Adolescence, Brain Development and Legal Culpability

Context: "Adolescent Brains are a Work in Progress," by Sarah Spinks, from *Frontline: Inside the Teenage Brain*

Over the past 25 years, neuroscientists have discovered a great deal about the architecture and function of the brain. Their discoveries have led to huge strides in medicine, from pinpointing the timing at which children should be operated on for vision problems to shedding light on the mechanisms that cause such diseases as schizophrenia. Much of the early focus of the research was on the early years of development or on diseased brains. Now, with the advent of new imaging techniques, researchers are able to examine normal brains and brains of people throughout their lives.

With functional MRIs, researchers can see how the brain actually functions -- what parts of the brain use energy when performing certain tasks. They know, for instance, the particular part of the brain that "lights up" when performing a visual task. Those images in which brain activity is measured are called "functional" because they measure how the brain performs tasks rather than simply mapping out the structure of the brain.

However, knowing more about the structure of the brain does not necessarily tell us more about the function of the brain. It is a good hypothesis that if a particular structure is still immature, the functions it governs will show immaturity. Thus, there is fairly widespread agreement that adolescents take more risks at least partly because they have an immature frontal cortex, because this is the area of the brain that takes a second look at something and reasons about a particular behavior. However, moving from structure to function, deciding what behavior is caused by what part of the brain is much more complicated.

Question:

Write an essay that analyzes the claims regarding the relationship between brain development and legal culpability. Your essay should summarize the debate over the importance of new brain studies and take a position on whether or not we should apply this new knowledge to the law.

Culpability

1. *Frontline*: Juvenile Justice. "Child or Adult: A Century Long View."

2. Ortiz, Adam. "Cruel and Unusual Punishment: The Juvenile Death Penalty: Adolescence, Brain Development and Legal Culpability." American Bar Association: Juvenile Justice Center. Jan. 2004.

3. Bower, Bruce. "Teen Brains on Trial: The science of neural development tangles with the juvenile death penalty," *Science News Online*. 165. 19 (May 8, 2004)

4. Hubner, John. "Discarded Lives: Children Sentenced to Life Without Parole." *Amnesty International Magazine*. Spring, 2006.

5. MacArthur Foundation Research Network on Adolescent Development and Juvenile Justice. "Adolescent Legal Competence in Court." *Issue Brief 1*.

"Child or Adult: A Century Long View," *Frontline*: Juvenile Justice

The century old idea in the United States that children and adolescents are less culpable and more able to be rehabilitated than adults who commit crimes has been giving way to a harsher view in recent years. Here's an overview of the evolution of society's attitudes on dealing with juveniles who commit serious crimes.

In 18th century America, little distinction was made in the criminal culpability of children versus adults. Juveniles as young as age seven could be tried and sentenced in criminal courts. As psychologists and sociologists began to recognize the emerging notion of adolescence as a developmentally distinct period of life, reformers argued that children should be removed from adult prisons.

In 1825, the Society for the Prevention of Juvenile Delinquency founded the New York House of Refuge, the first institution designed to accommodate juvenile delinquents. Many cities and states soon followed this example and set up similar institutions. Progressive era reformers wanted to attack what they believed were the roots of juvenile delinquency–a lack of moral education and standards–and advocated that juvenile institutions include a significant educational and rehabilitative component. For their efforts, the earliest juvenile justice reformers were known as "child savers."

The child savers' advocacy resulted in the establishment of the first juvenile court in Cook County, Illinois, in 1899. The court was established under the British legal doctrine of *parens patriae* – "the State as parent" – which was interpreted to mean that it was the state's duty not only to protect the public interest in juvenile offender cases, but also to intervene and serve as the guardian of the interests of the children involved. As opposed to the adversarial adult criminal system, where the state's role was to prosecute the offender, the juvenile court had a more benevolent mission: it was designed to be flexible, informal and to tailor to a juvenile's individual needs, with the ultimate goal of rehabilitation. The process was subject to strict confidentiality in order to avoid any unnecessary stigmatization of minors. Because its goal of rehabilitation was not considered to be punitive, the court had no due process protections, and had jurisdiction over both criminal and status offenders (a category which applies only to minors and includes offenses such as vagrancy and truancy.) Judges played a paternal role, and were afforded tremendous discretion in order to achieve the goal of individualized rehabilitative justice. By 1925, 48 states had established a juvenile court system, which operated quietly until mid-century.

