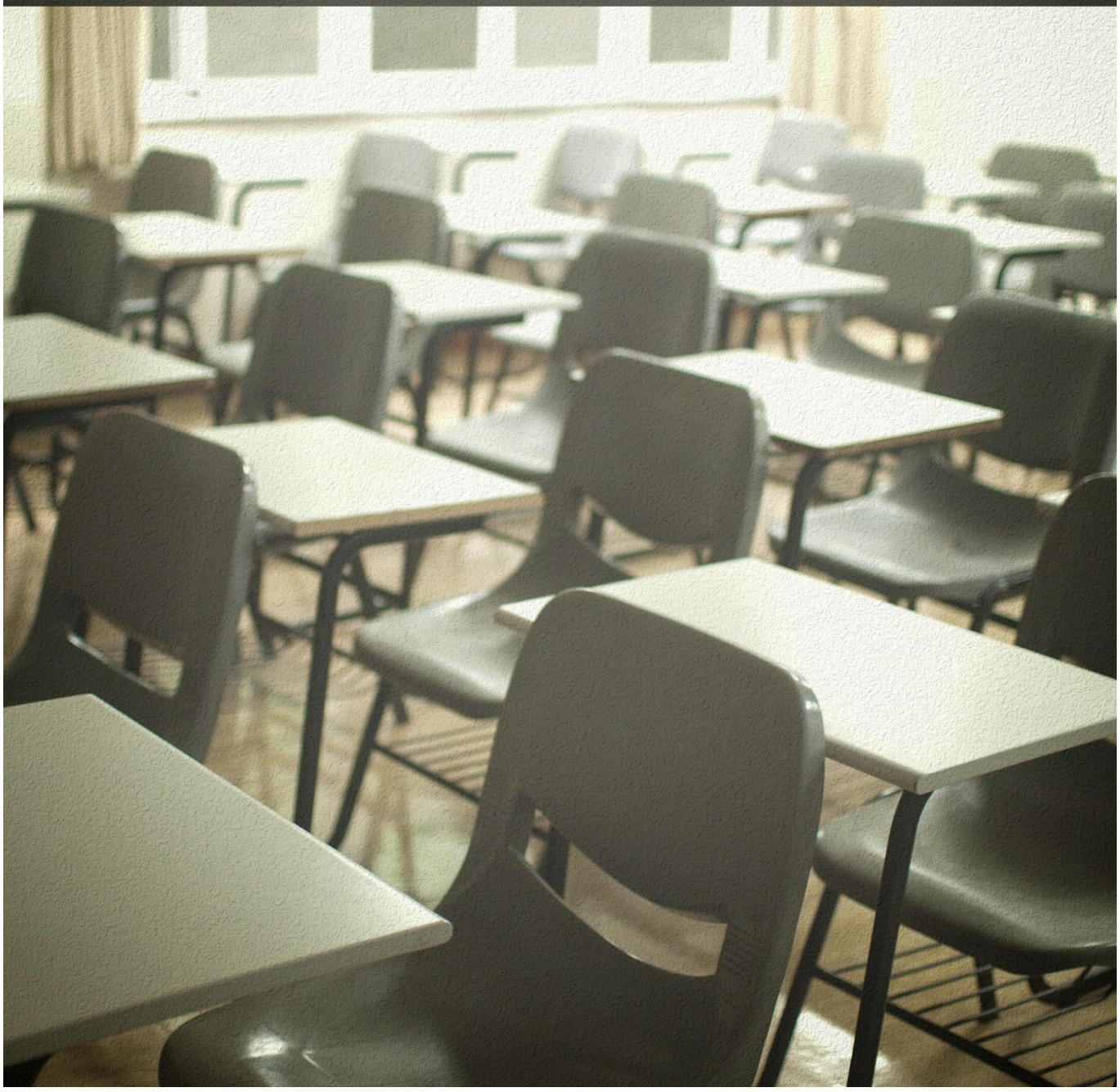
Education, Society, and the K-12 Learner

University of Mississippi. School of Education. Department of Teacher Education

Education, Society, & the K-12 Learner



EDUCATION, SOCIETY, & THE K-12 LEARNER

Table of Contents

PART II:
EDUCATIONAL PSYCHOLOGY

The Human Brain

Nature vs. Nurture

Development of the Human Brain

Lower-Level Structures of the Brain

Cerebral Cortex

Cerebral Hemispheres and Lobes of the Brain

The Limbic System

Neuroplasticity

Physical Development

Physical Development in Childhood

Physical Development in Adolescence

Cognitive Development

Piaget's Theory of Cognitive Development

Constructivism and Social Constructivism

Constructivism and Social Constructivism in the Classroom

Human Language Development

Learning and Motivation

Defining Motivation

Evolutionary Theory of Motivation

Temporal Motivation Theory

Maslow's Hierarchy of Needs

Motivating Students

Incentive Theory of Motivation and Intrinsic vs. Extrinsic Motivation

Achievement and Cognition in Motivation

Erickson's 8 Stages of Psychosocial Development

Kohlberg's Stages of Moral Development

Education, Society, & the K-12 Learner

Part I
Educational History and Policy

Icon				
Meaning	READ	WATCH	LINK	REQUIRES LOGIN

Why Teach?

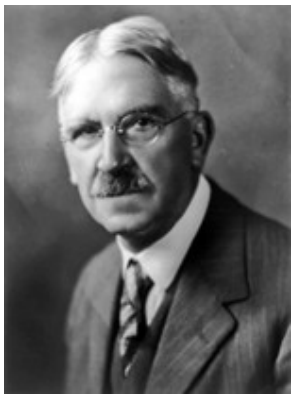


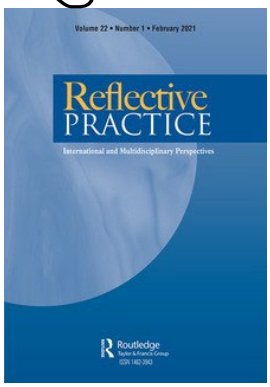
Photo of John Dewey (1859-1952)

[My Pedagogic Creed]

John Dewey's statement about his beliefs around education (1897).

Citation:

Dewey, J. (1897). My pedagogic creed. *School Journal* 54. 77-80.



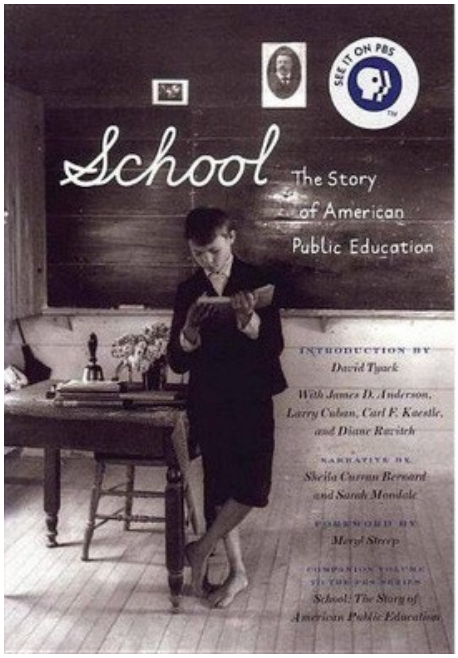
[Transforming Teaching Practice: Becoming the Critically Reflective Teacher]

Barbara Larrivee's article about reflective practice in education (2000).

Citation:

Larrivee, B. (2000). Transforming teaching practice: Becoming the critically reflective teacher. *Reflective Practice* 1(3). 293-307.

History of American Education



School: The Story of American Public Education

Episode 1: [The Common School: 1770-1890]

In the aftermath of the Revolution, a newly independent America confronted one of its most daunting challenges: how to build a united nation out of 13 disparate colonies.

This program profiles the passionate crusade launched by Thomas Jefferson and continued by Noah Webster, Horace Mann, and others to create a common system of tax-supported schools that would mix people of different backgrounds and reinforce the bonds of democracy. (58 min.)

Educational Reform:
The Example of Horace Mann[1]

Horace Mann championed education reform that helped to expand state-sponsored public education in the1800s.

LEARNING OBJECTIVE

Describe the central reforms that Horace Mann brought to public education.

KEY POINTS

- Early public school curriculum was based on strict Calvinism and concentrated on teaching moral values.
- Free public education was common in New England but rare in the south, where most education took place at home with family members or tutors.
- Horace Mann of Massachusetts led the common school movement in the early 1800s, in which public schools were financed by local property taxes. Mann also emphasized positive reinforcement instead of punishment.
- Mann promoted locally-controlled, often one-room "common schools" in which children of all ages and classes were taught together; later he introduced the age-grading system.
- Each state used federal funding from the Morrill Land-Grant Colleges Acts of 1862 and 1890 to set up "land grant colleges" that specialized in agriculture and engineering.
- Many of what are now called Historically Black Colleges and Universities (HBCUs) had their origins in the Morrill Act of 1890.

TERMS

- **Calvinism**: The Christian denomination which places emphasis on the sovereignty of God and distinctively includes the doctrine of predestination (that a special few are predetermined for salvation, while others cannot attain it).
- **parochial school**: A school associated with the parish of a church.

[1] CC LICENSED CONTENT, SHARED PREVIOUSLY

- **common school movement**: The educational era associated with schools that were meant to serve individuals of all social classes and religions.
- **lyceum**: A public hall designed for lectures or concerts

History of Education in the United States

Prior to the First and Second Industrial Revolutions, education in the 13 colonies during the 17th and 18th centuries varied considerably depending on one's location, race, gender, and social class. Basic education in literacy and numeracy was widely available, especially to white males residing in the northern and middle colonies, and the literacy rate was relatively high among these people. Educational opportunities were much sparser in the rural South.

Education in the United States had long been a local affair, with schools governed by locally elected school boards. Public education was common in New England, although it was often class-based with the working class receiving few benefits. Instruction and curriculum were all locally determined, and teachers were expected to meet rigorous demands of strict moral behavior. Schools taught religious values and applied Calvinist philosophies of discipline, which included corporal punishment and public humiliation.

Excerpt from the New England Primer of 1690

Prior to 19th century reform, education was often the province of sectarian religious institutions, as evident in the religious bent of this popular textbook.

The public education system was less organized in the South. Public schools were rare, and most education took place in the home with the family acting as instructors. The wealthier planter families were able to bring in tutors for instruction in the Classics, but many yeoman farming families had little access to education outside of the family unit.

Horace Mann and Educational Reform

Education reform, championed by Horace Mann, helped to bring about state sponsored public education, including a statewide curriculum and a local property tax to finance public education. By the year 1870, all states had free elementary schools and the U.S. population boasted one of the highest literacy rates at the time. Private academies flourished in towns across the country, but rural areas (where most people lived) had few schools before the 1880s. By the close of the 1800s, public secondary schools began to outnumber private ones.

Horace Mann

The reform movement began in Massachusetts when Mann started the common school movement. Horace Mann (May 4, 1796 – August 2, 1859) was an American education reformer who served in the Massachusetts House of Representatives from 1827-1833 and the

Massachusetts Senate from 1834-1837. He was elected to the U.S. House of Representatives in 1848 after serving as Secretary of the Massachusetts State Board of Education since its creation. He is often called "the father of American public education."

Arguing that universal public education was the best way to turn the nation's unruly children into disciplined, judicious republican citizens, Mann won widespread approval from modernizers, especially in his Whig Party, for building public schools. Most states adopted one version or another of the system he established in Massachusetts, especially the program for "normal schools" to train professional teachers.

Common Schools

A "common school" was a public, often one-roomed school in the United States or Canada in the 1800s. The term was coined by Horace Mann and refers to the school's aim to serve individuals of all social classes and religions. Students often went to the common school from ages six to fourteen (predecessor of grades 1-8). The duration of the school year was often dictated by the agricultural needs of particular communities, with children on vacation from school when they needed to work on the family farm.

Common schools were funded by local taxes, did not charge tuition, and were open to all white children. Each district was typically controlled by an elected local school board; a county school superintendent or regional director was usually elected to supervise day-to- day activities of several common school districts.

Mann's work revolutionized the approach of the common school system of Massachusetts, which in turn influenced the direction of other states. In 1838, he founded and edited The Common School Journal. In this journal, Mann targeted the problems of public schools. Mann hoped that by bringing children of all classes together, they could share a common learning experience. This would also give the less fortunate an opportunity to advance in society. Mann met with bitter opposition by some Boston schoolmasters who strongly disapproved of his innovative pedagogical ideas and by various religious sectarians who contended against the exclusion of all sectarian instruction from the schools.

Mann advocated a statewide curriculum and instituted school financing through local property taxes. Mann also fought protracted battles against the Calvinist influence on discipline, preferring positive reinforcement to physical punishment. Most children during that time learned to read, write, and spell from Noah Webster's Blue Backed Speller and later the McGuffey Readers. The readings inculcated moral values as well as literacy.

Kindergartens and the gymnasium were introduced by German immigrants, while Yankee orators sponsored the Lyceum movement that provided popular education via lectures for hundreds of towns and small cities. Mann later advocated the Prussian model of schooling, which included the technique of age grading—students were assigned by age to different grades and progressed through them. Some students progressed with their grade and completed all courses the secondary school had to offer. These were "graduated," and were awarded a certificate of completion.

The McGuffey Reader

With 120 million copies sold since 1836, the McGuffey Reader taught many American children to read.

Parochial Schools

From 1750–1870, American Catholic parochial schools appeared as ad hoc efforts by parishes, and most Catholic children attended public schools. In addition to Catholics, German Lutherans, the Calvinist Dutch, and Orthodox Jews also began parochial schools. Starting from about 1876, 39 states (out of 50) passed a constitutional amendment to their state constitutions called the "Blaine Amendments" forbidding tax money to be used to fund parochial schools. In 2002, the United States Supreme Court upheld an Ohio law allowing aid under specific circumstances.

Morrill Land-Grant Acts

The Morrill Land-Grant Acts are United States statutes signed into law by President Abraham Lincoln on July 2, 1862 that allowed for the creation of land-grant colleges. For 20 years prior to the first introduction of the bill in 1857, there was a political movement calling for the creation of agriculture colleges. The movement was led by Professor Jonathan Baldwin Turner of Illinois College. On February 8, 1853, the Illinois Legislature adopted a resolution, drafted by Turner, calling for the Illinois congressional delegation to work to enact a land-grant bill to fund a system of industrial colleges - one in each state.

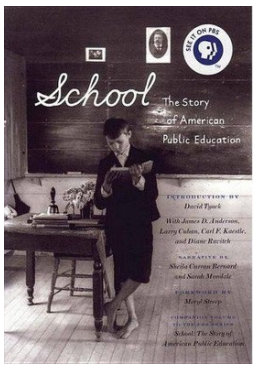
Under the act, each eligible state received a total of 30,000 acres of federal land, either within or contiguous with its boundaries, for each member of congress held by the state. This land, or the proceeds from its sale, was to be used toward establishing and funding educational institutions. The land-grant college system produced the agricultural scientists and industrial engineers who constituted the critical human resources of the managerial revolution in government and

business of 1862–1917, laying the foundation of the world's preeminent educational infrastructure that supported the world's foremost technology- based economy.

Education for African Americans

In the era of reconstruction after the Civil War, the Freedmen's Bureau opened 1000 schools across the South for black children. Schooling was a high priority for the Freedmen, and enrollment was high and enthusiastic. Overall, the Bureau spent $5 million to set up schools for African Americans. By the end of 1865, more than 90,000 Freedmen were enrolled as students in public schools. The school curriculum resembled that of schools in the North.

A second Morrill Act was later introduced in 1890 that required each state to show that race was not an admissions criterion, or else to designate a separate land-grant institution for persons of color. Among the 70 colleges and universities which eventually evolved from the Morrill Acts are several of today's historically black colleges and universities.



School: The Story of American Public Education

Episode 2: As American as Public School: 1900-1950

In 1900, six percent of America's children graduated from high school; by 1945, 51 percent graduated and 40 percent went on to college. This program recalls how massive immigration, child labor laws, and the explosive growth of cities fueled school attendance and transformed public education. Also explored are the impact of John Dewey's progressive ideas as well as the effects on students of controversial IQ tests, the "life adjustment" curriculum, and Cold War politics. Interviews with immigrant students, scholars, and administrators provide a portrait of America's changing educational landscape in the first half of the 20th century. (58 minutes)

Episode 3: A Struggle for Education Equality: 1950-1980

In the 1950s, America's public schools teemed with the promise of a new, postwar generation of students, over half of whom would graduate and go on to college. This program shows how impressive gains masked profound inequalities: 17 states had segregated schools; one percent of all Ph.D.s went to women; and "separate but equal" was still the law of the land. Interviews with Linda Brown Thompson and other equal rights pioneers bring to life the issues that prompted such milestones as Brown v. Board of Education of Topeka (1954), the Elementary and Secondary Education Act, Title IX, and the Americans with Disabilities Act. (55 minutes)

Episode 4: The Bottom Line in Education: 1980 to the Present

In 1983, the Reagan Administration's report A Nation at Risk shattered public confidence in America's school system and sparked a new wave of education reform. This program explores the impact of the "free market" experiments that ensued, from vouchers and charter schools to privatization—all with the goal of meeting tough new academic standards. Today, the debate rages on: do these diverse strategies challenge the Founding Fathers' notions of a common school, or are they the only recourse in a complex society? (55 minutes)

Education Policy[2]

Education policy refers to the collection of laws and rules that govern the operation of education systems.

LEARNING OBJECTIVE

Discuss the institutions and issues relevant to current education policy in the United States and the sources of education policy evaluation and analysis

KEY POINTS

- Examples of areas subject to debate in education policy include school size, class size, school choice, school privatization, teaching methods, curricular content, and graduation requirements.
- Unlike the systems of most other countries, education in the United States is highly decentralized, and the federal government and Department of Education are not heavily involved in determining curricula or educational standards (with the recent exception of the No Child Left Behind Act).

TERMS

- The **Department of Education** is a Cabinet-level department of the United States government. Its primary functions are to "establish policy for, administer and coordinate most federal assistance to education, collect data on US schools, and to enforce federal educational laws regarding privacy and civil rights. "
- **Education policy** refers to:

  the principles and government policy-making in the educational sphere, as well as the collection of laws and rules that govern the operation of education systems

EDUCATION POLICY

Education policy refers to the collection of laws and rules that govern the operation of education systems.

[2] CC LICENSED CONTENT, SHARED PREVIOUSLY

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Education occurs in many forms for many purposes. Examples include early childhood education, kindergarten through to 12th grade, two- and four-year colleges or universities, graduate and professional education, adult education and job training. Therefore, education policy can directly affect the education of people at all ages.

Examples of areas subject to debate in education policy, include school size, class size, school choice, school privatization, tracking, teacher education and certification, teacher pay, teaching methods, curricular content, graduation requirements, school infrastructure investment, and the values that schools are expected to uphold and model.

Education policy analysis is the scholarly study of education policy. It seeks to answer questions about the purpose of education, the objectives (societal and personal) that it is designed to attain, the methods for attaining them and the tools for measuring their success or failure. Research intended to inform education policy is carried out in a wide variety of institutions and in many academic disciplines. Important researchers are affiliated with departments of psychology, economics, sociology, and human development, in addition to schools and departments of education or public policy.

THE DEPARTMENT OF EDUCATION

The federal department relating responsible for education oversight is the Department of Education. The Department of Education is a Cabinet-level department of the United States government. The primary functions of the Department of Education are to "establish policy for, administer and coordinate -most federal assistance to education, collect data on US schools, and to enforce federal educational laws regarding privacy and civil rights. " However, the Department of Education does not establish schools or colleges.

Unlike the systems of most other countries, education in the United States is highly decentralized, and the federal government and Department of Education are not heavily involved in determining curricula or educational standards (with the recent exception of the No Child Left Behind Act). This has been left to state and local school districts. The quality of educational institutions and their degrees is maintained through an informal private process known as accreditation, over which the Department of Education has no direct public jurisdictional control.