During the 1960s, civil libertarians began to raise concerns about the progressive era model of juvenile justice. They argued that despite rhetoric to the contrary, juveniles within the system were not actually being rehabilitated, but rather warehoused in institutions not much different from an adult prisons. If juveniles were going to be treated as adults in the sentencing phase, the advocates argued, they should also be accorded the due process protections afforded to adults in court. They also challenged the broad discretion given to juvenile court judges. In a series of rulings during the 1960s and 1970s, the U.S. Supreme Court agreed: "There is evidence, in fact, that there may be grounds for concern that the child receives the worst of both worlds: that he gets neither the protections accorded to adults nor the solicitous care and regenerative treatment postulated for children," wrote Justice Abe Fortas in Kent v. United States. In decisions such as Kent, In re Gault and In re Winship, the Supreme Court ruled that juveniles must be afforded due process protections including: formal hearings when facing waiver to criminal court; protection against self-incrimination; the rights to notice of charges, counsel, and cross-examination of witnesses; and adherence to the "proof beyond a reasonable doubt" judicial standard.

In the early 1970s, several class-action lawsuits attacked the conditions and policies of the juvenile institutions, alleging cruel and unusual punishment. Social critics advocated deinstitutionalization and argued for more preventative and community-based programs to assail the roots of juvenile delinquency, particularly in urban areas. In 1974, Congress passed the Juvenile Justice and Delinquency Prevention Act, which still governs the juvenile justice system today. The act required the separation of juvenile offenders from adult offenders, and the deinstitutionalization of status offenders. A

1980 amendment mandated that juveniles could not be placed in adult jails, with a few exceptions. The 1974 act also created the federal Office of Juvenile Justice and Delinquency Prevention (OJJDP) and offered grants to encourage states to develop community-based programs as alternatives to institutionalization. Law enforcement experimented with the introduction of community-based correctional facilities, such as group homes and halfway houses.

However, this preventative approach to the delinquency problem was short-lived. In the mid-1970s, as the media began to highlight rising violent crime rates, the American public demanded the conservative "get tough" approach to crime still widely endorsed today. State legislatures reacted to the public's demands for accountability by passing more punitive juvenile justice laws. The conservative trend continued in the 1990s: almost every state passed laws making it easier to try juveniles in adult criminal courts; 31 states passed laws expanding sentencing options; 47 states modified confidentiality provisions for juvenile courts; and 22 states passed laws increasing the victim's role in juvenile court processing.

More than any time in recent history, the system is turning back toward treating juvenile offenders like adults.

Sources:

Bernard, Thomas J. *The Cycle of Juvenile Justice*. New York: Oxford UP, 1992.

Krisberg, Barry and Austin, James F. *Reinventing Juvenile Justice*. Newbury Park, CA: Sage, 1993.

Guarino-Ghezzi, Susan and Loughran, Edward J. *Balancing Juvenile Justice*. New Brunswick, NJ: Transaction, 1996.

Office of Juvenile Justice and Delinquency Prevention. "Juvenile Justice: A Century of Change." Washington DC: Office of Juvenile Justice, 1999.

"Cruel and Unusual Punishment: The Juvenile Death Penalty: Adolescence, Brain Development and Legal Culpability"

> "[They] frequently know the difference between right and wrong and are competent to stand trial. Because of their impairments, however, by definition they have diminished capacities to understand and process mistakes and learn from experience, to engage in logical reasoning, to control impulses, and to understand the reactions of others.... Their deficiencies do not warrant an exemption from criminal sanctions, but they do diminish their personal culpability."
>
> Atkins v. Virginia, 536 U.S. 304, 318, 122 S.Ct. 2242, 2250 (2002)

In 2002, the U.S. Supreme Court banned the execution of mentally retarded persons. This decision, *Atkins v. Virginia*, cited the underdeveloped mental capacities of those with mental retardation as a major factor behind the Justices' decision. Adolescence is a transitional period during which a child is becoming, but is not yet, an adult. An adolescent is at a crossroads of changes where emotions, hormones, judgment, identity and the physical body are so in flux that parents and even experts struggle to fully understand.

As a society, we recognize the limitations of adolescents and, therefore, restrict their privileges to vote, serve on a jury, consume alcohol, marry, enter into contracts, and even watch movies with mature content. Each year, the United States spends billions of dollars to promote drug use prevention and sex education to protect youth at this vulnerable stage of life. When it

comes to the death penalty, however, we treat them as fully functioning adults.

- **The Basics of the Human Brain**

The human brain has been called the most complex three-pound mass in the known universe. This is a well deserved reputation, for this organ contains billions of connections among its parts and governs countless actions, involuntary and voluntary, physical, mental and emotional.

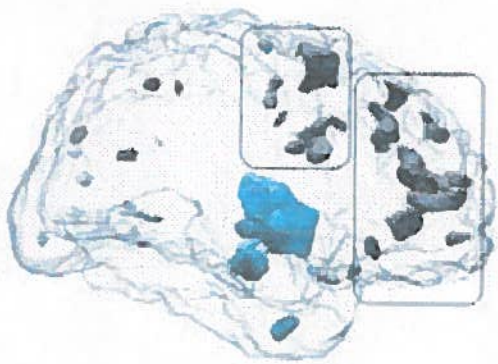
The largest part of the brain is the *frontal lobe*. A small area of the frontal lobe located behind the forehead, called the *prefrontal cortex*, controls the brain's most advanced functions. This part, often referred to as the "CEO" of the body, provides humans with advanced cognition. It allows us to prioritize thoughts, imagine, think in the abstract, anticipate consequences, plan, and control impulses.

Along with everything else in the body, the brain changes significantly during adolescence. In the last five years, scientists, using new technologies, have discovered that adolescent brains are far less developed than previously believed.

- **New Technology, New Discoveries**

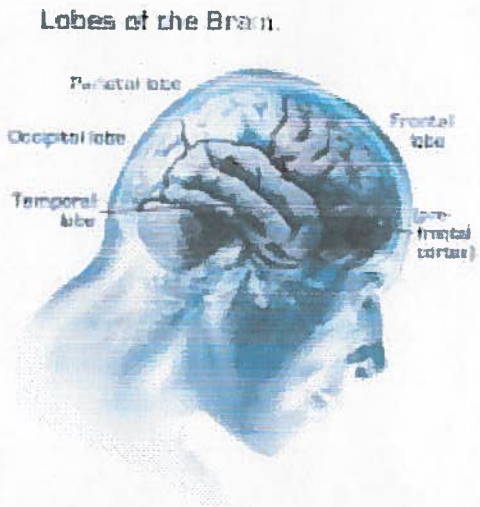
Scientists are now utilizing advances in magnetic resonance imaging (MRI) to create and study three-dimensional images of the brain without the use of radiation (as in an x-ray). This breakthrough allows scientists to safely scan children over many years, tracking the development of their brains.[1]

Researchers at Harvard Medical School, the National Institute of Mental Health, UCLA, and others, are collaborating to "map" the development of the brain from childhood to adulthood and examine its implications.



A three dimensional "map" showing portions of gray matter "pruned" from the brain between adolescence and adulthood. The dark portions in the two boxes indicate sections that will be discarded from the **frontal lobe**. The box on the far right indicates the **prefrontal cortex**, a subsection of the frontal lobe that controls judgment.

Image adapted from *Nature Neuroscience*.



©2002 Hybrid Medical Animation

The scientists, to their surprise, discovered that the teenage brain undergoes an intense overproduction of *gray matter* (the brain tissue that does the "thinking"). Then a period of "pruning" takes over, during which the brain discards gray matter at a rapid rate.[2] This process is similar to pruning a tree: cutting back branches stimulates health and growth.

In the brain, pruning is accompanied by *myelination*, a process in which *white matter* develops. White matter is fatty tissue that serves as insulation for the brain's circuitry, making the brain's operation more precise and efficient.[3]

Researchers have carefully scrutinized the pace and severity of these changes and have learned that they continue into a person's early 20s. Dr. Elizabeth Sowell, a member of the UCLA brain research team, has led studies of brain development from adolescence to adulthood. She and her colleagues found that the frontal lobe undergoes far more change during adolescence than at any other stage of life.[4] It is also the last part of the brain to develop, which means that even as they become fully capable in other areas, adolescents cannot reason as well as adults: "[m]aturation, particularly in the frontal lobes, has been shown to correlate with measures of cognitive functioning."[5]

- **Biology and Behavior**

Jay Giedd, a researcher at the National Institute of Mental Health, explains that during adolescence the "part of the brain that is helping organization, planning and strategizing is not done being built yet.... It's sort of unfair to expect [adolescents] to have adult levels of organizational skills or decision making before their brain is finished being built."[6]