The Department's mission is: to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access. Aligned with this mission of ensuring equal access to education, the Department of Education is a member of the United States Interagency Council on Homelessness and works with federal partners to ensure proper education for homeless and runaway youth in the United States.

Educational Funding[3]

Democracy depends on an educated citizenry.

If individuals are to participate in government, they need to be able to read and write, and they should also know something about their country — its people, its history, its geography. Public education is the single largest expenditure for state and local governments across the nation. Yet it is arguably the most criticized. Many people charge that public schools are faltering and that American academic achievements are far behind those in other countries. In recent years, many states and localities have experimented with improving public schools.

The prevailing view is that our public schools are in crisis, and that significant reform measures are needed urgently. But does this grim view reflect the whole picture?

Unlike the practice in most other countries, state and local governments in the United States provide most of the funding for education. Part of the reason is the traditional belief that communities need to take care of their own children. Others assume that the federal government cannot understand the educational needs of a community's children as well as local officials. States vary a great deal in the extent to which education is funded by local governments or state governments. For example, in Hawaii the state pays about 90% of educational expenses, as compared to New Hampshire, where 90% is paid by the local school district.

One result of state and local funding is a great deal of inequality in the amount of money that school districts have to spend on public education. Because most schools are funded by property taxes, many prosperous communities are able to collect more taxes than are poor communities, where property values are much lower. Critics maintain that this situation creates inequities in the quality of schools, resulting in inadequate education for poor children. A number of programs currently are attempting to improve the quality of public education, particularly in poor school districts:

Are school vouchers a viable way to pay for education? Some argue that vouchers offer more choice and therefore higher quality; others insist that they actually deepen the economic and social problems of the educational system. Who's right? It depends on your priorities.

- Vouchers. Some people believe that poor quality public education results from a lack of competition. In effect, they argue, school districts have monopolies in educating children in their area. Vouchers attempt to remedy the situation by providing parents with a set amount

[3] CC LICENSED CONTENT, SHARED PREVIOUSLY

Modification of Who Pays for Education?. Authored by: ushistory.org. Located at: https://www.ushistory.org/gov/12c.asp. Project: American Government Online Textbook. License: CC BY: Attribution

of money to pay for their child's education in a public or private school of their choice. The plan assumes that parents will choose the best available schools for their children. Failing schools will either improve their quality of education or find themselves without students. In either case, supporters of vouchers believe that competition will improve education. Opponents criticize vouchers for draining additional funds from communities that most need them and for allowing parents to use public money to send their children to religious schools.

- Charter schools. This reform does not go as far as vouchers, but it still provides publicly funded alternatives to standard public schools. Individuals or groups in communities may start charter schools they believe will provide a better education. They must work with the local school board to provide funding. No money is given to parents as with vouchers, but parents may choose which school — standard or charter — their children attend.

- National student testing. This reform advocates that students be given national exams in various subjects to measure their accomplishments by an objective standard.

  Supporters believe that weak school districts will be exposed and that the tests will give them the incentive to improve their delivery of education. Critics say that standardized testing causes teachers to "teach to the test," and that creativity in the classroom is inhibited. Others believe that the tests are unfair to minorities because they are culturally biased toward the majority.

Education has ranked among the issues about which Americans feel most strongly, according to recent public opinion polls. Inequalities between affluent and needy areas have created an education gap across America. While some turn to vouchers, charter schools, and national testing for the answers, others see solutions within the current framework. Class sizes have been mushrooming, and the courts have imposed more and more spending mandates on school districts since 1975. Until progress is made, education is likely to be a top priority for Presidents, Governors, and school board members alike.

Individuals with Disabilities Education Act

The **Individuals with Disabilities Education Act (IDEA)** is a four part (A-D) piece of American legislation that ensures students with a disability are provided with Free Appropriate Public Education (FAPE) that is tailored to their individual needs. IDEA was previously known as the Education for All Handicapped Children Act (EHA) from 1975 to 1990. In 1990, the United States Congress reauthorized EHA and changed the title to IDEA (Public Law No. 94-142). Overall, the goal of IDEA is to provide children with disabilities the same opportunity for education as those students who do not have a disability.

IDEA is composed of four parts, the main two being part A and part B. Part A covers the general provisions of the law, Part B covers assistance for education of all children with disabilities, Part C covers infants and toddlers with disabilities which includes children from birth to age three, and Part D is the national support programs administered at the federal level. Each part of the law has remained largely the same since the original enactment in 1975.

In practice, IDEA is composed of six main elements that illuminate its main points. These six elements are: Individualized Education Program (IEP), Free and Appropriate Public Education (FAPE), Least Restrictive Environment (LRE), Appropriate Evaluation, Parent and Teacher Participation, and Procedural Safeguards. To go along with those six main elements there are also a few other important components that tie into IDEA: Confidentiality of Information, Transition Services, and Discipline. Throughout the years of IDEA being reauthorized these components have become key concepts when learning about IDEA.

Continue reading this article on Wikipedia.

No Child Left Behind[4]

The No Child Left Behind Act supports standards-based education reform to set high standards and establish goals to improve education.

LEARNING OBJECTIVE

Evaluate the arguments for and against the No Child Left Behind Act

KEY POINTS

- The Act requires states to develop assessments in basic skills. States must give these assessments to all students at select grade levels in order to receive federal school funding. The standards in the act are set by each individual state.
- Schools receiving Title I funding must make Adequate Yearly Progress (AYP) in test scores; each year, its fifth graders must do better on standardized tests than the previous year's fifth graders.
- Critics argue the focus on standardized testing as the means of assessment encourages teachers to teach a narrow subset of skills the teacher believes will increase test performance, rather than focus on acquiring deep understanding of the curriculum. This is referred to as teaching to the test.

TERM

- The **No Child Left Behind Act of 2001** (NCLB) is a United States Act of Congress that is a reauthorization of the Elementary and Secondary Education Act, which included Title I, the government's flagship aid program for disadvantaged students. NCLB supports standards-based education reform based on the premise that setting high standards and establishing measurable goals can improve individual outcomes in education.

No Child Left Behind Act

The No Child Left Behind Act of 2001 (NCLB) is a United States Act of Congress that is a reauthorization of the Elementary and Secondary Education Act, which included Title I, the government's flagship aid program for disadvantaged students. NCLB supports standards-based education reform based on the premise that setting high standards and establishing measurable

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goals can improve individual outcomes in education. The Act requires states to develop assessments in basic skills. States must give these assessments to all students at select grade levels in order to receive federal school funding. The standards in the act are set by each individual state. NCLB expanded the federal role in public education through annual testing, annual academic progress, report cards, teacher qualifications, and funding changes. The bill passed in the U.S. Congress with bipartisan support. President George W. Bush signed it into law on January 8, 2002.

Provisions of the Act

Schools receiving Title I funding through the Elementary and Secondary Education Act of 1965 must make Adequate Yearly Progress (AYP) in test scores (each year, its fifth graders must do better on standardized tests than the previous year's fifth graders). If the school's results are repeatedly poor, then steps are taken to improve the school.

Schools that miss AYP for a second consecutive year are labeled as being "in need of improvement" and are required to develop a two-year improvement plan for the trouble subject. Students are given the option to transfer to a better school within the school district, if any exists. Missing AYP in the third year forces the school to offer free tutoring and other supplemental education services to struggling students. If a school misses its AYP target for a fourth consecutive year, the school is labeled as requiring "corrective action," which may involve wholesale replacement of staff, introduction of a new curriculum, or extending the amount of time students spend in class. A fifth year of failure results in planning to restructure the school; the plan is implemented if the school fails to hit its AYP targets for the sixth year in a row. Common options include closing the school, turning the school into a charter school, hiring a private company to run the school, or asking the state office of education to run the school directly.

The act also requires schools to let military recruiters have students' contact information and other access to the student, if the school provides that information to universities or employers, unless the students opt out of giving military recruiters access.

Increased accountability

Supporters of the NCLB claim one of the strong positive points of the bill is the increased accountability that is required of schools and teachers. The yearly standardized tests are the main means of determining whether schools are living up to the standards that they are required to meet. If the required improvements are not made, the schools face decreased funding and other punishments that contribute to the increased accountability. According to supporters, these goals help teachers and schools realize the significance and importance of the educational system and how it affects the nation. Opponents of this law say that the punishments hurt the schools and do not contribute to the improvement of student education.

Additionally, the Act provides information for parents by requiring states and school districts to give parents detailed report cards on schools and districts explaining the school's AYP performance. Schools must also inform parents when their child is being taught by a teacher or para-professional who does not meet "highly qualified" requirements.

Criticisms of standardized testing under NCLB

Critics have argued that the focus on standardized testing as the means of assessment encourages teachers to teach a narrow subset of skills that the teacher believes will increase test performance, rather than focus on acquiring deep understanding of the full, broad curriculum. This is colloquially referred to as "teaching to the test. "

Under No Child Left Behind, schools were held almost exclusively accountable for absolute levels of student performance. This means even schools that were making great strides with students were still labeled as "failing" just because the students had not yet made it to a "proficient" level of achievement.

The incentives for improvement also may cause states to lower their official standards. A 2007 study by the U.S. Dept. of Education indicates that the observed differences in states' reported scores is largely due to differences in the stringency of their standards.

"Gaming" the system

The system of incentives and penalties sets up a strong motivation for schools, districts and states to manipulate test results. For example, schools have been shown to employ "creative reclassification" of drop-outs to reduce unfavorable statistics. Critics argue that these and other strategies create an inflated perception of NCLB's successes, particularly in states with high minority populations.

Every Student Succeeds Act

U. S. Department of Education

The Every Student Succeeds Act (ESSA) was signed by President Obama on December 10, 2015, and represents good news for our nation’s schools. This bipartisan measure reauthorizes the 50-year-old Elementary and Secondary Education Act (ESEA), the nation’s national education law and longstanding commitment to equal opportunity for all students.


Continue reading online

The Standards for our State

Use the following links to access standards for instruction.

MISSISSIPPI DEPARTMENT OF EDUCATION

[MississippiCollegeandCareerReadinessStandards]

Content standards outline the skills and knowledge expected of students from grade to grade and subject to subject. In addition to the Mississippi College- and Career-Readiness Standards, the MDE has developed a wide variety of training materials for educators and administrators across the state, linked below. For more information related to the standards, please visit one of the following pages.

COMMON CORE STATE STANDARDS INITIATIVE
PREPARING AMERICA'S STUDENTS FOR COLLEGE & CAREER

[Common Core State Standards Initiative]

This site is the official home of the Common Core State Standards. It is hosted and maintained by the Council of Chief State School Officers (CCSSO) and the National Governors Association Center for Best Practices (NGA Center). It provides parents, educators, policymakers, journalists, and others easy access to the actual standards, as well as supporting information and resources.

Achievement Gap in the United States

The achievement gap refers to the observed, persistent disparity of educational measures between the performance of groups of students, especially groups defined by socioeconomic status (SES), race/ethnicity and gender. The achievement gap can be observed on a variety of measures, including standardized test scores, grade point average, dropout rates, and college enrollment and completion rates. While this article focuses on the achievement gap in the United States, the gap in achievement between lower income students and higher income students exists in all nations and it has been studied extensively in the U.S. and other countries, including the U.K. Various other gaps between groups exist around the globe as well.

In the U.S., research studies into the causes of gaps in student achievement between low-income minority students and middle-income white students have been ongoing since the 1966 publication of the report, “Equality of Educational Opportunity” (more widely known as the Coleman Report), commissioned by the U.S. Department of Education. That research suggested that both in-school factors and home/community factors impact the academic achievement of students and contribute to the gap.

American education researcher David Berliner indicated that home/community influences are weighted more heavily, in part, due to the increased time that students spend at home and in their communities compared to the amount of time spent in school, and that the out-of-school factors influencing children in poverty differ significantly from those typically affecting middle-income children.

Continue reading on Wikipedia as Educational Inequality

Progressive Education

Progressive education is a pedagogical movement that began in the late nineteenth century and has persisted in various forms to the present. More recently, it has been viewed as an alternative to the test-oriented instruction legislated by the No Child Left Behind educational funding act. The term "progressive" was engaged to distinguish this education from the traditional curriculum of the 19th century, which was rooted in classical preparation for the university and strongly differentiated by socioeconomic level. By contrast, progressive education finds its roots in present experience. Most progressive education programs have these qualities in common:

- Emphasis on learning by doing – hands-on projects, expeditionary learning, experiential learning
- Integrated curriculum focused on thematic units
  Integration of entrepreneurship in to education
- Strong emphasis on problem solving and critical thinking
  Group work and development of social skills
- Understanding and action as the goals of learning as opposed to rote knowledge
- Collaborative and cooperative learning projects
  Education for social responsibility and democracy
- Highly personalized education accounting for each individual's personal goals
  Integration of community service and service learning projects into the daily curriculum
- Selection of subject content by looking forward to ask what skills will be needed in future society
- De-emphasis on textbooks in favor of varied learning resources
  Emphasis on lifelong learning and social skills
- Assessment by evaluation of child’s projects and productions

Continue reading on Wikipedia

The Toughest Job: William Winter's Mississippi

In 1979, William Winter was elected Governor of the state of Mississippi. His goal was to improve the state by reforming the education system and create a public kindergarten. The plan was met with a barrage of critizism and obstacles, ranging from funding disputes and political meandering to overt racism. After multiple defeats leading to his final year in office, William Winter called a Special Session of the Legislature in December of 1982 that would ultimately decide the fate of the education reform bill.

Link to video on YouTube

William Winter in 1981

Education, Society, & the K-12 Learner

Part II
Educational Psychology

Icon				
Meaning	READ	WATCH	LINK	REQUIRES LOGIN*

Nature vs. Nurture[5]

Developmental psychology seeks to understand the influence of genetics (nature) and environment (nurture) on human development.

LEARNING OBJECTIVE

- Evaluate the reciprocal impacts between genes and the environment and the nature vs. nurture debate

KEY POINTS

- A significant issue in developmental psychology has been the relationship between the innateness of an attribute (whether it is part of our nature) and the environmental effects on that attribute (whether it is derived from or influenced by our environment, or nurture).
- Today, developmental psychologists rarely take polarized positions with regard to most aspects of development; instead, they investigate the relationship between innate and environmental influences.
- The biopsychosocial model states that biological, psychological, and social factors all play a significant role in human development.
- Environmental inputs can affect the expression of genes, a relationship called gene-environment interaction. An individual's genes and their environment work together, communicating back and forth to create traits.
- The diathesis–stress model serves to explore how biological or genetic traits (diatheses) interact with environmental influences (stressors) to produce disorders, such as depression, anxiety, or schizophrenia.

TERMS

- genotype – That part (DNA sequence) of the genetic makeup of a cell, and therefore of an organism or individual, which determines a specific characteristic (phenotype) of that cell/organism/individual.
- heritability – The ratio of the genetic variance of a population to its phenotypic variance; i.e., the proportion of variability that is genetic in origin.

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Modified of Nature vs. Nurture. Provided by: Boundless. Project: Boundless Psychology. License: CC BY-SA: Attribution-ShareAlike

- gene – A unit of heredity; a segment of DNA or RNA that is transmitted from one generation to the next and carries genetic information such as the sequence of amino acids for a protein.
- trait – An identifying characteristic, habit, or trend.
- innate – Inborn; native; natural.

Developmental Psychology

Developmental psychology is the scientific study of changes that occur in human beings over the course of their lives. This field examines change and development across a broad range of topics, such as motor skills and other psycho-physiological processes; cognitive development involving areas like problem solving, moral and conceptual understanding; language acquisition; social, personality, and emotional development; and self-concept and identity formation. Developmental psychology explores the extent to which development is a result of gradual accumulation of knowledge or stage-like development, as well as the extent to which children are born with innate mental structures as opposed to learning through experience.

Nature Versus Nurture

A significant issue in developmental psychology is the relationship between the innateness of an attribute (whether it is part of our *nature*) and the environmental effects on that attribute (whether it is influenced by our environment, or *nurture*). This is often referred to as the *nature vs. nurture* debate, or *nativism vs. empiricism.*

- A nativist ("nature") account of development would argue that the processes in question are innate and influenced by an organism's genes. Natural human behavior is seen as the result of already-present biological factors, such as genetic code.
- An empiricist ("nurture") perspective would argue that these processes are acquired through interaction with the environment. Nurtured human behavior is seen as the result of environmental interaction, which can provoke changes in brain structure and chemistry. For example, situations of extreme stress can cause problems like depression.

The nature vs. nurture debate seeks to understand how our personalities and traits are produced by our genetic makeup and biological factors, and how they are shaped by our environment, including our parents, peers, and culture. For instance, why do biological children sometimes act like their parents? Is it because of genetic similarity, or the result of the early childhood environment and what children learn from their parents?

Interaction of Genes and the Environment

Today, developmental psychologists rarely take such polarized positions (either/or) with regard to most aspects of development; instead, they investigate the relationship between innate and environmental influences (both/and). Developmental psychologists will often use the biopsychosocial model to frame their research: this model states that biological, psychological, and social (socio-economical, socio-environmental, and cultural) factors all play a significant role in human development.

We are all born with specific genetic traits inherited from our parents, such as eye color, height, and certain personality traits. Beyond our basic genotype, however, there is a deep interaction between our genes and our environment: our unique experiences in our environment influence whether and how particular traits are expressed, and at the same time, our genes influence how we interact with our environment (Diamond, 2009; Lobo, 2008). There is a reciprocal interaction between nature and nurture as they both shape who we become, but the debate continues as to the relative contributions of each.

Heritability refers to the origin of differences among people; it is a concept in biology that describes how much of the variation of a trait in a population is due to genetic differences in that population. Individual development, even of highly heritable traits such as eye color, depends not only on heritability but on a range of environmental factors, such as the other genes present in the organism and the temperature and oxygen levels during development. Environmental inputs can affect the expression of genes, a relationship called *gene-environment interaction.* Genes and the environment work together, communicating back and forth to create traits.

Some concrete behavioral traits are dependent upon one's environment, home, or culture, such as the language one speaks, the religion one practices, and the political party one supports. However, some traits which reflect underlying talents and temperaments—such as how proficient at a language, how religious, or how liberal or conservative—can be partially heritable.

This chart illustrates three patterns one might see when studying the influence of genes and environment on individual traits. Each of these traits is measured and compared between monozygotic (identical) twins, biological siblings who are not twins, and adopted siblings who are not genetically related. Trait A shows a high sibling correlation but little heritability (illustrating the importance of environment). Trait B shows a high heritability, since the correlation of the trait rises sharply with the degree of genetic similarity. Trait C shows low heritability as well as low correlation generally, suggesting that the degree to which individuals display trait C has little to do with either genes or predictable environmental factors.

Heritability Estimates

This chart illustrates three patterns one might see when studying the influence of genes and environment on individual traits. Typically, monozygotic twins will have a high correlation of sibling traits, while biological siblings will have less in common, and adoptive siblings will have less than that. However, this can vary widely by trait.

Diathesis-Stress Model

The diathesis–stress model is a psychological theory that attempts to explain behavior as a predispositional vulnerability together with stress from life experiences. The term *diathesis* derives from the Greek term for disposition, or vulnerability, and it can take the form of genetic, psychological, biological, or situational factors. The diathesis, or predisposition, interacts with the subsequent stress

response of an individual. Stress refers to a life event or series of events that disrupt a person's psychological equilibrium and potentially serve as a catalyst to the development of a disorder. Thus, the diathesis–stress model serves to explore how biological or genetic traits (diatheses) interact with environmental influences (stressors) to produce disorders, such as depression, anxiety, or schizophrenia.

Development of the Human Brain[6]

The mental processes and behaviors studied by psychology are directly controlled by the brain, one of the most complex systems in nature.

LEARNING OBJECTIVE

- Explain the structure of the major layers of the brain

KEY POINTS

- The study of psychology focuses on the interaction of mental processes and behavior on a systemic level, and therefore is intimately related to understanding the brain.
- One of the most complex systems in nature, the brain is composed of systems that must all work together to keep the human body functioning.
- The brain is split up into three major layers: the hindbrain, the midbrain, and the forebrain.