Dr. Deborah Yurgelun-Todd of Harvard Medical School has studied the relation between these new findings and teen behavior and concluded that adolescents often rely on emotional parts of the brain, rather than the frontal lobe. She explains, "one of the things that teenagers seem to do is to respond more strongly with gut response than they do with evaluating the consequences of what they're doing."[7]

Also, appearances may be deceiving: "Just because they're physically mature, they may not appreciate the consequences or weigh information the same way as adults do. So we may be

mistaken if we think that [although] somebody looks physically mature, their brain may in fact not be mature."[8]

This discovery gives us a new understanding into juvenile delinquency. The frontal lobe is "involved in behavioral facets germane to many aspects of criminal culpability,"[9] explains Dr. Ruben C. Gur, neuropsychologist and Director of the Brain Behavior Laboratory at the University of Pennsylvania. "Perhaps most relevant is the involvement of these brain regions in the control of aggression and other impulses.... If the neural substrates of these behaviors have not reached maturity before adulthood, it is unreasonable to expect the behaviors themselves to reflect mature thought processes.

"The evidence now is strong that the brain does not cease to mature until the early 20s in those relevant parts that govern impulsivity, judgment, planning for the future, foresight of consequences, and other characteristics that make people morally culpable.... Indeed, age 21 or 22 would be closer to the 'biological' age of maturity."[10]

- **Other Changes in the Body**

In addition to the profound physical changes of the brain, adolescents also undergo dramatic hormonal and emotional changes. One of the hormones which has the most dramatic effect on the body is testosterone. Testosterone, which is closely associated with aggression, increases tenfold in adolescent boys.[11]

Emotionally, an adolescent "is really both part child and part adult,"[12] explains Melvin Lewis, an expert in child psychiatry and pediatrics at Yale University School of Medicine. Normal development at this time includes self-searching, during which the adolescent tries to grow out of his or her childlike self. This change is complicated by the conflict between an adolescent's new sense of adult identity and remaining juvenile insecurities.

The behaviors associated with this process include self-absorption, a need for privacy, mood swings, unique dress, and escapism, such as video games, music, and talking on the phone, as well as riskier behaviors, such as drug use or sexual activity.[13]

- **Childhood Abuse and Violence**

In addition to this context of change and volatility, research shows that abusive childhood experiences can trigger violent behavior. The American Academy of Pediatrics has identified several risk factors that can spark violence in adolescents, including being witness to domestic violence or substance abuse within the family, being poorly or inappropriately supervised, and being the victim of physical or sexual assault.[14]

Researcher Phyllis L. Crocker of Cleveland-Marshall College of Law has written that "the nexus between poverty, childhood abuse and neglect, social and emotional dysfunction, alcohol and drug abuse and crime is so tight in the lives of many capital defendants as to form a kind of social historical profile."[15]

Dr. Chris Mallett, Public Policy Director at Bellefaire Jewish Children's Bureau in Ohio, recently completed the most comprehensive study of traumatic experiences in the lives of death row juvenile offenders to date.[16] He found that:

- 74% experienced family dysfunction[17]
- 60% were victims of abuse and/or neglect[18]
- 43% had a diagnosed psychiatric disorder[19]

- 38% suffered from substance addictions[20]
- 38% lived in poverty[21]

More than 30% of death row juvenile offenders had experienced six or more distinct areas of childhood trauma with an overall average of four such experiences per offender. Most children and adolescents do not face even one of these defined areas of difficulty.[22] Mallett also found that such mitigating evidence was presented to juries in fewer than half of the offenders' trials.[23]

Mallett's research confirmed findings in previous studies. In 1992, researchers found that two-thirds of all juveniles sentenced to death had backgrounds of abuse, psychological disorders, low IQ, indigence, and/or substance abuse.[24]

In 1987, an investigation into 14 juveniles on death row[25] (40% of the total at the time) revealed that nine had major neuropsychological disorders[26] and seven had psychotic disorders since early childhood.[27] All but two had IQ scores under 90.[28] Only three had average reading abilities, and another three had learned to read only after arriving on death row.[29] Twelve reported having been physically or sexually abused, including five who were sodomized by relatives.[30]

- **Delinquency Link**

The turmoil often associated with adolescence can result in poor decisions and desperate behaviors. For example, studies have found that 20 to 30% of high school students consider suicide. Suicide is the third-leading cause of death among teenagers, occurring once every two hours, or over 4,000 times a year, according to the U.S. Surgeon General.[31] Approximately 30% of youths reported using an illicit drug at least once during their lifetime, and 22.2% reported using an illicit drug within the past year.[32]

- **Conclusion**

New discoveries provide scientific confirmation that the teen years are a time of significant transition. They shed light on the mysteries of adolescence and demonstrate that adolescents have significant neurological deficiencies that result in stark limitations of judgment. Research suggests that when compounded with risk factors (neglect, abuse, poverty, etc.), these limitations can set the psychological stage for violence.