TERM

- neural tube – An embryo's predecessor to the central nervous system.

The human brain is one of the most complex systems on earth. Every component of the brain must work together in order to keep its body functioning. The brain and the spinal cord make up the central nervous system, which alongside the peripheral nervous system is responsible for regulating all bodily functions.

Psychology seeks to explain the mental processes and behavior of individuals by studying the interaction between mental processes and behavior on a systemic level. Therefore, the field of psychology is tightly intertwined with the study of the brain.

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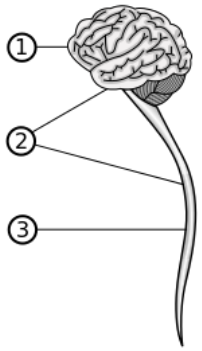
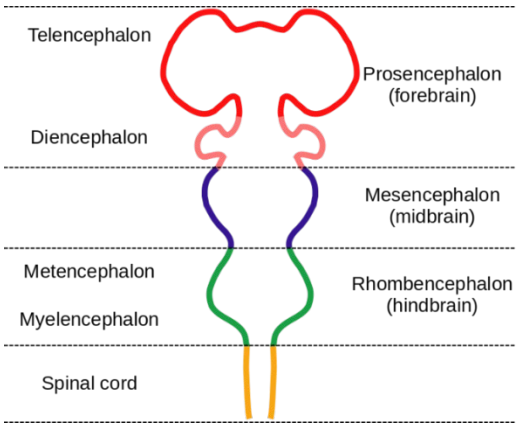


The central nervous system:

1. Brain
2. Brain stem
3. Spinal cord

The Structure of the Brain

The developing brain goes through many stages. In the embryos of vertebrates, the predecessor to the brain and spinal cord is the neural tube. As the fetus develops, the grooves and folds in the neural tube deepen, giving rise to different layers of the brain. The human brain is split up into three major layers: the hindbrain, the midbrain, and the forebrain.



The embryonic brain

The layers of the embryonic brain. The telencephalon and diencephalon give rise to the forebrain, while the metencephalon and myelencephalon give rise to the hindbrain.

Hindbrain

The hindbrain is the well-protected central core of the brain. It includes the cerebellum, reticular formation, and brain stem, which are responsible for some of the most basic autonomic functions of life, such as breathing and movement. The brain stem contains the pons and medulla oblongata.

Evolutionarily speaking, the hindbrain contains the oldest parts of the brain, which all vertebrates possess, though they may look different from species to species.

Midbrain

The midbrain makes up part of the brain stem. It is located between the hindbrain and forebrain. All sensory and motor information that travels between the forebrain and the spinal cord passes through the midbrain, making it a relay station for the central nervous system.

Forebrain

The forebrain is the most anterior division of the developing vertebrate brain, containing the most complex networks in the central nervous system. The forebrain has two major divisions: the diencephalon and the telencephalon. The diencephalon is lower, containing the thalamus and hypothalamus (which together form the limbic system); the telencephalon is on top of the diencephalon and contains the cerebrum, the home of the highest-level cognitive processing in the brain. It is the large and complicated forebrain that distinguishes the human brain from other vertebrate brains.

Lower-Level Structures of the Brain[7]

The brain's lower-level structures consist of the brain stem, the spinal cord, and the cerebellum.

LEARNING OBJECTIVE

- Outline the location and functions of the lower-level structures of the brain

KEY POINTS

- The brain's lower-level structures are the oldest in the brain, and are more geared towards basic bodily processes than the higher-level structures.
- Except for the spinal cord, the brain's lower-level structures are largely located within the hindbrain, diencephalon (or interbrain), and midbrain.
- The hindbrain consists of the medulla oblongata, the pons, and the cerebellum, which control respiration and movement among other functions.
- The midbrain is interposed between the hindbrain and the forebrain. Its ventral areas are dedicated to motor function while the dorsal regions are involved in sensory information circuits.
- The thalamus and hypothalamus are located within the diencephalon (or "interbrain"), and are part of the limbic system. They regulate emotions and motivated behaviors like sexuality and hunger.
- The spinal cord is a tail-like structure embedded in the vertebral canal of the spine, and is involved in transporting sensorimotor information and controlling nearby organs.

TERMS

- proprioception – The sense of the position of parts of the body relative to neighbouring parts of the body.
- ventral – On the front side of the human body, or the corresponding surface of an animal, usually the lower surface.
- dorsal – With respect to, or concerning the side in which the backbone is located, or the analogous side of an invertebrate.

The brain's lower-level structures consist of the brain stem and spinal cord, along with the cerebellum. With the exception of the spinal cord, these structures are largely located within the hindbrain, diencephalon (or interbrain), and midbrain. These lower dorsal structures are the oldest parts of the

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brain, having existed for much of its evolutionary history. As such they are geared more toward basic bodily processes necessary to survival. It is the more recent layers of the brain (the forebrain) which are responsible for the higher-level cognitive functioning (language, reasoning) not strictly necessary to keep a body alive.

The Hindbrain

The hindbrain, which includes the medulla oblongata, the pons, and the cerebellum, is responsible some of the oldest and most primitive body functions. Each of these structures is described below.

Medulla Oblongata

The medulla oblongata sits at the transition zone between the brain and the spinal cord. It is the first region that formally belongs to the brain (rather than the spinal cord). It is the control center for respiratory, cardiovascular, and digestive functions.

Pons

The pons connects the medulla oblongata with the midbrain region, and also relays signals from the forebrain to the cerebellum. It houses the control centers for respiration and inhibitory functions. The cerebellum is attached to the dorsal side of the pons.

Cerebellum

The cerebellum is a separate region of the brain located behind the medulla oblongata and pons. It is attached to the rest of the brain by three stalks (called *pedunculi*), and coordinates skeletal muscles to produce smooth, graceful motions. The cerebellum receives information from our eyes, ears, muscles, and joints about the body's current positioning (referred to as proprioception). It also receives output from the cerebral cortex about where these body parts should be. After processing this information, the cerebellum sends motor impulses from the brain stem to the skeletal muscles so that they can move. The main function of the cerebellum is this muscle coordination. However, it is also responsible for balance and posture, and it assists us when we are learning a new motor skill, such as playing a sport or musical instrument. Recent research shows that apart from motor functions the cerebellum also has some role in emotional sensitivity. (*see illustration 35.a*)

The Midbrain

The midbrain is located between the hindbrain and forebrain, but it is actually part of the brain stem. It displays the same basic functional composition found in the spinal cord and the hindbrain. Ventral areas control motor function and convey motor information from the cerebral cortex. Dorsal regions of the midbrain are involved in sensory information circuits. The substantia nigra, a part of the brain that plays a role in reward, addiction, and movement (due to its high levels of dopaminergic neurons) is located in the midbrain. In Parkinson's disease, which is characterized by a deficit of dopamine, death of the substantia nigra is evident.

The Diencephalon ("interbrain")

The diencephalon is the region of the embryonic vertebrate neural tube that gives rise to posterior forebrain structures. In adults, the diencephalon appears at the upper end of the brain stem, situated between the cerebrum and the brain stem. It is home to the limbic system, which is considered the seat of emotion in the human brain. The diencephalon is made up of four distinct components: the thalamus, the subthalamus, the hypothalamus, and the epithalamus.

Thalamus

The thalamus is part of the limbic system. It consists of two lobes of grey matter along the bottom of the cerebral cortex. Because nearly all sensory information passes through the thalamus it is considered the sensory "way station" of the brain, passing information on to the cerebral cortex (which is in the forebrain). Lesions of, or stimulation to, the thalamus are associated with changes in emotional reactivity. However, the importance of this structure on the regulation of emotional behavior is not due to the activity of the thalamus itself, but to the connections between the thalamus and other limbic-system structures. (*see illustration 35.b*)

Hypothalamus

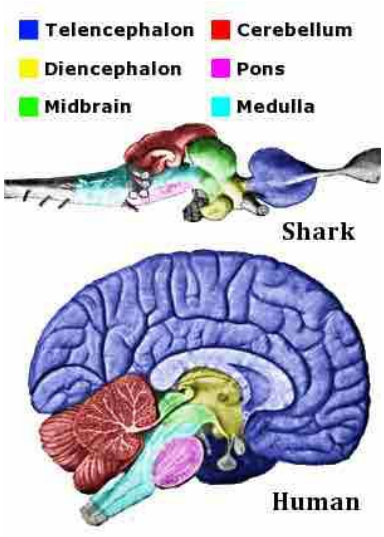
The hypothalamus is a small part of the brain located just below the thalamus. Lesions of the hypothalamus interfere with motivated behaviors like sexuality, combativeness, and hunger. The hypothalamus also plays a role in emotion: parts of the hypothalamus seem to be involved in pleasure and rage, while the central part is linked to aversion, displeasure, and a tendency towards uncontrollable and loud laughing. When external stimuli are presented (for example, a dangerous stimuli), the hypothalamus sends signals to other limbic areas to trigger feeling states in response to the stimuli (in this case, fear). (*see illustration 35.c*)

The Spinal Cord

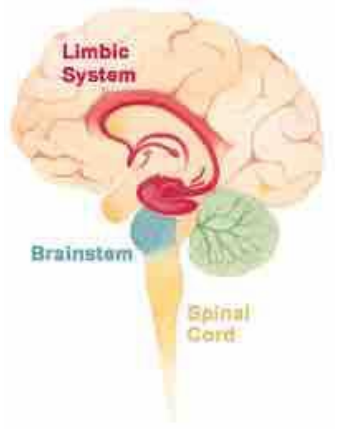
The spinal cord is a tail-like structure embedded in the vertebral canal of the spine. The adult spinal cord is about 40 cm long and weighs approximately 30 g. The spinal cord is attached to the underside of the medulla oblongata, and is organized to serve four distinct tasks:

1. to convey (mainly sensory) information to the brain;
2. to carry information generated in the brain to peripheral targets like skeletal muscles;
3. to control nearby organs via the autonomic nervous system;
4. to enable sensorimotor functions to control posture and other fundamental movements.

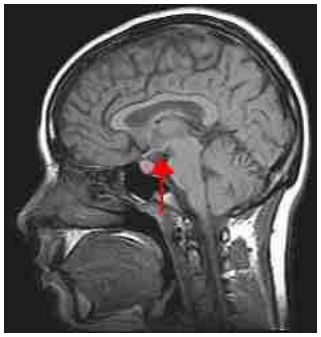
Illustrations



(35.a) Human and shark brains
The shark brain diverged on the evolutionary tree from the human brain, but both still have the "old" structures of the hindbrain and midbrain dedicated to autonomic bodily processes.



(35.b) Limbic system, brain stem, and spinal cord
An image of the brain showing the limbic system in relation to the brain stem and spinal cord.



(35.c) Hypothalamus
An image of the brain showing the location of the hypothalamus.

Cerebral Cortex[8]

The cerebral cortex is the outermost layered structure of the brain and controls higher brain functions such as information processing.

LEARNING OBJECTIVE

Differentiate between the cortex and the cerebrum

KEY POINTS

- The cerebral cortex, the largest part of the brain, is the ultimate control and information-processing center in the brain.
- The cerebral cortex is responsible for many higher-order brain functions such as sensation, perception, memory, association, thought, and voluntary physical action.
- The cerebrum is the large, main part of the brain and serves as the thought and control center.

TERMS

- myelin – A white, fatty material composed of lipids and lipoproteins that surrounds the axons of nerves and facilitates swift neural communication.
- cerebral cortex – The grey, folded, outermost layer of the cerebrum responsible for higher brain processes such as sensation, voluntary muscle movement, thought, reasoning, and memory.
- cerebrum – In humans, the part of the brain comprising the cerebral cortex and several subcortical structures, including the hippocampus, basal ganglia, and olfactory bulb.

Cortex

The cerebral cortex, the largest part of the mammalian brain, is the wrinkly gray outer covering of the cerebrum. While the cortex is less than 1/4" thick, it is here that all sensation, perception, memory, association, thought, and voluntary physical actions occur. The cerebral cortex is considered the ultimate control and information-processing center in the brain.

The cortex is made of layers of neurons with many inputs; these cortical neurons function like mini microprocessors or logic gates. It contains glial cells, which guide neural connections, provide nutrients and myelin to neurons, and absorb extra ions and neurotransmitters. The cortex is divided into four

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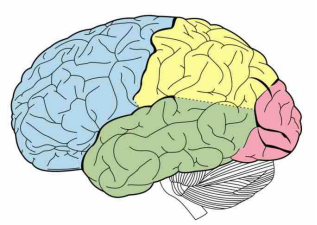
different lobes (the parietal, occipital, temporal, and frontal lobes), each with a different specific function.

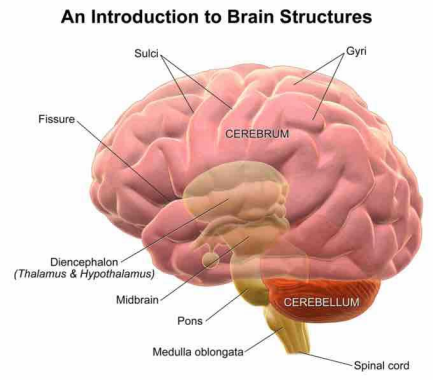


Lobes of the brain

A diagram of the brain identifying the different lobes by color. Counterclockwise from bottom: It contains the parietal lobe (green), the occipital lobe (red), the temporal lobe (yellow), and the frontal lobe (blue).

The cortex is wrinkly in appearance. Evolutionary constraints on skull size brought about this development; it allowed for the cortex to become larger without our brains (and therefore craniums) becoming disadvantageously large. At times it has been theorized that brain size correlated positively with intelligence; it has also been suggested that surface area of cortex (basically, "wrinkliness" of the brain) rather than brain size that correlates most directly with intelligence. Current research suggests that both of these may be at least partially true, but the degree to which they correlate is not clear.

The "valleys" of the wrinkles are called *sulci* (or sometimes, fissures); the "peaks" between wrinkles are called *gyri*. While there are variations from person to person in their sulci and gyri, the brain has been studied enough to identify patterns. One notable sulcus is the central sulcus, or the wrinkle dividing the parietal lobe from the frontal lobe.



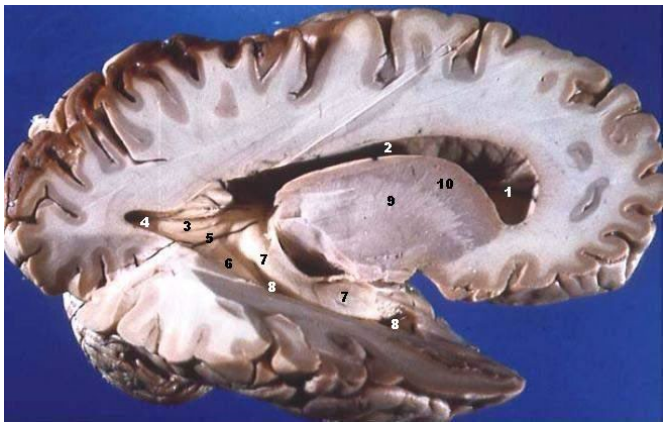
Sulci and gyri

As depicted in this diagram of brain structures, sulci are the "valleys" and gyri are the "peaks" in the folds of the brain.

Cerebrum

Beneath the cerebral cortex is the cerebrum, which serves as the main thought and control center of the brain. It is the seat of higher-level thought like emotions and decision making (as opposed to lower-level thought like balance, movement, and reflexes).

The cerebrum is composed of gray and white matter. Gray matter is the mass of all the cell bodies, dendrites, and synapses of neurons interlaced with one another, while white matter consists of the long, myelin-coated axons of those neurons connecting masses of gray matter to each other.



Grey matter and white matter

A sagittal cross-section of a human brain showing the distinct layers of grey matter (the darker outer layer) and white matter (the lighter inner layer) in the cerebrum.

Cerebral Hemispheres and Lobes of the Brain[9]

The brain is divided into two hemispheres and four lobes, each of which specializes in a different function.

LEARNING OBJECTIVE

- Outline the structure and function of the lobes and hemispheres of the brain

KEY POINTS

- The left hemisphere is dominant with regard to language and logical processing, while the right hemisphere handles spatial perception.
- The brain is separated into the frontal, temporal, occipital, and parietal lobes.
- The frontal lobe is associated with executive functions and motor performance.
- The temporal lobe is associated with the retention of short- and and long-term memories. It processes sensory input, including auditory information, language comprehension, and naming.
- The occipital lobe is the visual-processing center of the brain.
- The parietal lobe is associated with sensory skills.

TERMS

- corpus callosum – A wide, flat bundle of neural fibers beneath the cortex that connects the left and right cerebral hemispheres and facilitates interhemispheric communication.
- lateralization – Localization of a function, such as speech, to the right or left side of the brain.
- visuospatial – Of or pertaining to the visual perception of spatial relationships.

Brain Lateralization

The brain is divided into two halves, called hemispheres. There is evidence that each brain hemisphere has its own distinct functions, a phenomenon referred to as lateralization. The left hemisphere appears to dominate the functions of speech, language processing and comprehension, and logical reasoning, while the right is more dominant in spatial tasks like vision-independent object recognition (such as identifying an object by touch or another nonvisual sense). However, it is easy to exaggerate the differences between the functions of the left and right hemispheres; both hemispheres are involved with most processes. Additionally, neuroplasticity (the ability of a brain to adapt to experience) enables the brain to

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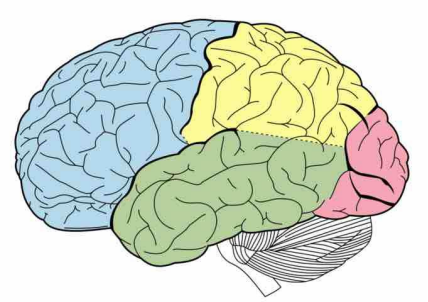
compensate for damage to one hemisphere by taking on extra functions in the other half, especially in young brains.

Corpus Callosum

The two hemispheres communicate with one another through the corpus callosum. The corpus callosum is a wide, flat bundle of neural fibers beneath the cortex that connects the left and right cerebral hemispheres and facilitates interhemispheric communication. The corpus callosum is sometimes implicated in the cause of seizures; patients with epilepsy sometimes undergo a corpus callostomy, or the removal of the corpus callosum.



The Lobes of the Brain

The brain is separated into four lobes: the frontal, temporal, occipital, and parietal lobes.

Lobes of the brain

The brain is divided into four lobes, each of which is associated with different types of mental processes. Clockwise from left: The frontal lobe is in blue, the parietal lobe in yellow, the occipital lobe in red, and the temporal lobe in green.

The Frontal Lobe

The frontal lobe is associated with executive functions and motor performance. Executive functions are some of the highest-order cognitive processes that humans have. Examples include:

- planing and engaging in goal-directed behavior;
- recognizing future consequences of current actions;
- choosing between good and bad actions;
- overriding and suppressing socially unacceptable responses;
- determining similarities and differences between objects or situations.

The frontal lobe is considered to be the moral center of the brain because it is responsible for advanced decision-making processes. It also plays an important role in retaining emotional memories derived from

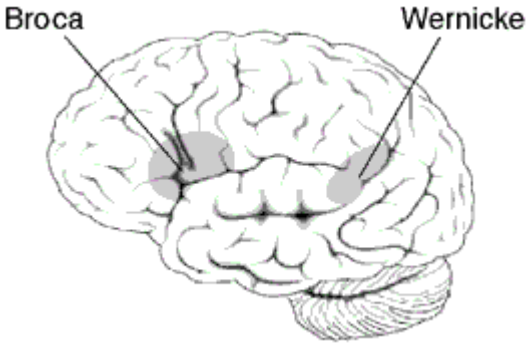
the limbic system, and modifying those emotions to fit socially accepted norms.

The Temporal Lobe

The temporal lobe is associated with the retention of short- and long-term memories. It processes sensory input including auditory information, language comprehension, and naming. It also creates emotional responses and controls biological drives such as aggression and sexuality.

The temporal lobe contains the hippocampus, which is the memory center of the brain. The hippocampus plays a key role in the formation of emotion-laden, long-term memories based on emotional input from the amygdala. The left temporal lobe holds the primary auditory cortex, which is important for processing the semantics of speech.

One specific portion of the temporal lobe, Wernicke's area, plays a key role in speech comprehension. Another portion, Broca's area, underlies the ability to produce (rather than understand) speech. Patients with damage to Wernicke's area can speak clearly but the words make no sense, while patients with damage to Broca's area will fail to form words properly and speech will be halting and slurred. These disorders are known as Wernicke's and Broca's aphasia respectively; an aphasia is an inability to speak.



Broca's and Wernicke's areas

The locations of Broca's and Wernicke's areas in the brain.

The Occipital Lobe

The occipital lobe contains most of the visual cortex and is the visual processing center of the brain. Cells on the posterior side of the occipital lobe are arranged as a spatial map of the retinal field. The visual cortex receives raw sensory information through sensors in the retina of the eyes, which is then conveyed through the optic tracts to the visual cortex. Other areas of the occipital lobe are specialized for different visual tasks, such as visuospatial processing, color discrimination, and motion perception. Damage to the primary visual cortex (located on the surface of the posterior occipital lobe) can cause blindness, due to the holes in the visual map on the surface of the cortex caused by the lesions.

The Parietal Lobe

The parietal lobe is associated with sensory skills. It integrates different types of sensory information and is particularly useful in spatial processing and navigation. The parietal lobe plays an important role in integrating sensory information from various parts of the body, understanding numbers and their relations, and manipulating objects. It also processes information related to the sense of touch.

The parietal lobe is comprised of the somatosensory cortex and part of the visual system. The somatosensory cortex consists of a "map" of the body that processes sensory information from specific areas of the body. Several portions of the parietal lobe are important to language and visuospatial processing; the left parietal lobe is involved in symbolic functions in language and mathematics, while the right parietal lobe is specialized to process images and interpretation of maps (i.e., spatial relationships).

The Limbic System[10]

The limbic system combines higher mental functions and primitive emotion into one system.

LEARNING OBJECTIVE

- Summarize the structural elements and functions of the limbic system

KEY POINTS

- The limbic system, located just beneath the cerebrum on both sides of the thalamus, is not only responsible for our emotional lives but also many higher mental functions, such as learning and formation of memories.
- The primary structures within the limbic system include the amygdala, hippocampus, thalamus, hypothalamus, basal ganglia, and cingulate gyrus.
- The amygdala is the emotion center of the brain, while the hippocampus plays an essential role in the formation of new memories about past experiences.
- The thalamus and hypothalamus are associated with changes in emotional reactivity.
- The cingulate gyrus coordinates smells and sights with pleasant memories, induces an emotional reaction to pain, and helps regulate aggressive behavior.
- The basal ganglia is a group of nuclei lying deep in the subcortical white matter of the frontal lobes; its functions include organizing motor behavior and coordinating rule-based, habit learning.

TERMS

- medial – Pertaining to the inside; closer to the midline.
- cerebrum – The seat of motor and sensory functions, as well as higher mental functions such as consciousness, thought, reason, emotion, and memory.
- corpus callosum – In mammals, a broad band of nerve fibers that connects the left and right hemispheres of the brain.

The limbic system is a complex set of structures found on the central underside of the cerebrum, comprising inner sections of the temporal lobes and the bottom of the frontal lobe. It combines higher mental functions and primitive emotion into a single system often referred to as the emotional nervous system. It is not only responsible for our emotional lives but also our higher mental functions, such as learning and formation of memories. The limbic system is the reason that some physical things such as eating seem so pleasurable to us, and the reason why some medical conditions, such as high blood

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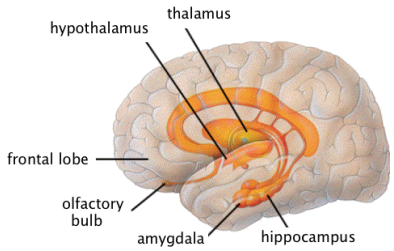
pressure, are caused by mental stress. There are several important structures within the limbic system: the amygdala, hippocampus, thalamus, hypothalamus, basal ganglia, and cingulate gyrus.



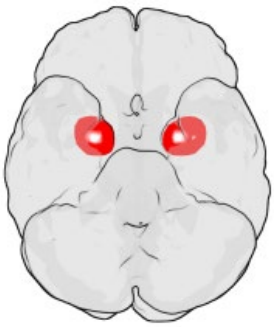
The limbic system

All the components of the limbic system work together to regulate some of the brain's most important processes.

The Amygdala

The amygdala is a small almond-shaped structure; there is one located in each of the left and right temporal lobes. Known as the emotional center of the brain, the amygdala is involved in evaluating the emotional valence of situations (e.g., happy, sad, scary). It helps the brain recognize potential threats and helps prepare the body for fight-or-flight reactions by increasing heart and breathing rate. The amygdala is also responsible for learning on the basis of reward or punishment.

Due to its close proximity to the hippocampus, the amygdala is involved in the modulation of memory consolidation, particularly emotionally-laden memories. Emotional arousal following a learning event influences the strength of the subsequent memory of that event, so that greater emotional arousal following a learning event enhances a person's retention of that memory. In fact, experiments have shown that administering stress hormones to individuals immediately after they learn something enhances their retention when they are tested two weeks later.



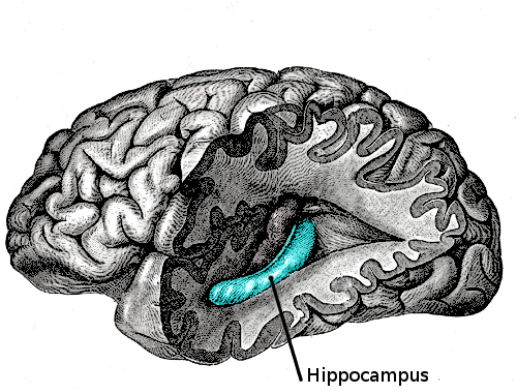
The amygdala

The figure shows the location of the amygdala from the underside (ventral view) of the human brain, with the front of the brain at the top of the image.

The Hippocampus

The hippocampus is found deep in the temporal lobe, and is shaped like a seahorse. It consists of two horns curving back from the amygdala. Psychologists and neuroscientists dispute the precise role of the hippocampus, but generally agree that it plays an essential role in the formation of new memories about past experiences. Some researchers consider the hippocampus to be responsible for general declarative memory (memories that can be explicitly verbalized, such as memory of facts and episodic memory).

Damage to the hippocampus usually results in profound difficulties in forming new memories (*anterograde amnesia*), and may also affect access to memories formed prior to the damage (*retrograde amnesia*). Although the retrograde effect normally extends some years prior to the brain damage, in some cases older memories remain intact; this leads to the idea that over time the hippocampus becomes less important in the storage of memory.



Hippocampus

This image shows the horned hippocampus deep within the temporal lobe.

The Thalamus and Hypothalamus

Both the thalamus and hypothalamus are associated with changes in emotional reactivity. The thalamus, which is a sensory "way-station" for the rest of the brain, is primarily important due to its connections with other limbic-system structures. The hypothalamus is a small part of the brain located just below the thalamus on both sides of the third ventricle. Lesions of the hypothalamus interfere with several unconscious functions (such as respiration and metabolism) and some so-called motivated behaviors like sexuality, combativeness, and hunger. The lateral parts of the hypothalamus seem to be involved with pleasure and rage, while the medial part is linked to aversion, displeasure, and a tendency for uncontrollable and loud laughter.

The Cingulate Gyrus

The cingulate gyrus is located in the medial side of the brain next to the corpus callosum. There is still much to be learned about this gyrus, but it is known that its frontal part links smells and sights with pleasant memories of previous emotions. This region also participates in our emotional reaction to pain and in the regulation of aggressive behavior.

The Basal Ganglia

The basal ganglia is a group of nuclei lying deep in the subcortical white matter of the frontal lobes that organizes motor behavior. The *caudate*, *putamen,* and *globus pallidus* are major components of the basal ganglia. The basal ganglia appears to serve as a gating mechanism for physical movements, inhibiting potential movements until they are fully appropriate for the circumstances in which they are to be executed. The basal ganglia is also involved with:

- rule-based habit learning (e.g., initiating, stopping, monitoring, temporal sequencing, and maintaining the appropriate movement);
- inhibiting undesired movements and permitting desired ones;
- choosing from potential actions;
- motor planning;
- sequencing;
- predictive control;
- working memory;
- attention.

Neuroplasticity[11]

Neuroplasticity is the brain's ability to create new neural pathways to account for learning and acquisition of new experiences.

LEARNING OBJECTIVE

- Explain how neuroplasticity occurs

KEY POINTS

- "Neuroplasticity" refers to changes in neural pathways and synapses that result from changes in behavior, environmental and neural processes, and changes resulting from bodily injury.
- Neuroplasticity has replaced the formerly held theory that the brain is a physiologically static organ, and explores how the brain changes throughout life.
- Neuroplasticity occurs on a variety of levels, ranging from minute cellular changes resulting from learning to large-scale cortical remapping in response to injury.
- Synaptic pruning, or apoptosis, is the programmed neuron cell death that takes place during early childhood and adolescence.
- Pruning strengthens important connections and eliminates weaker ones, creating more effective neural communication.

TERMS

- neuron: A cell of the nervous system that conducts nerve impulses; consisting of an axon and several dendrites. Neurons are connected by synapses.
- synapse: The junction between the terminal of a neuron and either another neuron or a muscle or gland cell, over which nerve impulses pass.
- apoptosis: The process of programmed cell death.
- plastic: Capable of being molded; malleable, flexible, plaint.

Neuroplasticity

The brain is constantly adapting throughout a lifetime, though sometimes over critical, genetically determined periods of time. Neuroplasticity is the brain's ability to create new neural pathways based on

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new experiences. It refers to changes in neural pathways and synapses that result from changes in behavior, environmental and neural processes, and changes resulting from bodily injury. Neuroplasticity has replaced the formerly held theory that the brain is a physiologically static organ, and explores how the brain changes throughout life.

Neuroplasticity occurs on a variety of levels, ranging from minute cellular changes resulting from learning to large-scale cortical remapping in response to injury. The role of neuroplasticity is widely recognized in healthy development, learning, memory, and recovery from brain damage. During most of the 20th century, the consensus among neuroscientists was that brain structure is relatively immutable after a critical period during early childhood. It is true that the brain is especially "plastic" during childhood's critical period, with new neural connections forming constantly. However, recent findings show that many aspects of the brain remain plastic even into adulthood.

Plasticity can be demonstrated over the course of virtually any form of learning. For one to remember an experience, the circuitry of the brain must change. Learning takes place when there is either a change in the internal structure of neurons or a heightened number of synapses between neurons. Studies conducted using rats illustrate how the brain changes in response to experience: rats who lived in more enriched environments had larger neurons, more DNA and RNA, heavier cerebral cortices, and larger synapses compared to rats who lived in sparse environments.

A surprising consequence of neuroplasticity is that the brain activity associated with a given function can move to a different location; this can result from normal experience, and also occurs in the process of recovery from brain injury. In fact, neuroplasticity is the basis of goal-directed experiential therapeutic programs in rehabilitation after brain injury. For example, after a person is blinded in one eye, the part of the brain associated with processing input from that eye doesn't simply sit idle; it takes on new functions, perhaps processing visual input from the remaining eye or doing something else entirely. This is because while certain parts of the brain have a typical function, the brain can be "rewired"—all because of plasticity.

Synaptic Pruning

"Synaptic (or neuronal or axon) pruning" refers to neurological regulatory processes that facilitate changes in neural structure by reducing the overall number of neurons and synapses, leaving more efficient synaptic configurations. At birth, there are approximately 2,500 synapses in the cerebral cortex of a human baby. By three years old, the cerebral cortex has about 15,000 synapses. Since the infant brain has such a large capacity for growth, it must eventually be pruned down to remove unnecessary neuronal structures from the brain. This process of pruning is referred to as apoptosis, or programmed cell death. As the human brain develops, the need for more complex neuronal associations becomes much more pertinent, and simpler associations formed at childhood are replaced by more intricately interconnected structures.

Pruning removes axons from synaptic connections that are not functionally appropriate. This process

strengthens important connections and eliminates weaker ones, creating more effective neural communication. Generally, the number of neurons in the cerebral cortex increases until adolescence. Apoptosis occurs during early childhood and adolescence, after which there is a decrease in the number of synapses. Approximately 50% of neurons present at birth do not survive until adulthood.
The selection of the pruned neurons follows the "use it or lose it" principle, meaning that synapses that are frequently used have strong connections, while the rarely used synapses are eliminated.

Neuron growth

Neurons grow throughout adolescence and then are pruned down based on the connections that get the most use.

Synaptic pruning is distinct from the regressive events seen during older age. While developmental pruning is experience-dependent, the deteriorating connections that occur with old age are not. Synaptic pruning is like carving a statue: getting the unformed stone into its best form. Once the statue is complete, the weather will begin to erode the statue, which represents the lost connections that occur with old age.

Physical Development

Physical Development in Childhood[12]

Children's physical development occurs rapidly during the first few years of life as they develop both gross and fine motor skills.

LEARNING OBJECTIVE

- Review the milestones of physical development in childhood

KEY POINTS

- The development of both gross and fine motor skills helps a child go from being a completely dependent newborn to being an independently functioning toddler in about three years.
- Gross motor skills coordinate the large muscle groups that control our arms and legs and involve larger movements like balancing, running, and jumping.
- Fine motor skills involve the coordination of small muscle movements, usually involving the hands working in coordination with the eyes.
- Children meet a myriad of physical development milestones in the first few years of life, from walking to drawing to self-feeding.

TERMS

- posture – The way a person holds and positions their body.
- dexterity – Skill in performing tasks, especially with the hands.

Infants and children grow and develop at a rapid pace during the first few years of life. The development of both gross and fine motor skills helps a child go from a completely dependent newborn to an independently functioning toddler in about a 3-year span.

Gross versus Fine Motor Skills

Motor skills refer to our ability to move our bodies and manipulate objects. *Gross motor skills* coordinate the large muscle groups that control our arms and legs and involve larger movements like balancing, running, and jumping. By the end of the second year of life, most children (except those with disabilities

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or other special needs) can stand up, walk/run, climb stairs, jump, and skip. As children grow older (ages 4-5), many can also catch balls, ride bikes, and run with more speed and agility. The prerequisite to all these skills is postural control—the ability to hold one's head up, sit independently, and stand. Appropriate posture allows the child to learn to walk, run, and engage in other gross motor skills.

Fine motor skills, by contrast, involve the coordination of small muscle movements, usually involving the hands working in coordination with the eyes. Hand-eye coordination allows a child to perform such skills as drawing, using buttons and zippers, eating with utensils, and tying shoes. Children increase their mastery of these skills through practice. For example, at age 2, a child's drawing might be a series of crayon scribbles, but by age 5, he or she might be able to draw a person's face complete with eyes, nose, and mouth.

Physical Milestones

As stated above, children grow very quickly and meet physical milestones rapidly in the first few years of life. The following is a list of the major milestones that occur in children during those first formative years.

Up to 24 months:

- Crawls skillfully and quickly
- Stands alone with feet spread apart, legs stiffened, and arms extended for support
- Gets to feet unaided
- Can walk unassisted near the end of this period; falls often; is not always able to maneuver around obstacles, such as furniture or toys
- Uses furniture to lower self to floor; collapses backwards into a sitting position, or falls forward on hands and then sits
- Enjoys pushing or pulling toys while walking
- Repeatedly picks up objects and throws them; direction becomes more deliberate
- Attempts to run; has difficulty stopping and usually just drops to the floor
- Crawls up stairs on all fours; goes down stairs in same position
- Enjoys crayons and markers for scribbling; uses whole-arm movement
- Helps feed self; enjoys holding a spoon (often upside down) and drinking from a glass or cup; not always accurate in getting utensils into mouth; frequent spills should be expected
- Helps turn the pages in book
- Stacks two to six objects per day

Up to 3 years:

- Walks up and down stairs unassisted, using alternating feet; may jump from bottom step, landing on both feet
- Can momentarily balance on one foot
- Can kick big ball-shaped objects
- Needs minimal assistance eating

- Jumps on the spot
- Pedals a small tricycle
- Throws a ball overhand; aim and distance are limited
- Catches a large bouncing ball with both arms extended
- Shows improved control of crayons or markers; uses vertical, horizontal and circular strokes
- Holds crayon or marker between first two fingers and thumb (tripod grasp), not in a fist as earlier
- Can turn the pages of a book one at a time
- Enjoys building with blocks
- Builds a tower of eight or more blocks
- Enjoys playing with clay; pounds, rolls, and squeezes it
- May begin to show hand dominance
- Manipulates large buttons and zippers on clothing
- Washes and dries hands; brushes own teeth, but not thoroughly

By age 6:

- Gains greater control over large and fine motor skills; movements are more precise and deliberate, though some clumsiness persists
- Enjoys vigorous running, jumping, climbing, and throwing etc.
- Span of attention increases; works at tasks for longer periods of time
- Can concentrate effort but not always consistently
- Has fun with problem-solving and sorting activities like stacking, puzzles, and mazes
- Enjoys the challenge of puzzles, counting, and sorting activities, paper-and-pencil mazes, and games that involve matching letters and words with pictures
- Recognizes some words by sight; attempts to sound out words
- Increased functioning which facilitates learning to ride a bicycle, swim, swing a bat, or kick a ball
- Able to trace objects
- Folds and cuts paper into simple shapes
- Can tie laces, string (like shoes)

Toddler exploring her world

By manipulating the world around them, children learn and grow physically in both gross and fine motor skills.

Physical Development in Adolescence[13]

During puberty, an adolescent experiences a period of rapid physical growth that culminates in sexual maturity.

LEARNING OBJECTIVE

Review the milestones of physical development in adolescence

KEY POINTS

- Adolescence is the period of development that begins at puberty and ends at emerging adulthood; the typical age range is from 12 to 18 years, and this stage of development has some predictable physical milestones.
- Puberty involves distinctive physiological changes in an individual's height, weight, body composition, sex characteristics, and circulatory and respiratory systems. These changes are largely influenced by hormonal activity.
- During puberty, the adolescent develops secondary sex characteristics (such as a deeper voice in males and the development of breasts and hips in females) as their hormonal balance shifts strongly towards an adult state.
- The adolescent growth spurt is a rapid increase in an individual's height and weight during puberty resulting from the simultaneous release of growth hormones, thyroid hormones, and androgens.
- Because rates of physical development vary so widely among teenagers, puberty can be a source of pride or embarrassment.

TERMS

- menarche – The onset of menstruation in human females; the beginning of the menstrual period.
- puberty – The age at which a person is first capable of sexual reproduction.
- gonad – A sex organ that produces gametes; specifically, a testicle or ovary.

Adolescence

Adolescence is a socially constructed concept. In pre-industrial society, children were considered adults when they reached physical maturity; however, today we have an extended time between childhood and adulthood known as adolescence. Adolescence is the period of development that begins at puberty and ends at emerging adulthood; the typical age range is from 12 to 18 years, and this stage of development

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has some predictable physical milestones.

Physical Changes of Puberty

Puberty is the period of several years in which rapid physical growth and psychological changes occur, culminating in sexual maturity. The onset of puberty typically occurs at age 10 or 11 for females and at age 11 or 12 for males; females usually complete puberty by ages 15 to 17, while males usually finish around ages 16 to 17. Females tend to attain reproductive maturity about four years after the first physical changes of puberty appear. Males, however, accelerate more slowly but continue to grow for about six years after the first visible pubertal changes. While the sequence of physical changes in puberty is predictable, the onset and pace of puberty vary widely. Every person's individual timetable for puberty is different and is primarily influenced by heredity; however environmental factors—such as diet and exercise—also exert some influence.

Hormonal Changes

Puberty involves distinctive physiological changes in an individual's height, weight, body composition, and circulatory and respiratory systems. During this time, both the adrenal glands and the sex glands mature—processes known as adrenarche and gonadarche, respectively.

These changes are largely influenced by hormonal activity. Hormones play an *organizational role* (priming the body to behave in a certain way once puberty begins) and an *activational role* (triggering certain behavioral and physical changes). During puberty, the adolescent's hormonal balance shifts strongly towards an adult state; the process is triggered by the pituitary gland, which secretes a surge of hormonal agents into the blood stream and initiates a chain reaction.

Sexual Maturation

It is this stage in life in which a child develops secondary sex characteristics. *Primary sex characteristics* are organs specifically needed for reproduction, like the uterus and ovaries in females and the testes in males. *Secondary sex characteristics,* on the other hand, are physical signs of sexual maturation that do not directly involve sex organs. In females, this includes development of breasts and widening of hips, while in males it includes development of facial hair and deepening of the voice. Both sexes experience development of pubic and underarm hair, as well as increased development of sweat glands.

The male and female gonads are activated by the surge of hormones, which puts them into a state of rapid growth and development. The testes primarily release testosterone, and the ovaries release estrogen; the production of these hormones increases gradually until sexual maturation is met. Girls experience menarche, the beginning of menstrual periods, usually around 12–13 years old, and boys experience spermarche, the first ejaculation, around 13–14 years old. Facial hair in males typically appears around age 14.

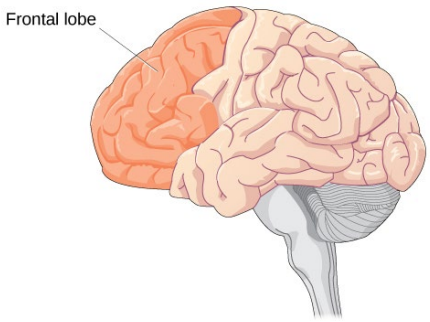
Physical Growth

The adolescent growth spurt is a rapid increase in an individual's height and weight during puberty resulting from the simultaneous release of growth hormones, thyroid hormones, and androgens. Males experience their growth spurt about two years later than females. The accelerated growth in different body parts happens at different times, but for all adolescents it has a fairly regular sequence. The first places to grow are the extremities (head, hands, and feet), followed by the arms and legs, and later the torso and shoulders. This non-uniform growth is one reason why an adolescent body may seem out of proportion. During puberty, bones become harder and more brittle.

Before puberty, there are nearly no differences between males and females in the distribution of fat and muscle. During puberty, males grow muscle much faster than females, and females experience a higher increase in body fat. The ratio between muscle and fat in post-pubertal males is around 1:3, while for males it is about 5:4. An adolescent's heart and lungs increase in both size and capacity during puberty; these changes contribute to increased strength and tolerance for exercise.

Brain Development

The adolescent brain also remains under development during this time. Adolescents often engage in increased risk-taking behaviors and experience heightened emotionsduring puberty; this may be due to the fact that the frontal lobes of their brains—which are responsible for judgment, impulse control, and planning—are still maturing until early adulthood (Casey, Tottenham, Liston, & Durston, 2005).



Brain Development During Adolescence

Brain growth continues into the early 20s. The development of the frontal lobe, in particular, is important during this stage.

Effects of Physical Development

Because rates of physical development vary so widely among teenagers, puberty can be a source of pride or embarrassment. Early maturing boys tend to be physically stronger, taller, and more athletic than their later maturing peers; this can contribute to differences in popularity among peers, which can in turn influence the teenager's confidence. Some studies show that boys who mature earlier tend to be more popular and independent but are also at a greater risk for substance abuse and early sexual activity

(Flannery, Rowe, & Gulley, 1993; Kaltiala-Heino, Rimpela, Rissanen, & Rantanen, 2001). Early maturing girls may face increased teasing and sexual harassment related to their developing bodies, which can contribute to self-consciousness and place them at a higher risk for anxiety, depression, substance abuse, and eating disorders (Ge, Conger, & Elder, 2001; Graber, Lewinsohn, Seeley, & Brooks-Gunn, 1997; Striegel-Moore & Cachelin, 1999). Girls and boys who develop more slowly than their peers may feel self-conscious about their lack of physical development; some research has found that negative feelings are particularly a problem for late maturing boys, who are at a higher risk for depression and conflict with parents (Graber et al., 1997) and more likely to be bullied (Pollack & Shuster, 2000).

Piaget's Theory of Cognitive Development

Piaget's theory of cognitive development is a comprehensive theory about the nature and development of human intelligence. Piaget believed that one's childhood plays a vital and active role in a person's development. Piaget's idea is primarily known as a developmental stage theory. The theory deals with the nature of knowledge itself and how humans gradually come to acquire, construct, and use it. To Piaget, cognitive development was a progressive reorganization of mental processes resulting from biological maturation and environmental experience. He believed that children construct an understanding of the world around them, experience discrepancies between what they already know and what they discover in their environment, then adjust their ideas accordingly. Moreover, Piaget claimed that cognitive development is at the center of the human organism, and language is contingent on knowledge and understanding acquired through cognitive development. Piaget's earlier work received the greatest attention. Many parents have been encouraged to provide a rich, supportive environment for their child's natural propensity to grow and learn. Child-centered classrooms and "open education" are direct applications of Piaget's views. Despite its huge success, Piaget's theory has some limitations that Piaget recognized himself: for example, the theory supports sharp stages rather than continuous development (decalage).

Continue reading this article on Wikipedia.

Kohlberg's Model of Moral Development

Maslow's Hierarchy of Needs

Constructivism and Social Constructivism[14]

"Constructivism is the philosophical and scientific position that knowledge arises through a process of active construction."

(Mascolol & Fischer, 2005)

"As long as there were people asking each other questions, we have had constructivist classrooms. Constructivism, the study of learning, is about how we all make sense of our world, and that really hasn't changed."

(Brooks, 1999)

Background

Constructivism and Social Constructivism are two similar learning theories which share a large number of underlying assumptions, and an interpretive epistemological position.

Both approaches:

- Deep roots classical antiquity. Socrates, in dialogue with his followers, asked directed questions that led his students to realize for themselves the weaknesses in their thinking.
- Learning is perceived as an active, not a passive, process, where knowledge is constructed, not acquired
- Knowledge construction is based on personal experiences and the continual testing of hypotheses
- Each person has a different interpretation and construction of knowledge process, based on past experiences and cultural factors.

Social constructivism:

- Emphasis is on the collaborative nature of learning and the importance of cultural and social context.
- All cognitive functions are believed to originate in, and are explained as products of social interactions
- Learning is more than the assimilation of new knowledge by learners; it was the process by which learners were integrated into a knowledge community.
- Believed that constructivists such as Piaget had overlooked the essentially social nature of language and consequently failed to understand that learning is a collaborative process.

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Underlying Assumptions:

Jonassen (1994) proposed that there are eight characteristics that underline the constructivist learning environments and are applicable to both perspectives:

1. Constructivist learning environments provide multiple representations of reality.
2. Multiple representations avoid oversimplification and represent the complexity of the real world.
3. Constructivist learning environments emphasize knowledge construction inserted of knowledge reproduction.
4. Constructivist learning environments emphasize authentic tasks in a meaningful context rather than abstract instruction out of context.
5. Constructivist learning environments provide learning environments such as real-world settings or case-based learning instead of predetermined sequences of instruction.
6. Constructivist learning environments encourage thoughtful reflection on experience.
7. Constructivist learning environments "enable context- and content- dependent knowledge construction."
8. Constructivist learning environments support "collaborative construction of knowledge through social negotiation, not competition among learners for recognition."

Epistemology

The default epistemology in education is an empirical/reductionist approach to teaching and learning. The shared epistemological basis for these two perspectives, on the other hand, is interpretativism, where knowledge is believed to be acquired through involvement with content instead of imitation or repetition (Kroll & LaBoskey, 1996).

There is no absolute knowledge, just our interpretation of it. The acquisition of knowledge therefore requires the individual to consider the information and - based on their past experiences, personal views, and cultural background - construct an interpretation of the information that is being presented to them.

Students ‘construct’ their own meaning by building on their previous knowledge and experience. New ideas and experiences are matched against existing knowledge, and the learner constructs new or adapted rules to make sense of the world. In such an environment the teacher cannot be in charge of the students’ learning, since everyone’s view of reality will be so different and students will come to learning already possessing their own constructs of the world.

Teaching styles based on this approach therefore mark a conscious effort to move from these ‘traditional, objectivist models didactic, memory-oriented transmission models’ (Cannella & Reiff, 1994) to a more student-centred approach.

Main Theorists

John Dewey (1933/1998) is often cited as the philosophical founder of this approach. Bruner (1990) and Piaget (1972) are considered the chief theorists among the cognitive constructivists, while Vygotsky (1978) is the major theorist among the social constructivists.

Dewey

John Dewey rejected the notion that schools should focus on repetitive, rote memorization & proposed a method of "directed living" – students would engage in real-world, practical workshops in which they would demonstrate their knowledge through creativity and collaboration. Students should be provided with opportunities to think from themselves and articulate their thoughts.

Dewey called for education to be grounded in real experience. He wrote, "If you have doubts about how learning happens, engage in sustained inquiry: study, ponder, consider alternative possibilities and arrive at your belief grounded in evidence."

Piaget

Piaget rejected the idea that learning was the passive assimilation of given knowledge. Instead, he proposed that learning is a dynamic process comprising successive stages of adaption to reality during which learners actively construct knowledge by creating and testing their own theories of the world.

Although less contemporary & influential, it has inspired several important educational principles such as:

- Discovery learning
- Sensitivity to children's' readiness
- Acceptance of individual differences
- Learners don't have knowledge forced on them – they create it for themselves

A common misunderstanding regarding constructivism is that instructors should never tell students anything directly but, instead, should always allow them to construct knowledge for themselves. This is actually confusing a theory of pedagogy (teaching) with a theory of knowing. Constructivism assumes that all knowledge is constructed from the learner's previous knowledge, regardless of how one is taught. Thus, even listening to a lecture involves active attempts to construct new knowledge.

Bruner

Influenced by Vygotsky, Bruner emphasizes the role of the teacher, language and instruction. He thought that different processes were used by learners in problem solving, that these vary from person to person and that social interaction lay at the root of good learning.

Bruner builds on the Socratic tradition of learning through dialogue, encouraging the learner to come to enlighten themselves through reflection. Careful curriculum design is essential so that one area builds upon the other. Learning must therefore be a process of discovery where learners build their own knowledge, with the active dialogue of teachers, building on their existing knowledge.

Bruner initiated curriculum change based on the notion that learning is an active, social process in which students construct new ideas or concepts based on their current knowledge. He provides the following principles of constructivistic learning:

- Instruction must be concerned with the experiences and contexts that make the student willing and able to learn (readiness).
- Instruction must be structured so that it can be easily grasped by the student (spiral organization).
- Instruction should be designed to facilitate extrapolation and or fill in the gaps (going beyond the information given).

Vygotsky

Social constructivism was developed by Vygotsky. He rejected the assumption made by Piaget that it was possible to separate learning from its social context.

According to Vygotsky:

Every function in the child's cultural development appears twice: first, on the social level and, later on, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals. (p. 57)

Although Vygotsky died at the age of 38 in 1934, most of his publications did not appear in English until after 1960. There are, however, a growing number of applications of social constructivism in the area of educational technology.

By the 1980s the research of Dewey and Vygotsky had blended with Piaget's work in developmental psychology into the broad approach of constructivism. The basic tenet of constructivism is that students learn by doing rather than observing. Students bring prior knowledge into a learning situation in which they must critique and re-evaluate their understanding of it.

This process of interpretation, articulation, and re-evaluation is repeated until they can demonstrate their comprehension of the subject.

Models of Learning

Constructivist

Discovery Learning (Bruner)
In discovery learning, the student is placed in problem solving situations where they are required to draw on past experiences and existing knowledge to discover facts, relationships, and new information.

Students are more likely to retain knowledge attained by engaging real-world and contextualised problem-solving than by traditional transmission methods.

Models that are based upon discovery learning model include: guided discovery, problem-based learning, simulation-based learning, case-based learning, and incidental learning.

Piaget's Cognitive Development theory (1970) / Conception of equilibration (1985)
Piaget (1970) proposed that children progress through a sequence of four stages, assumed to reflect

qualitative differences in children's cognitive abilities. Limited by the logical structures in the different developmental stages, learners cannot be taught key cognitive tasks if they have not reached a particular stage of development.

He later (1985) expanded this theory to explain how new information is shaped to fit with the learner's existing knowledge, and existing knowledge is itself modified to accommodate the new information. The major concepts in this cognitive process include:

- Assimilation: it occurs when a learner perceives new objects or events in terms of existing schemes or operations. This information is compared with existing cognitive structures
- Accommodation: it has occurred when existing schemes or operations must be modified to account for a new experience.
- Equilibration: it is the master developmental process, encompassing both assimilation and accommodation. Anomalies of experience create a state of disequilibrium which can be only resolved when a more adaptive, more sophisticated mode of thought is adopted.

Social Constructivist

Language, Culture, & Knowledge (Vygotsky, 1934)
Vygotsky emphasized the role of language and culture in cognitive development and in how we perceive the world, and claimed that they provide frameworks through which we experience, communicate, and understand reality.

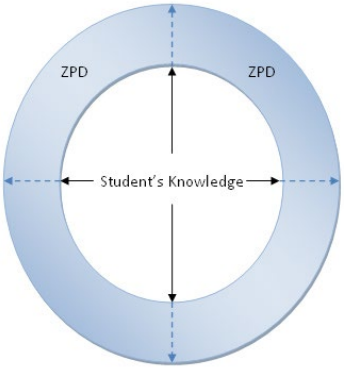
He demonstrated the importance of language in learning by demonstrating that in infants, communication is a pre-requisite to the child's acquisition of concepts and language. But, he suggests that people learn with meaning and personal significance in mind, not just through attention to the facts:

> I do not see the world simply in colour and shape but also as a world with sense and meaning. I do not merely see something round and black with two hands; I see a clock…. (p. 39)
>
> Language and the conceptual schemes that are transmitted by means of language are essentially social phenomena. Knowledge is not simply constructed, it is co-constructed.

The Zone of Proximal Development
Vygotsky believed that learning takes place within the Zone of Proximal Development. In this, students can, with help from adults or children who are more advanced, master concepts and ideas that they cannot understand on their own. This model has two developmental levels:

1. The level of actual development – point the learner has already reached & can problem-solve independently.
2. The level of potential development (ZPD) – point the learner is capable of reaching under the guidance of teachers or in collaboration with peers.

The ZPD is the level at which learning takes place. It comprises cognitive structures that are still in the process of maturing, but which can only mature under the guidance of or in collaboration with others.



Zone of Proximal Development

White circle: what the student can learn unaided

Blue circle: what student can learn with help

ZPD: area of 'potential' where learning takes place

To ensure development in the ZDP, the assistance/guidance received must have certain features:

1. Intersubjectivity – the process whereby two participants who begin a task with different understandings arrive at a shared understanding (Newson & Newson, 1975). This creates a common ground for communication as each partner adjusts to the perspective of the other.
2. Scaffolding – adjusting the support offered during a teaching session to fit the child's current level of performance. This captures the form of teaching interaction that occurs as individuals work on tasks such as puzzles and academic assignments.
3. Guided participation – a broader concept than scaffolding that refers to shared endeavours between expert and less expert participants

Constructivism and Social Constructivism in the Classroom[15]

In the constructivist classroom, the focus tends to shift from the teacher to the students. The classroom is no longer a place where the teacher ("expert") pours knowledge into passive students, who wait like empty vessels to be filled. In the constructivist model, the students are urged to be actively involved in their own process of learning.

In the constructivist classroom, both teacher and students think of knowledge as a dynamic, ever-changing view of the world we live in and the ability to successfully stretch and explore that view - not as inert factoids to be memorized.

Key assumptions of this perspective include:

1. What the student currently believes, whether correct or incorrect, is important.
2. Despite having the same learning experience, each individual will base their learning on the understanding and meaning personal to them.
3. Understanding or constructing a meaning is an active and continuous process.
4. Learning may involve some conceptual changes.
5. When students construct a new meaning, they may not believe it but may give it provisional acceptance or even rejection.
6. Learning is an active, not a passive, process and depends on the students taking responsibility to learn.

The main activity in a constructivist classroom is solving problems. Students use inquiry methods to ask questions, investigate a topic, and use a variety of resources to find solutions and answers. As students explore the topic, they draw conclusions, and, as exploration continues, they revisit those conclusions. Exploration of questions leads to more questions.

There is a great deal of overlap between a constructivist and social constructivist classroom, with the exception of the greater emphasis placed on learning through social interaction, and the value placed on cultural background. For Vygotsky, culture gives the child the cognitive tools needed for development. Adults in the learner's environment are conduits for the tools of the culture, which include language, cultural history, social context, and more recently, electronic forms of information access.

In social constructivist classrooms collaborative learning is a process of peer interaction that is mediated and structured by the teacher. Discussion can be promoted by the presentation of specific concepts,

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problems or scenarios, and is guided by means of effectively directed questions, the introduction and clarification of concepts and information, and references to previously learned material.

Role of the teacher

Constructivist teachers do not take the role of the "sage on the stage." Instead, teachers act as a "guide on the side" providing students with opportunities to test the adequacy of their current understandings.

- The educator should consider the knowledge and experiences students bring to class
- Learners construct their knowledge through a process of active enquiry
- 'Discovery' is facilitated by providing the necessary resources
- Knowledge is actively constructed & learning is presented as a process of active discovery
- Provide assistance with assimilation of new and old knowledge
- Learning programme should be sufficiently flexible to permit development along lines of student enquiry
- Due to its interpretivist nature, each student will interpret information in different ways
- Create situations where the students feel safe questioning and reflecting on their own processes
- Present authentic tasks to contextualize learning through real-world, case-based learning environments
- Support collaboration in constructing knowledge, not competition
- Encourage development through Intersubjectivity
- Providing Scaffolding at the right time and the right level
- Provide opportunities for more expert and less expert participants to learn from each other

Role of the student

- The expectation within a constructivist learning environment is that the students plays a more active role in, and accepts more responsibility for their own learning.
- The role of the student to actively participate in their own education
- Students have to accommodate & assimilate new information with their current understanding
- One important aspect of controlling their own learning process is reflecting on their experiences
- Students begin their study with pre-conceived notions
- Students are very reluctant to give up their established schema/idea & may reject new information that challenges prior knowledge
- Students may not be aware of the reasons they hold such strong ideas/schemata
- Learners need to use and test ideas, skills, and information through relevant activities
- Students need to know how to learn or change their thinking/learning style
- Because knowledge is so communally-based, learners deserve access to knowledge of different communities
- For students to learn they need to receive different 'lenses' to see things in new ways.
- Learners need guidance through the ZPD
- In social constructivism tutors and peers play a vital role in learning

Social Constructivism in the classroom

Reciprocal Teaching

Where a teacher and 2 to 4 students form a collaborative group and take turns leading dialogues on a topic. Within the dialogues, group members apply four cognitive strategies:

1. Questioning
2. Summarizing
3. Clarifying
4. Predicting

This creates a ZPD in which students gradually assume more responsibility for the material, and through collaboration, forge group expectations for high-level thinking, and acquire skills vital for learning and success in everyday life.

Cooperative Learning

More expert peers can also spur children's development along as long as they adjust the help they provide to fit the less mature child's ZPD.

Situated Learning

As early as 1929 concern was raised (Whitehead) that the way students learned in school resulted in a limited, 'inert' form of knowledge, useful only for passing examinations. More recently several theorists have argued that for knowledge to be active it should be learned:

- In a meaningful context
- Through active learning

The general term for this type of learning activity is situated learning. Situated learning proponents argue that knowledge cannot be taught in an abstract manner, and that to be useful, it must be situated in a relevant or "authentic" context (Maddux, Johnson, & Willis, 1997).

Anchored Instruction

The anchored instruction approach is an attempt to help students become more actively engaged in learning by situating or anchoring instruction around an interesting topic. The learning environments are designed to provoke the kinds of thoughtful engagement that helps students develop effective thinking skills and attitudes that contribute to effective problem solving and critical thinking.
Anchored instruction emphasizes the need to provide students with opportunities to think about and work on problems and emphasizes group or collaborative problem solving.

Other things you can do:

- Encourage team working and collaboration
- Promote discussion or debates

- Set up study groups for peer learning
- Allocate a small proportion of grades for peer assessment and train students in the process and criteria
- Show students models of good practice in essay writing and project work
- Be aware of your own role as a model of 'the way things are done...'be explicit about your professional values and the ethical dimensions of your subject

Assessment

Constructivists believe that assessment should be used as a tool to enhance both the student's learning and the teacher's understanding of student's progress. It should not be used as an accountability tool that serves to stress or demoralize students. Types of assessment aligned to this epistemological position include reflective journals/portfolios, case studies, group-based projects, presentations (verbal or poster), debates, role playing etc.

Within social constructivism particularly there is greater scope for involving students in the entire process:

1. Criteria
2. Method
3. Marking
4. Feedback

Brooks and Brooks (1993) state that rather than saying "No" when a student does not give the exact answer being sought, the constructivist teacher attempts to understand the student's current thinking about the topic. Through nonjudgmental questioning, the teacher leads the student to construct new understanding and acquire new skills.

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Selected Resources

List of learning theories and how they apply to practice: http://icebreakerideas.com/learning-theories/
Outline of learning theories: http://www.learning-theories.com/

Human Language Development[16]

Humans, especially children, have an amazing capability to learn language, and several theories exist to explain language development.

LEARNING OBJECTIVE

Differentiate among the major theories of human language acquisition

KEY POINTS

- B. F. Skinner believed children learn language through operant conditioning—that children receive "rewards" for using language in a functional manner.
- Noam Chomsky's theory states that children have the innate biological ability to learn language; however, his theory has not been supported by genetic or neurological studies.
- Jean Piaget's theory of language development suggests that children use both assimilation and accommodation to learn language.
- Lev Vygotsky's theory of language development focused on social learning and the zone of proximal development (ZPD).
- Several areas of the brain must function together in order for a person to develop, utilize, and understand language, including Broca's area, Wernicke's area, the primary auditory cortex, and the angular gyrus.
- Damage to any of the areas of the brain involved in language development, such as through illness or stroke, can result in problems with language and comprehension.

TERMS

- accommodation – The act of fitting or adapting, or the state of being fitted or adapted; adaptation; adjustment.
- assimilation – The absorption of new ideas into an existing cognitive structure.
- zone of proximal development – A concept developed by Soviet psychologist and social constructivist Lev Vygotsky that describes the difference between what a learner can do without help and what he or she can do with help.
- shaping – A method of positive reinforcement of behavior patterns in operant conditioning.

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Theories of Language Development

Humans, especially children, have an amazing ability to learn language. Within the first year of life, children will have learned many of the necessary concepts to have functional language, although it will still take years for their capabilities to develop fully. Some people learn two or more languages fluently over their lives (often starting from childhood); these people are bilingual or multilingual. Multiple theories have been proposed to explain the development of language, and related brain structures, in children.

Skinner: Operant Conditioning

B. F. Skinner believed that children learn language through operant conditioning; in other words, children receive "rewards" for using language in a functional manner. For example, a child learns to say the word "drink" when she is thirsty; she receives something to drink, which reinforces her use of the word for getting a drink, and thus she will continue to do so. This follows the four-term contingency that Skinner believed was the basis of language development—*motivating operations, discriminative stimuli, response,* and *reinforcing stimuli*. Skinner also suggested that children learn language through imitation of others, prompting, and shaping.

Chomsky: Language Acquisition Device

Noam Chomsky's work discusses the biological basis for language and claims that children have innate abilities to learn language. Chomsky terms this innate ability the "language acquisition device." He believes children instinctively learn language without any formal instruction. He also believes children have a natural need to use language, and that in the absence of formal language children will develop a system of communication to meet their needs. He has observed that all children make the same type of language errors, regardless of the language they are taught. Chomsky also believes in the existence of a "universal grammar," which posits that there are certain grammatical rules all human languages share. However, his research does not identify areas of the brain or a genetic basis that enables humans' innate ability for language.

Piaget: Assimilation and Accommodation

Jean Piaget's theory of language development suggests that children use both assimilation and accommodation to learn language. Assimilation is the process of changing one's environment to place information into an already-existing schema (or idea). Accommodation is the process of changing one's schema to adapt to the new environment. Piaget believed children need to first develop mentally before language acquisition can occur. According to him, children first create mental structures within the mind (schemas) and from these schemas, language development happens.

Vygotsky: Zone of Proximal Development

Lev Vygotsky's theory of language development focused on social learning and the zone of proximal development (ZPD). The ZPD is a level of development obtained when children engage in social

interactions with others; it is the distance between a child's *potential* to learn and the *actual learning* that takes place. Vygotsky's theory also demonstrated that Piaget underestimated the importance of social interactions in the development of language.

Piaget's and Vygotsky's theories are often compared with each other, and both have been used successfully in the field of education.

Language and Cognition

The following timeline gives an overview of the ages at which children generally acquire language:

- 4–6 months: Babbling using all sounds.
- 6–9 months: Babbling becomes more focused—narrowing of sounds.
- 10–12 months: First words develop.
- 18–24 months: Children begin using two-word phrases (example: "Me up" or "Get milk").
- 2–3 years: Children begin using three-word phrases in correct order with inflection.
- 4–5 years: Children start speaking with nearly complete syntax.
- 5–7 years: Children begin using and understanding more complex language.
- 9 years and older: Children understand almost all forms of language.

In language acquisition, there is a hypothesis that a "critical period," or a time when it is optimal to learn a language, exists in children. Part of this hypothesis is that if a child is not exposed to a language in the early years of life, he or she will never have full intuitive command of a first language.

One of the canonical case studies that supporters of the critical-period hypothesis turn to is Genie the "feral child," a young girl born in 1957 who, due to horrible abuse and neglect, never learned a language. She never managed to fully acquire verbal language as a result.

Defining Motivation[17]

Motivation describes the wants or needs that direct behavior toward a goal.

LEARNING OBJECTIVE

Define motivation in terms of drives, motives, and intrinsic vs. extrinsic motivators

KEY POINTS

- Motivation is an urge to behave or act in a way that will satisfy certain conditions, such as wishes, desires, or goals.
- Psychologists believe that motivation is rooted in a basic impulse to optimize well-being, minimize physical pain, and maximize pleasure.
- Motivations are commonly separated into drives (which are primarily biological, like thirst or hunger) and motives (which are primarily driven by social and psychological mechanisms).
- In addition to biological drives, motivations can be intrinsic (arising from internal factors) or extrinsic (arising from external factors).
- In reality, our motivations are often a mix of both intrinsic and extrinsic factors, and the nature of the mix can change over time.

TERMS

- psychosocial – Having both psychological and social aspects.
- drive – Acts of motivation like thirst or hunger that have primarily biological purposes.
- motivation – An incentive or reason for doing something.

Motivation describes the wants or needs that direct behavior toward a goal. It is an urge to behave or act in a way that will satisfy certain conditions, such as wishes, desires, or goals. Older theories of motivation stated that rational thought and reasonwere the guiding factors in human motivation; however, psychologists now believe that motivation may be rooted in basic impulses to optimize well-being, minimize physical pain, and maximize pleasure.

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Modification of Defining Motivation. **Provided by**: Boundless. **Project**: Boundless Psychology. **License**: *CC BY-SA: Attribution-ShareAlike*

Drives and Motives

Motivations are commonly separated into drives and motives. *Drives* are primarily biological, like thirst, hunger, sleepiness, and the need to reproduce—all of which lead us to seek out and take part in certain activities. Drives are believed to originate within a person and may not require external stimuli to encourage behavior. *Motives,* on the other hand, are primarily driven by social and psychological mechanisms, such as work, family, and relationships. They include factors like praise and approval.

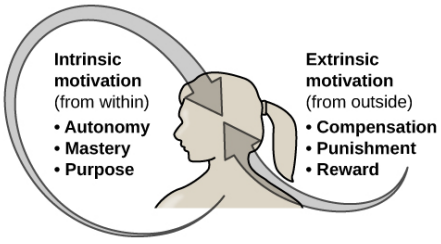
Both drives and motives can be manipulated by stimulation and deprivation. Motivation can be *stimulated* by uncomfortable or aversive conditions or events (shocks, loud noise, or excessive heat or cold can motivate us to seek better conditions) or by attractions to positive or pleasurable conditions or events (such as food or sex). We also become motivated when we're *deprived* of something that we want or need, like adequate nutrition or social contact.

Intrinsic and Extrinsic Motivation

Motivation can be intrinsic (arising from internal factors) or extrinsic (arising from external factors).

Intrinsically-motivated behaviors are generated by the sense of personal satisfaction that they bring. They are driven by an interest or enjoyment in the task itself that comes from the individual, not society. For example, if you are in college because you enjoy learning and want to make yourself a more well-rounded individual, you are intrinsically motivated. Intrinsic motivation is a critical element in cognitive, social, and physical development; those individuals who are intrinsically motivated are likely to perform better and improve their skills at a given task.

Extrinsically-motivated behaviors, in contrast, are performed in order to receive something from others. They do not come from within the individual, but from society—other people. For example, employees might do their work because they want the company to pay them, not because they love the work. Many athletes are driven by the goal of winning, beating the competition, and receiving praise from fans; they are not driven by the intrinsic satisfaction they get from playing the sport. Similarly, if you are in college because you want to make yourself more marketable for a high-paying career or to satisfy the demands of your parents, then your motivation is more extrinsic in nature.



Intrinsic and Extrinsic Motivation

Intrinsic motivation comes from within the individual and results in a sense of autonomy, mastery, and purpose. Extrinsic motivation such as punishments, rewards, and other types of compensation, come from outside the individual.

In reality, our motivations are often a mix of both intrinsic and extrinsic factors, and the nature of the mix can change over time. For example, say cooking is one of your favorite hobbies: you love to cook for others whenever you get a chance, and you can easily spend hours in the kitchen. You are *intrinsically* motivated to cook. Then you decide to go to culinary school and eventually get a job working as a chef in a good restaurant. You are now getting extrinsic reinforcement (e.g., getting paid) for your work, and may over time become more extrinsically than intrinsically motivated. Sometimes, intrinsic motivation can diminish when extrinsic motivation is given—a process known as the *overjustification effect.* This can lead to extinguishing the intrinsic motivation and creating a dependence on extrinsic rewards for continued performance.

Motivation vs. Emotion

While motivation and emotion can be intricately linked, they are two fundamentally different things. Motivation describes the wants or needs that direct behavior toward a goal; in contrast, an emotion is a subjective state of being that we often describe as a feeling. Emotion and motivation are linked in several ways: both influence behavior and can lead us to take action, and emotion itself can act as a motivator. For example, the emotion of fear can motivate a person to leave a stressful situation, while the emotion of happiness can motivate a person to be more productive on a project that reinforces that emotion.

Evolutionary Theory of Motivation

According to evolutionary psychology, individuals are motivated to engage in behaviors that maximize their genetic fitness.

LEARNING OBJECTIVE

Summarize the evolutionary perspective on motivation

KEY POINTS

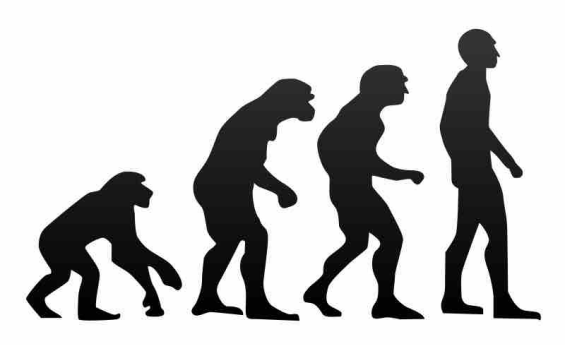
- Evolutionary psychology states that genetic mutations are capable of altering not only physical traits, but also behavioral traits.
- All animals, including humans, act in ways that improve their reproductive success; this results in social processes that maximize genetic fitness.
- According to evolutionary theory, those who are the most fit are the most likely to survive, and eventually the population evolves in such a way that their traits manifest themselves across the population.
- From an evolutionary point of view, behaviors are not made consciously; they are instinctual, and based on what is most advantageous in terms of passing one's genes to the next generation.
- William James (1842–1910) was an important contributor to early research into motivation, and he theorized that behavior was driven by a number of instincts that aid survival.
- Optimization theory is concerned with assessing the success of behaviors. It states that individuals are motivated to adopt strategies that allow them to consume the most energy while expending the least amount of energy.

TERMS

- instinct – A natural or inherent impulse or behavior; the capacity of an animal to complete a complex behavior automatically, without intermediate conscious awareness.
- genotype – The combination of alleles, situated on corresponding chromosomes, that determines a specific trait of an individual, such as "Aa" or "aa".
- fitness – A concept in evolutionary theory related to natural selection; an organism's potential for survival and successful reproduction.
- natural selection – A process by which heritable traits conferring survival and reproductive advantage to individuals, or related individuals, tend to be passed on to succeeding generations and become more frequent in a population, whereas other less favorable traits tend to become eliminated.

The basic idea of evolutionary psychology is that genetic mutations are capable of altering an organism's behavioral traits as well as its physical traits. Like physical traits, these mutations in behavioral traits may

help the organism reproduce; this in turn allows the mutations to be passed on to the next generation. In this way, individuals are motivated to engage in behaviors that maximize their genetic fitness.



Evolutionary Psychology suggests that individuals are motivated to engage in behaviors that maximize their genetic fitness.

Genetic Fitness

All animals, including humans, need to act in ways that will improve their reproductive success. This results in social processes that maximize individuals' genetic fitness, or ability to pass their genes to the next generation. According to evolutionary theory, those who are the most fit are the most likely to survive, and eventually the population evolves in such a way that their traits manifest themselves across the population.

Consider the following example: in a population's gene pool, a genotype exists for an infant that is unattached from its mother—it will crawl away and does not have any "love" or other significant attachment to its mother. Over time, mutations accumulate and another genotype develops that causes infants to become uncomfortable and cry when their mothers leave them. Naturally, the crying infant who signals distress will be more protected from the elements and other predatory environmental forces than the unattached infant. Thus, the "attached" infant has a higher chance of survival. Over many generations, more "attached" infants will survive to mate and pass on their gene for attachment. Thus, a new behavior develops by means of natural selection. This illustrates the basic idea behind evolutionary psychology in human development: the innate behaviors of very young children are pre-programmed in their genotypes and can be understood by studying the environmental forces that surrounded our ancestors.

Evolutionary Perspective on Motivation

From an evolutionary point of view, behaviors are not made consciously: they are instinctual, and based on what is most advantageous in terms of passing one's genes on to the next generation. William James (1842–1910) was an important contributor to early research into motivation, and he is often referred to as the father of psychology in the United States. James theorized that behavior was driven by a number of survival instincts. From a biological perspective, an instinct is a species-specific pattern of behavior that is not learned. There was, however, considerable controversy between James and his contemporaries over the exact definition of instinct. James proposed several dozen special human instincts, but many of his

contemporaries created different lists. A mother's protection of her baby, fondness for sugar, and hunting prey were among the human behaviors proposed as true instincts during James' era. This view—that human behavior is driven by instincts—received a fair amount of criticism because of the undeniable role of learning in shaping all sorts of human behavior.

Optimization Theory

Optimization theory is related to evolutionary theory, and is concerned with assessing the success of a behavior. It attempts to identify behavioral strategies that offer the highest return under a given set of conditions using a cost/benefit analysis. In this context, success or fitness is judged by considering the number of offspring that the individual performing the behavior would contribute to the next generation. Optimization theory states that individuals would be motivated to adopt strategies that allow them to consume the most energy (e.g., to maximize their food intake) while expending the least amount of energy (e.g., to minimize their exercise output).

Temporal Motivation Theory[18]

Temporal motivation theory emphasizes the impact of time and deadlines on our motivation to complete tasks.

LEARNING OBJECTIVE

Explain the relationship among expectation, value, impulsiveness, and delay according to temporal motivation theory

KEY POINTS

Temporal motivation theory (TMT) emphasizes the impact of time, and particularly deadlines, on the allocation of attention to particular tasks.

TMT argues that the perceived usefulness and benefit of an activity increases exponentially as the deadline for completing nears. It is particularly useful for understanding human behaviors like procrastination and goal setting.

Motivation for a task can be derived with the following formula: Motivation = (Expectancy × Value) / {1 + (Impulsiveness × Delay)}.

The greater the individual's self-efficacy (expectancy) for completing the task, and the higher the value of the outcome associated with it, the higher the individual's motivation will be.

Impulsivity (the inability to resist non task-related urges) and a greater amount of time before a deadline tend to reduce motivation.

TERMS

- temporal – Of or relating to time.
- self-efficacy – How one judges one's own competence to complete tasks and reach goals.

Temporal motivation theory (TMT) is an integrative motivational theory developed by Piers Steel and Cornelius J. Konig. The theory emphasizes *time* as a critical motivational factor and focuses on the impact of deadlines on the allocation of attention to particular tasks. TMT argues that as a deadline for

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Modification of Temporal Motivation Theory. **Provided by**: Boundless. **Project**: Boundless Psychology. **License**: *CC BY-SA: Attribution-ShareAlike*

completing an activity nears, the perceived usefulness or benefit of that activity increases exponentially. TMT is particularly useful for understanding human behaviors like procrastination and goal setting.

TMT states that an individual's motivation for a task can be derived from the following formula (in its simplest form):

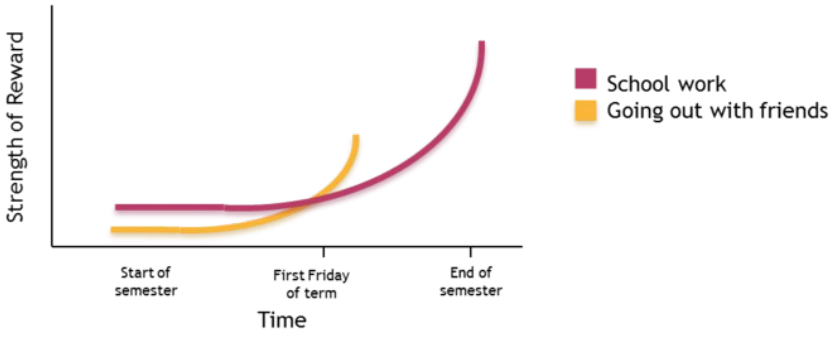
Temporal Motivation

Temporal motivation theory argues that motivation is heavily influenced by time.

In this equation, *motivation* is the desire for a particular outcome. *Expectancy*, or self-efficacy, is the likelihood of success; *value* is the reward associated with the outcome; *impulsiveness* is the individual's ability to withstand urges; and *delay* is the amount of time until the realization of the outcome (i.e., the deadline). The greater the individual's expectancy for successfully completing the task, and the higher the value of the outcome associated with it, the higher the individual's motivation will be. In contrast, both impulsivity and a greater amount of time before a deadline tend to reduce motivation.

Examples of Temporal Motivation Theory

Consider a student who is given one month to study for a final exam. Throughout the month, the student has two options: studying or socializing. The student enjoys socializing but needs to achieve a good grade. At the beginning of the student's study period (where there is a *long delay* before the deadline), the reward of studying is not immediate (and therefore has *low value*); therefore, the motivation to study is lower than the motivation to socialize. However, as the study period diminishes from several weeks to several days, the motivation to study will surpass the motivation to socialize.



Motivation over time: This graph illustrates how a student's motivation tends to change over time: early in the semester he may be more motivated to socialize with friends; later in the semester, school work takes precedence.

Suppose the student really doesn't understand the material and doesn't feel confident that he will be able to grasp it in time for the exam (*low self-efficacy, or expectancy*). In addition, the student just got a new video game that he has been dying to play (*high value*) and has a hard time resisting the urge to play (*high impulsiveness*). With the exam still a month away (*long delay*), the student's motivation to study is likely

to be low, and he will play the video game instead. As the exam date approaches (*shorter delay*), his motivation to study may increase, leading him to put the video game away.

Maslow's Hierarchy of Needs[19]

Maslow's theory is based on the premise that humans are motivated by needs that are hierarchically ranked.

LEARNING OBJECTIVE

Explain Maslow's hierarchy and the needs that fuel each level

KEY POINTS

- Maslow's hierarchy of needs defines motivation as the process of satisfying certain needs that are required for long-term survival and development.
- There are some needs that are basic to all human beings, and in their absence, nothing else matters. As we satisfy these basic needs, they no longer serve as motivators and we begin to satisfy higher-order needs.
- Maslow divided human needs into a pyramid that includes physiological, safety, love/belonging, esteem, and self-actualization needs. Higher-order needs can only be pursued when the lower needs are met.

TERMS

- humanistic – Of or pertaining to a psychological perspective, starting in the mid-20th century, that emphasizes individuals' inherent drive toward self-actualization, realizing and expressing one's own capabilities, and creativity.
- self-actualization – According to humanistic theory, the realizing of one's full potential; can include creative expression, quest for spiritual enlightenment, pursuit of knowledge, or the desire to give to society.
- mastery – The act or process of becoming an expert in something.

We all think of ourselves as having various needs—the need for food, for example, or the need for companionship—that influence our choices and behaviors. This idea also underlies some theories of motivation. In 1943, Abraham Maslow proposed a hierarchy of needs that spans the spectrum of motives, ranging from the biological to the individual to the social.

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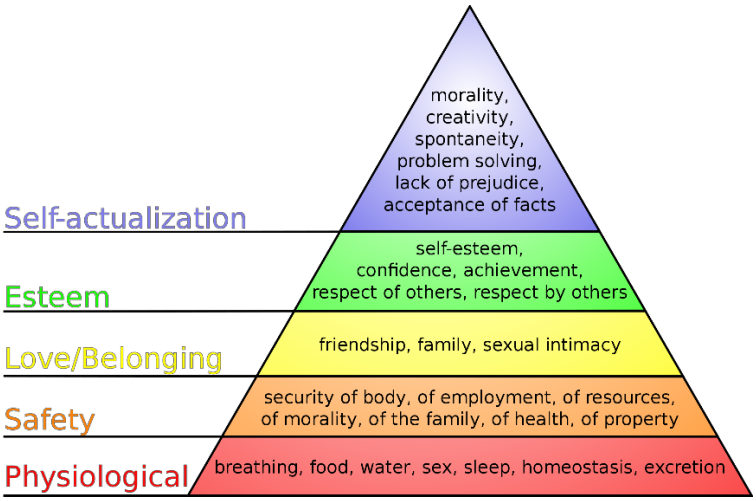
Motivation and Needs

Maslow's theory defines motivation as the process of satisfying certain needs that are required for long-term development. According to Maslow, a need is a relatively lasting condition or feeling that requires relief or satisfaction, and it tends to influence action over the long term. Some needs (like hunger) may decrease when satisfied, while others (like curiosity) may not.

Maslow's Hierarchy

Maslow's theory is based on a simple premise: human beings have needs that are hierarchically ranked. There are some needs that are basic to all human beings, and in their absence, nothing else matters. We are ruled by these needs until they are satisfied. After we satisfy our basic needs, they no longer serve as motivators and we can begin to satisfy higher-order needs.

Maslow organized human needs into a pyramid that includes (from lowest-level to highest-level) physiological, safety, love/belonging, esteem, and self-actualization needs. According to Maslow, one must satisfy lower-level needs before addressing needs that occur higher in the pyramid. For example, if someone is starving, it is quite unlikely that he will spend a lot of time, or any time at all, wondering whether other people think he is good person. Instead, all of his energies are geared toward finding something to eat.



In Maslow's Hierarchy of Needs, higher levels of needs can only be pursued when the lower levels are fulfilled.

Physiological Needs

The most basic of Maslow's needs are *physiological needs,* such as the need for air, food, and water. When you are very hungry, for example, all your behavior may be motivated by the need to find food. Once you eat, the search for food ceases, and the need for food no longer motivates you.

Safety Needs

Once physiological needs are satisfied, people tend to become concerned about *safety needs*. Are they safe from danger, pain, or an uncertain future? At this stage they will be motivated to direct their behavior toward obtaining shelter and protection in order to satisfy this need.

Love/Belonging Needs

Once safety needs have been met, social needs for *love/belonging* become important. This can include the need to bond with other human beings, the need to be loved, and the need to form lasting attachments. Having no attachments can negatively affect health and well-being; as a result, people are motivated to find friends and romantic partners.

Esteem Needs

Once love and belonging needs have been satisfied, *esteem needs* become more salient. Esteem needs refer to the desire to be respected by one's peers, to feel important, and to be appreciated. People will often look for ways to achieve a sense of mastery, and they may seek validation and praise from others in order to fulfill these needs.

Self-Actualization

At the highest level of the hierarchy, attention shifts to the need for *self-actualization,* which is a need that essentially equates to achieving one’s full potential. This can be seen in acquiring new skills, taking on new challenges, and behaving in a way that will help you to achieve your life goals. According to Maslow and other humanistic theorists, self-actualization reflects the humanistic emphasis on positive aspects of human nature. Maslow suggested that this is an ongoing, life-long process and that only a small percentage of people actually achieve a self-actualized state.

Motivating Students[20]

Intrinsic Motivation

Intrinsic motivators include fascination with the subject, a sense of its relevance to life and the world, a sense of accomplishment in mastering it, and a sense of calling to it.

Students who are intrinsically motivated might say things like the following:

- "Literature interests me."
- "Learning math enables me to think clearly."
- "I feel good when I succeed in class."

Advantages: Intrinsic motivation can be long-lasting and self-sustaining. Efforts to build this kind of motivation are also typically efforts at promoting student learning. Such efforts often focus on the subject rather than rewards or punishments.

Disadvantages: On the other hand, efforts at fostering intrinsic motivation can be slow to affect behavior and can require special and lengthy preparation. Students are individuals, so a variety of approaches may be needed to motivate different students. It is often helpful to know what interests one's students in order to connect these interests with the subject matter. This requires getting to know one's students. Also, it helps if the instructor is interested in the subject to begin with!

Extrinsic Motivation

Extrinsic motivators include parental expectations, expectations of other trusted role models, earning potential of a course of study, and grades (which keep scholarships coming).

Students who are extrinsically motivated might say things like the following:

- "I need a B- in statistics to get into business school."
- "If I flunk chemistry, I will lose my scholarship."
- "Our instructor will bring us donuts if we do well on today's quiz."

Advantages: Extrinsic motivators more readily produce behavior changes and typically involve relatively

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Modification of Motivating Students. **Provided by**: Vanderbilt University: The Center for Teaching. **Located at**: https://cft.vanderbilt.edu/guides-sub-pages/motivating-students/. **License**: *CC BY-NC: Attribution-NonCommercial*

little effort or preparation. Also, efforts at applying extrinsic motivators often do not require extensive knowledge of individual students.

Disadvantages: On the other hand, extrinsic motivators can often distract students from learning the subject at hand. It can be challenging to devise appropriate rewards and punishments for student behaviors. Often, one needs to escalate the rewards and punishments over time to maintain a certain effect level. Also, extrinsic motivators typically do not work over the long term. Once the rewards or punishments are removed, students lose their motivation.

Furthermore, research indicates that **extrinsic rewards can have a negative impact on intrinsic motivation**. In one series of experiments, psychologist Edward Deci had two groups of college students play with a puzzle called Soma. One group of students was paid for each puzzle they solved; the other wasn't. He found that the group that was paid to solve puzzles stopped solving puzzles as soon as the experiment—and the payment—ended. However, the group that wasn't paid kept solving the puzzles even after the experiment was over. They had found the puzzles intrinsically interesting. Deci argued that the group that had been paid to solve puzzles might have found the puzzles intrinsically interesting as well, but the extrinsic, monetary reward had reduced their intrinsic interest.

Effects of Motivation on Learning Styles

- **Deep learners** respond well to the challenge of mastering a difficult and complex subject. These are intrinsically motivated students who are often a joy to teach!
- **Strategic learners** are motivated primarily by rewards. They react well to competition and the opportunity to best others. They often make good grades but won't engage deeply with a subject unless there is a clear reward for doing so. They are sometimes called "bulimic learners," learning as much as they need to do well on a test or exam and then promptly forgetting the material once the assessment is over. Handle strategic learners by avoiding appeals to competition. Appeal to their intrinsic interest in the subject at hand. Design your assignments (tests, papers, projects, etc.) so that deep engagement with the subject is necessary for success on the assignments. Do so by requiring students to apply, synthesize, or evaluate material instead of merely comprehending or memorizing material.
- **Surface learners** are often motivated by a desire to avoid failure. They typically avoid deep learning because it they see it as inherently risky behavior. They will often do what it takes to pass an exam or course, but they won't choose to go beyond the minimum required for fear of failure. Handle surface learners by helping them gain confidence in their abilities to learn and perform. "Scaffold" course material and assignments by designing a series of activities or assignments that build on each other over time in complexity and challenge. Encourage these learners often and help them reflect on what they've learned and what they've accomplished.

A Model of Intrinsic Motivation

James Middleton, Joan Littlefield, and Rich Lehrer have proposed the following model of intrinsic academic motivation.

- First, given the opportunity to engage in a learning activity, a student determines if the activity is one that is known to be **interesting**. If so, the student engages in the activity.
- If not, then the student evaluates the activity on two factors—the **stimulation** (e.g. challenge, curiosity, fantasy) it provides and the **personal control** (e.g. free choice, not too difficult) it affords.
- If the student perceives the activity as stimulating and controllable, then the student tentatively labels the activity as interesting and engages in it. If either condition becomes insufficient, then the student disengages from the activity—unless some extrinsic motivator influences the student to continue.
- If the activity is repeatedly deemed stimulating and controllable, then the student may deem the activity interesting. Then the student will be more likely to engage in the activity in the future.
- If over time activities that are deemed interesting provide little stimulation or control, then the student will remove the activity from his or her mental list of interesting activities.

The challenge, then, is to provide teaching and learning activities that are both stimulating and offer students a degree of personal control.

Strategies for Motivating Students

Following are some research-based strategies for motivating students to learn.

- **Become a role model for student interest**. Deliver your presentations with energy and enthusiasm. As a display of your motivation, your passion motivates your students. Make the course personal, showing why you are interested in the material.
- **Get to know your students.** You will be able to better tailor your instruction to the students' concerns and backgrounds, and your personal interest in them will inspire their personal loyalty to you. Display a strong interest in students' learning and a faith in their abilities.
- **Use examples freely.** Many students want to be shown why a concept or technique is useful before they want to study it further. Inform students about how your course prepares students for future opportunities.
- **Use a variety of student-active teaching activities.** These activities directly engage students in the material and give them opportunities to achieve a level of mastery.
    - Teach by discovery. Students find as satisfying as reasoning through a problem and discovering the underlying principle on their own.
    - Cooperative learning activities are particularly effective as they also provide positive social pressure.
- **Set realistic performance goals** and help students achieve them by encouraging them to set their own reasonable goals. Design assignments that are appropriately challenging in view of the experience and aptitude of the class.

- **Place appropriate emphasis on testing and grading.** Tests should be a means of showing what students have mastered, not what they have not. Avoid grading on the curve and give everyone the opportunity to achieve the highest standard and grades.
- **Be free with praise and constructive in criticism.** Negative comments should pertain to particular performances, not the performer. Offer nonjudgmental feedback on students' work, stress opportunities to improve, look for ways to stimulate advancement, and avoid dividing students into sheep and goats.
- **Give students as much control over their own education as possible.** Let students choose paper and project topics that interest them. Assess them in a variety of ways (tests, papers, projects, presentations, etc.) to give students more control over how they show their understanding to you. Give students options for how these assignments are weighted.

Showing Students the Appeal of the Subject

When encouraging students to find your subject matter interesting, use cues to show students the appeal of the subject matter.

Appeal:	*Examples of Cues:*
Novelty	"I think that is really neat—I haven't seen anything quite the same."
Utility	"This next topic is something that we'll use again and again. It contains valuable ideas that we'll use throughout the later sections of the course."
Applicability	"As you work through the next section, I think that you'll be pleasantly surprised how relevant it is."
Anticipation	"As you read through, ask yourself what this section of work is hinting at as the next logical step."
Surprise	"We've used X in a lot of different ways. If you thought you'd seen them all, just wait for the next assignment."
Challenge	"Who's up for a challenge? I think that you'll find the next piece of work very interesting."
Feedback	"When you try this, you'll find out whether you really understood yesterday's lesson."
Closure	"A lot of you have asked me about X. Well, finally we're going to find out why that's so."

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Incentive Theory of Motivation and Intrinsic vs. Extrinsic Motivation[21]

According to incentive theory, behavior is primarily motivated by the incentive of extrinsic factors.

LEARNING OBJECTIVE

Differentiate between intrinsic and extrinsic incentives as related to theories of motivation

KEY POINTS

- Motivations are commonly separated into two different types based on the nature of the motivator: intrinsic (arising from internal factors) or extrinsic (arising from external factors).
- Incentive theory argues that behavior is primarily extrinsically motivated: people are more motivated to perform activities if they receive a reward afterward, rather than simply because they enjoy the activities themselves.
- Intrinsically motivated behaviors are performed because of the sense of personal satisfaction that they bring.
- Extrinsically motivated behaviors are performed in order to receive something from others—such as a promotion, praise, candy, money, or attention.
- Studies have shown that intrinsic motivation will decrease over time if extrinsic incentives are introduced for behaviors that an individual already found motivating.
- The efficacy of extrinsic motivators varies depending on factors such as self-esteem, locus of control, self-efficacy, and neuroticism.

TERMS

- incentive – Something that motivates, rouses, or encourages; an anticipated reward or aversive event from the environment.
- extrinsic – External; inessential.
- intrinsic – Innate; inherent; essential.

Motivation refers to a desire, need, or drive that contributes to and explains behavioral changes. In general, motivators provide some sort of incentive for completing a task. One definition of a motivator explains it as a force "acting either on or within a person to initiate behavior." In addition to biological motives, motivations can be either intrinsic (arising from internal factors) or extrinsic (arising from external factors). Incentive theory argues that people are primarily extrinsically motivated—meaning that most motivations stem from extrinsic sources.

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Modification of Incentive Theory of Motivation and Intrinsic vs. Extrinsic Motivation. **Provided by**: Boundless. **Project**: Boundless Psychology. **License**: *CC BY-SA: Attribution-ShareAlike*

Extrinsic vs. Intrinsic Motivation

Intrinsically motivated behaviors are performed because of the sense of personal satisfaction that they bring. According to Deci (1971), these behaviors are defined as ones for which the reward is the satisfaction of performing the activity itself. Intrinsic motivation thus represents engagement in an activity for its own sake. For example, if you are in college because you enjoy learning new things and expanding your knowledge, you are intrinsically motivated to be there.

Extrinsically motivated behaviors, on the other hand, are performed in order to receive something from others or avoid certain negative outcomes. Theorists define extrinsic motivation as "engaging in an activity to obtain an outcome that is separable from the activity itself" (deCharms, 1968; Lepper & Greene, 1978). The extrinsic motivator is outside of, and acts on, the individual. Rewards—such as a job promotion, money, a sticker, or candy—are good examples of extrinsic motivators. Social and emotional incentives like praise and attention are also extrinsic motivators since they are bestowed on the individual by another person.

Extrinsic rewards are often used to impact someone who shows little interest in a potentially useful activity. For example, if a child shows no interest in memorizing new vocabulary words, her teacher might employ external rewards to get her to engage in and work hard on that activity. Similarly, a child might be motivated to do his chores by the extrinsic motivation that he will get his allowance afterward, rather than any intrinsic sense of accomplishment. Grades offer extrinsic motivation as well: students are generally motivated to do a better job if they know their performance will be judged (Stockdale & Williams, 2004).

Sweets as extrinsic motivators: Candy, cookies, and other treats can offer extrinsic motivation to engage in a particular behavior.

Incentive Theory and the Effects of Extrinsic Motivation

Incentive theory is based on the idea that behavior is primarily extrinsically motivated. It argues that people are more motivated to perform activities if they receive a reward afterward, rather than simply because they enjoy the activities themselves.

There is controversy concerning *how* and *for how long* motivators change behavior. For instance, some data suggest that intrinsic motivation is diminished when extrinsic motivation is given—a process known as the *overjustification effect.* If extrinsic incentives are used to stimulate behaviors that an individual

already finds motivating (even without external reinforcement), intrinsic motivation for that behavior may decrease over time. In those cases, extrinsic motivators can backfire: instead of serving as an incentive for the desired behavior, they undermine a previously held intrinsic motivation. This can lead to extinguishing the intrinsic motivation and creating a dependence on extrinsic rewards for continued performance (Deci et al., 1999).

A classic research study of intrinsic motivation illustrates this problem clearly. In the study, researchers asked university students to perform two activities—solving puzzles and writing newspaper headlines—that they already found interesting. Some of the students were paid to do these activities, the others were not. Under these conditions, the students who were paid were less likely to continue to engage in these activities after the experiment, while the students who were not paid were more likely to continue—even though both groups had been equally interested in the activities to begin with (Deci, 1971). The extrinsic reward of payment, it seemed, interfered with the intrinsic reward of the activity itself.

Other studies suggest that intrinsic motivation may not be so vulnerable to the effects of extrinsic reinforcements, and in fact, reinforcements such as verbal praise might actually increase intrinsic motivation (Arnold, 1976; Cameron & Pierce, 1994). Several factors may influence this: for one, physical reinforcements (such as money) have been shown to have more negative effects on intrinsic motivation than do verbal reinforcements (such as praise). Furthermore, the expectation of the extrinsic motivator by an individual is crucial: if the person expects to receive an extrinsic reward, then intrinsic motivation for the task tends to be reduced. If, however, there is no such expectation, and the extrinsic motivation is presented as a surprise, then intrinsic motivation for the task tends to persist (Deci et al., 1999).

Other studies provide evidence that the effectiveness of extrinsic motivators varies depending on factors like self-esteem, locus of control (the extent to which someone believes they can control events that affect them), self-efficacy (how someone judges their own competence to complete tasks and reach goals), and neuroticism (a personality trait characterized by anxiety, moodiness, worry, envy, and jealousy). For example, praise might have less effect on behavior for people with high self-esteem because they would not have the same need for approval that would make external praise reinforcing. On the other hand, someone who lacks confidence may work diligently for the sole purpose of seeking even a small amount of recognition.

Achievement and Cognition in Motivation[22]

Cognitive and achievement approaches to motivation examine how factors like achievement goals and cognitive dissonance influence motivation.

LEARNING OBJECTIVE

Summarize the roles of achievement and cognition in motivation

KEY POINTS

- According to the achievement approach to motivation, the need for achievement drives accomplishment and performance and thereby motivates our behavior. People are motivated by different goals related to achievement, such as mastery or performance goals.
- Mastery goals are a form of intrinsic motivation that tend to be associated with the satisfaction of mastering the material at hand.
- Performance goals are extrinsically motivated and tend to be associated with wanting to attain positive outcomes or avoid negative outcomes.
- Cognitive approaches to motivation focus on how a person's cognitions—and especially cognitive dissonance—influence their motivation.
- The theory of cognitive dissonance proposes that people have a motivational drive to reduce contradictory cognitions by either changing or justifying their attitudes, beliefs, and behaviors.

TERMS

- master – To learn to a high degree of proficiency.
- extrinsic – External, separable from the thing itself, inessential.
- intrinsic – Innate, inherent, inseparable from the thing itself, essential.
- cognitive dissonance – A conflict or anxiety resulting from inconsistencies between one's beliefs and one's actions or other beliefs.

Motivation describes the wants or needs that direct behavior toward a goal. When we refer to someone as being motivated, we mean that the person is trying hard to accomplish a certain task; having motivation is clearly important for someone to perform well. Both the achievement and cognitive approaches to motivation examine the various factors that influence our motivation.

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Achievement Motivation

According to the achievement approach to motivation, the need for achievement drives accomplishment and performance and thereby motivates our behavior. People may be motivated by different goals related to achievement, and each of these goals affect one's motivation—and thereby behavior—differently. For instance, a student might be motivated to do well in an algebra class because it's interesting and will be useful to her in later courses (i.e., to *master* the material); to get good grades (i.e., to *perform well*); or to avoid a poor or failing mark (i.e., to *avoid performing poorly*). These goals are not mutually exclusive, and may all be present at the same time.

Mastery and Performance Goals

Mastery goals tend to be associated with the satisfaction of mastering something—in other words, gaining control, proficiency, comprehensive knowledge, or sufficient skill in a given area (such as *mastering* the art of cooking). Mastery goals are a form of intrinsic motivation (arising from internal forces) and have been found to be more effective than performance goals at sustaining students' interest in a subject. In one review of research about learning goals, for example, students with primarily mastery orientations toward a course they were taking not only tended to express greater interest in the course, but also continued to express interest well beyond the official end of the course and to enroll in further courses in the same subject (Harackiewicz, et al., 2002; Wolters, 2004).

Performance goals, on the other hand, are extrinsically motivated (arising from external factors) and can have both positive and negative effects. Students with performance goals often tend to get higher grades than those who primarily express mastery goals, and this advantage is often seen both in the short term (with individual assignments) and in the long term (with overall grade point average when graduating). However, there is evidence that performance-oriented students do not actually learn material as deeply or permanently as students who are more mastery-oriented (Midgley, Kaplan, & Middleton, 2001).

A possible reason is that measures of performance, such as test scores, often reward relatively shallow memorization of information; in other words, information that is "crammed" before a test is only remembered in the short-term and often forgotten immediately after the test. Because the "performance" is over, there are no negative consequences for forgetting the information relatively quickly, and this can prevent performance-oriented students from processing the information more thoughtfully or deeply. Another possible reason is that by focusing on gaining recognition as the top performer in a peer group, a performance orientation encourages competition with peers. Giving and receiving help from classmates is thus not in the self-interest of a performance-oriented student, and the resulting isolation can limit the student's learning.

Cognitive Dissonance

Cognitive approaches to motivation focus on how a person's motivation is influenced by their cognitions or mental processes. Of particular interest is the role of cognitive dissonance on motivation. Cognitive dissonance occurs when a person experiences conflict, contradiction, or inconsistency in their cognitions. These contradictory cognitions may be attitudes, beliefs, or awareness of one's behavior. Dissonance is strongest when a discrepancy has been noticed between one's self-concept and one's behavior. If you do something you are ashamed of or act in a way that is counter to an idea you have about yourself (for example, if you consider

yourself an honest person but then lie to your parents when they ask about your future plans), you are likely to feel cognitive dissonance afterward.

Cognitive Dissonance and Smoking: Smoking commonly causes cognitive dissonance. One rationalizes the health risks by telling themselves they are going to die anyway.

The theory of cognitive dissonance proposes that people have a motivational drive to reduce dissonance in their cognitions by either changing or justifying their attitudes, beliefs, and behaviors. How a person chooses to respond to the dissonance depends on the strength of various motivating factors. For example, smoking cigarettes increases the risk of cancer, which is threatening to the self-concept of the individual who smokes. When the smoker hears evidence suggesting that smoking might cause cancer (cognitive component), they can either choose to stop smoking (change the behavioral component) or choose to reject the causal link. Since smoking is physically addictive, most smokers choose to minimize their acknowledgement of the risk rather than change their behavior. The addiction is more motivating than the fear of possible long-term medical consequences, so the less-motivating idea is minimized and discounted. Most of us believe ourselves to be intelligent and rational, and the idea of doing something self-destructive causes dissonance. To reduce this uncomfortable tension, smokers might make excuses for themselves, such as "I'm going to die anyway, so it doesn't matter."

Another application of cognitive dissonance occurs in the case of *effort justification.* Dissonance is aroused whenever individuals voluntarily engage in an unpleasant activity to achieve some desired goal; this dissonance can be reduced by exaggerating the desirability of the goal. The more time, money, or effort someone invests in an activity, the more they will convince themselves that they made a wise choice and that their efforts were worth it. A child who has to work and save for a bicycle, for example, will value it more and take better care of it than if the bicycle was given as a gift, with no effort on the part of the child.

Erikson's 8 Stages of Psychosocial Development[23]

Erikson's psychosocial stages of development focus on the resolution of different crises to become a successful, complete person.

LEARNING OBJECTIVE

Summarize Erikson's stages of psychosocial development

KEY POINTS

- Erik Erikson (1902–1994) was a stage theorist who took Freud's controversial psychosexual theory and modified it into an eight-stage psychosocial theory of development.
- During each of Erikson's eight development stages, two conflicting ideas must be resolved successfully in order for a person to become a confident, contributing member of society. Failure to master these tasks leads to feelings of inadequacy.
- Erikson's eight stages of psychosocial development include trust vs. mistrust, autonomy vs. shame/doubt, initiative vs. guilt, industry vs. inferiority, identity vs. role confusion, intimacy vs. isolation, generativity vs. stagnation, and integrity vs. despair.
- Erikson also expanded upon Freud's stages by discussing the cultural implications of development; certain cultures may need to resolve the stages in different ways based upon their cultural and survival needs.

TERMS

- autonomy – Self-government; freedom to act or function independently.
- psychosocial – Having both psychological and social aspects.

Erikson's Theory

Erik Erikson (1902–1994) was a stage theorist who took Freud's controversial theory of psychosexual development and modified it as a psychosocial theory. Erikson emphasized that the ego makes positive contributions to development by mastering attitudes, ideas, and skills at each stage of development. This mastery helps children grow into successful, contributing members of society. During each of Erikson's eight stages, there is a psychological conflict that must be successfully overcome in order for a

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Modification of Erickson's Stages of Psychosocial Development. **Provided by**: Boundless. **Project**: Boundless Psychology. **License**: *CC BY-SA: Attribution-ShareAlike*

child to develop into a healthy, well-adjusted adult.

Erik Erikson developed his eight stages of psychosocial development based on Freud's psychosexual theory.

Stages of Psychosocial Development

Erikson's stages of psychosocial development are based on (and expand upon) Freud's psychosexual theory. Erikson proposed that we are motivated by the need to achieve competence in certain areas of our lives. According to psychosocial theory, we experience eight stages of development over our lifespan, from infancy through late adulthood. At each stage there is a crisis or task that we need to resolve. Successful completion of each developmental task results in a sense of competence and a healthy personality. Failure to master these tasks leads to feelings of inadequacy.

Erikson also added to Freud's stages by discussing the cultural implications of development; certain cultures may need to resolve the stages in different ways based upon their cultural and survival needs.

Trust vs. Mistrust

From birth to 12 months of age, infants must learn that adults can be trusted. This occurs when adults meet a child's basic needs for survival. Infants are dependent upon their caregivers, so caregivers who are responsive and sensitive to their infant's needs help their baby to develop a sense of trust; their baby will see the world as a safe, predictable place. Unresponsive caregivers who do not meet their baby's needs can engender feelings of anxiety, fear, and mistrust; their baby may see the world as unpredictable. If infants are treated cruelly or their needs are not met appropriately, they will likely grow up with a sense of mistrust for people in the world.

Autonomy vs. Shame/Doubt

As toddlers (ages 1–3 years) begin to explore their world, they learn that they can control their actions and act on their environment to get results. They begin to show clear preferences for certain elements of the environment, such as food, toys, and clothing. A toddler's main task is to resolve the issue of *autonomy vs. shame and doubt* by working to establish independence. This is the "me do it" stage. For example, we might observe a budding sense of autonomy in a 2-year-old child who wants to choose her

clothes and dress herself. Although her outfits might not be appropriate for the situation, her input in such basic decisions has an effect on her sense of independence. If denied the opportunity to act on her environment, she may begin to doubt her abilities, which could lead to low self-esteem and feelings of shame.

Initiative vs. Guilt

Once children reach the preschool stage (ages 3–6 years), they are capable of initiating activities and asserting control over their world through social interactions and play. According to Erikson, preschool children must resolve the task of *initiative vs. guilt.* By learning to plan and achieve goals while interacting with others, preschool children can master this task. Initiative, a sense of ambition and responsibility, occurs when parents allow a child to explore within limits and then support the child's choice. These children will develop self-confidence and feel a sense of purpose. Those who are unsuccessful at this stage—with their initiative misfiring or stifled by over-controlling parents—may develop feelings of guilt.

Industry vs. Inferiority

During the elementary school stage (ages 6–12), children face the task of *industry vs. inferiority.* Children begin to compare themselves with their peers to see how they measure up. They either develop a sense of pride and accomplishment in their schoolwork, sports, social activities, and family life, or they feel inferior and inadequate because they feel that they don't measure up. If children do not learn to get along with others or have negative experiences at home or with peers, an inferiority complex might develop into adolescence and adulthood.

Identity vs. Role Confusion

In adolescence (ages 12–18), children face the task of *identity vs. role confusion.* According to Erikson, an adolescent's main task is developing a sense of self. Adolescents struggle with questions such as "Who am I?" and "What do I want to do with my life?" Along the way, most adolescents try on many different selves to see which ones fit; they explore various roles and ideas, set goals, and attempt to discover their "adult" selves. Adolescents who are successful at this stage have a strong sense of identity and are able to remain true to their beliefs and values in the face of problemsand other people's perspectives. When adolescents are apathetic, do not make a conscious search for identity, or are pressured to conform to their parents' ideas for the future, they may develop a weak sense of self and experience role confusion. They will be unsure of their identity and confused about the future. Teenagers who struggle to adopt a positive role will likely struggle to "find" themselves as adults.

Intimacy vs. Isolation

People in early adulthood (20s through early 40s) are concerned with *intimacy vs. isolation.* After we have developed a sense of self in adolescence, we are ready to share our life with others. However, if other stages have not been successfully resolved, young adults may have trouble developing and maintaining successful relationships with others. Erikson said that we must have a strong sense of self before we can

develop successful intimate relationships. Adults who do not develop a positive self-concept in adolescence may experience feelings of loneliness and emotional isolation.

Generativity vs. Stagnation

When people reach their 40s, they enter the time known as middle adulthood, which extends to the mid-60s. The social task of middle adulthood is *generativity vs. stagnation.* Generativity involves finding your life's work and contributing to the development of others through activities such as volunteering, mentoring, and raising children. During this stage, middle-aged adults begin contributing to the next generation, often through childbirth and caring for others; they also engage in meaningful and productive work which contributes positively to society. Those who do not master this task may experience stagnation and feel as though they are not leaving a mark on the world in a meaningful way; they may have little connection with others and little interest in productivity and self-improvement.

Integrity vs. Despair

From the mid-60s to the end of life, we are in the period of development known as late adulthood. Erikson's task at this stage is called *integrity vs. despair.* He said that people in late adulthood reflect on their lives and feel either a sense of satisfaction or a sense of failure. People who feel proud of their accomplishments feel a sense of integrity, and they can look back on their lives with few regrets. However, people who are not successful at this stage may feel as if their life has been wasted. They focus on what "would have," "should have," and "could have" been. They face the end of their lives with feelings of bitterness, depression, and despair.

Kohlberg's Stages of Moral Development[24]

Kolhberg's theory of moral development states that we progress through three levels of moral thinking that build on our cognitive development.

LEARNING OBJECTIVE

Summarize Kohlberg's stages of psychosocial development

KEY POINTS

Lawrence Kohlberg expanded on the earlier work of cognitive theorist Jean Piaget to explain the moral development of children, which he believed follows a series of stages.

Kohlberg defined three levels of moral development: preconventional, conventional, and postconventional. Each level has two distinct stages.

During the preconventional level, a child's sense of morality is externally controlled. Children accept and believe the rules of authority figures, such as parents and teachers, and they judge an action based on its consequences.

During the conventional level, an individual's sense of morality is tied to personal and societal relationships. Children continue to accept the rules of authority figures, but this is now because they believe that this is necessary to ensure positive relationships and societal order.

During the postconventional level, a person's sense of morality is defined in terms of more abstract principles and values. People now believe that some laws are unjust and should be changed or eliminated.

Kohlberg's theory has been criticized for its cultural and gendered bias toward white, upper-class men and boys. It also fails to account for inconsistencies within moral judgments.

TERM

morality – Recognition of the distinction between good and evil or between right and wrong; respect for and obedience to the rules of right conduct; the mental disposition or characteristic of behaving in a manner intended to produce good results.

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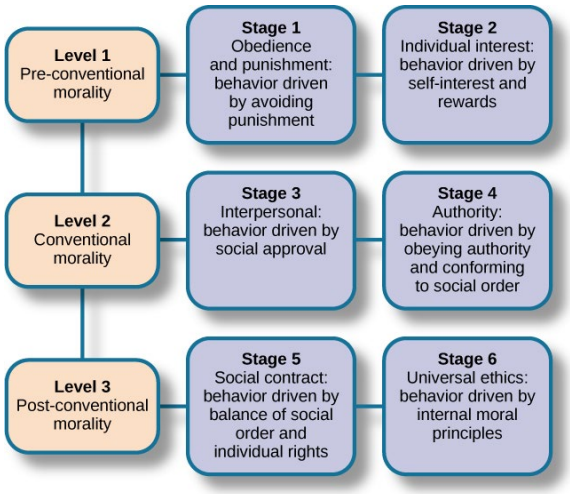
Modification of Kohlberg's Stages of Moral Development. **Provided by**: Boundless. **Project**: Boundless Psychology. **License**: *CC BY-SA: Attribution-ShareAlike*

Lawrence Kohlberg expanded on the earlier work of cognitive theorist Jean Piaget to explain the moral development of children. Kohlberg believed that moral development, like cognitive development, follows a series of stages. He used the idea of moral dilemmas—stories that present conflicting ideas about two moral values—to teach 10 to 16 year-old boys about morality and values. The best known moral dilemma created by Kohlberg is the "Heinz" dilemma, which discusses the idea of obeying the law versus saving a life. Kohlberg emphasized that it is the way an individual *reasons* about a dilemma that determines positive moral development.

After presenting people with various moral dilemmas, Kohlberg reviewed people's responses and placed them in different stages of moral reasoning. According to Kohlberg, an individual progresses from the capacity for pre-conventional morality (before age 9) to the capacity for conventional morality (early adolescence), and toward attaining post-conventional morality (once Piaget's idea of formal operational thought is attained), which only a few fully achieve. Each level of morality contains two stages, which provide the basis for moral development in various contexts.



Kohlberg's stages of moral development

Kohlberg identified three levels of moral reasoning: pre-conventional, conventional, and post-conventional. Each level is associated with increasingly complex stages of moral development.

Level 1: Preconventional

Throughout the preconventional level, a child's sense of morality is externally controlled. Children accept and believe the rules of authority figures, such as parents and teachers. A child with pre-conventional morality has not yet adopted or internalized society's conventions regarding what is right or wrong, but instead focuses largely on external consequences that certain actions may bring.

Stage 1: Obedience-and-Punishment Orientation

Stage 1 focuses on the child's desire to obey rules and avoid being punished. For example, an action is perceived as morally wrong because the perpetrator is punished; the worse the punishment for the act is, the more "bad" the act is perceived to be.

Stage 2: Instrumental Orientation

Stage 2 expresses the "what's in it for me?" position, in which right behavior is defined by whatever the individual believes to be in their best interest. Stage two reasoning shows a limited interest in the needs of others, only to the point where it might further the individual's own interests. As a result, concern for others is not based on loyalty or intrinsic respect, but rather a "you scratch my back, and I'll scratch yours" mentality. An example would be when a child is asked by his parents to do a chore. The child asks "what's in it for me?" and the parents offer the child an incentive by giving him an allowance.

Level 2: Conventional

Throughout the conventional level, a child's sense of morality is tied to personal and societal relationships. Children continue to accept the rules of authority figures, but this is now due to their belief that this is necessary to ensure positive relationships and societal order. Adherence to rules and conventions is somewhat rigid during these stages, and a rule's appropriateness or fairness is seldom questioned.

Stage 3: Good Boy, Nice Girl Orientation

In stage 3, children want the approval of others and act in ways to avoid disapproval. Emphasis is placed on good behavior and people being "nice" to others.

Stage 4: Law-and-Order Orientation

In stage 4, the child blindly accepts rules and convention because of their importance in maintaining a functioning society. Rules are seen as being the same for everyone, and obeying rules by doing what one is "supposed" to do is seen as valuable and important. Moral reasoning in stage four is beyond the need for individual approval exhibited in stage three. If one person violates a law, perhaps everyone would—thus there is an obligation and a duty to uphold laws and rules. Most active members of society remain at stage four, where morality is still predominantly dictated by an outside force.

Level 3: Postconventional

Throughout the postconventional level, a person's sense of morality is defined in terms of more abstract principles and values. People now believe that some laws are unjust and should be changed or eliminated. This level is marked by a growing realization that individuals are separate entities from society and that individuals may disobey rules inconsistent with their own principles. Post-conventional moralists live by their own ethical principles—principles that typically include such basic human rights as life, liberty, and justice—and view rules as useful but changeable mechanisms, rather than absolute dictates that must be obeyed without question. Because post-conventional individuals elevate their own moral evaluation of a situation over social conventions, their behavior, especially at stage six, can sometimes be confused with that of those at the pre-conventional level. Some theorists have speculated that many people may never reach this level of abstract moral reasoning.

Stage 5: Social-Contract Orientation

In stage 5, the world is viewed as holding different opinions, rights, and values. Such perspectives should be mutually respected as unique to each person or community. Laws are regarded as social contracts rather than rigid edicts. Those that do not promote the general welfare should be changed when necessary to meet the greatest good for the greatest number of people. This is achieved through majority decision and inevitable compromise. Democratic government is theoretically based on stage five reasoning.

Stage 6: Universal-Ethical-Principal Orientation

In stage 6, moral reasoning is based on abstract reasoning using universal ethical principles. Generally, the chosen principles are abstract rather than concrete and focus on ideas such as equality, dignity, or respect. Laws are valid only insofar as they are grounded in justice, and a commitment to justice carries with it an obligation to disobey unjust laws. People choose the ethical principles they want to follow, and if they violate those principles, they feel guilty. In this way, the individual acts because it is morally right to do so (and not because he or she wants to avoid punishment), it is in their best interest, it is expected, it is legal, or it is previously agreed upon. Although Kohlberg insisted that stage six exists, he found it difficult to identify individuals who consistently operated at that level.

Critiques of Kohlberg's Theory

Kohlberg has been criticized for his assertion that women seem to be deficient in their moral reasoning abilities when compared to men. Carol Gilligan (1982), a research assistant of Kohlberg, criticized her former mentor’s theory because it was based so narrowly on research using white, upper-class men and boys. She argued that women are not deficient in their moral reasoning and instead proposed that males and females reason differently: girls and women focus more on staying connected and maintaining interpersonal relationships.

Kohlberg's theory has been criticized for emphasizing justice to the exclusion of other values, with the result that it may not adequately address the arguments of those who value other moral aspects of actions. Similarly, critics argue that Kohlberg's stages are culturally biased—that the highest stages in particular reflect a westernized ideal of justice based on individualistic thought. This is biased against those that live in non-Western societies that place less emphasis on individualism.

Another criticism of Kohlberg’s theory is that people frequently demonstrate significant inconsistency in their moral judgements. This often occurs in moral dilemmas involving drinking and driving or business situations where participants have been shown to reason at a lower developmental stage, typically using more self-interest driven reasoning (i.e., stage two) than authority and social order obedience driven reasoning (i.e., stage four). Critics argue that Kohlberg's theory cannot account for such inconsistencies.