These discoveries support the assertion that adolescents are less morally culpable for their actions than competent adults and are more capable of change and rehabilitation. The ultimate punishment for minors is contrary to the idea of fairness in our justice system, which accords the greatest punishments to the most blameworthy.

This fresh understanding of adolescence does not excuse juvenile offenders from punishment for violent crime, but it clearly lessens their culpability. This concept is not new; it is why we refer to those under 18 as "minors" and "juveniles"— because, in so many respects, they are *less than adult*.

Sources

[1] For an excellent overview, see Elkhonon Goldberg, *The Executive Brain: Frontal Lobes and the Civilized Mind*, Oxford University Press (2001).

[2] Sowell, Elizabeth R, Paul M. Thompson, Colin J. Holems, Terry L. Jernigan and Arthur W. Toga. *In vivo evidence for post-adolescent brain maturation in frontal and striatal regions.* 2 Nature Neuroscience 10 (1999), also Paus, Tomas, Jay Giedd, et. Al. "Structural maturation of

neural pathways in children and adolescents: in vivo study." *Science*, 283 (1999).

[3] Id.

[4] Id.

[5] Sowell, Elizabeth R, Paul M. Thompson, Kevin D. Tessner and Arthur W. Toga. "Mapping continued brain growth and gray matter density reduction in dorsal frontal cortex: inverse relationships during postadolescent brain maturation" 21 *Journal of Neuroscience* 22 (2001), at 8819, also Reiss, A.L., et. Al., "Brain development, gender and IQ in children, a volumetric imaging study." *Brain*, 119 (1996).

[6] PBS Frontline, *Inside the Teen Brain*. See *Interview with Jay Giedd*, online at www.pbs.org/wgbh/pages/frontline/shows/teenbrain/.

[7] Id, at *Interview with Deborah Yurgelun-Todd.*

[8] Id.

[9] Gur, Ruben C. Declaration of Ruben C. Gur., PhD, *Patterson v.Texas.* Petition for Writ of Certiorari to US Supreme Court, J. Gary Hart, Counsel. (Online at: www.abanet.org/crimjust/juvjus/patterson.html)

[10] Id.

[11] See Adams, Gerald R., Raymond Montemayor, and Thomas P. Gullota, eds. *Psychosocial Development during Adolescence.* Thousand Oaks, CA, Sage Publications (1996).

[12] Lewis, Melvin. *Child and Adolescent Psychiatry: A comprehensive textbook,* Lippincott Williams and Wilkins (2002).

[13] See id, and Cobb, Nancy J. *Adolescence: Continuity, Change and Diversity.* Mayfield Publishing, CA (1998).

[14] American Society of Pediatrics, *Policy Statement,* 1 *Pediatrics*, 103 (1999).

[15] Phyllis L. Crocker. "Childhood Abuse and Adult Murder: Implications for the Death Penalty" 77 NC L. Rev. 1143 (1999).

[16] Mallett, Chris. "Socio-Historical Analysis of Juvenile Offenders on Death Row." 3 Juv. Corr. *Mental Health Report* 65 (2003).

[17] Id., at 77.

[18] Id., at 78.

[19] Id., at 77.

[20] Id., at 78.

[21] Id.

[22] Id.

[23] Id.

[24] Robinson, DA and Stephens, OH; "Patterns of mitigating factors in juvenile death penalty cases." *Criminal Law Bulletin* 28 (1992).

[25] Lewis, DO, Pincus, Bard, Richardson, Prichep, Feldman, Yeager. "Neuropsychiatric, psychoeducational, and family characteristics of 14 juveniles condemned to death in the United States", 5 *Am. J. of Psychiatry* 145 (1988).

[26] Id.

[27] Id.

[28] Id.

[29] Id.

[30] Id.

[31] Office of the U.S. Surgeon General, *At a Glance, Suicide Among the Young:* Online at www.surgeongeneral.gov/library/calltoaction/fact3.htm

[32] White House Office of National Drug Control Policy, Juveniles and Drugs, at www.whitehousedrugpolicy.gov/drugfact/juveniles/index.html

"Teen Brains on Trial: The science of neural development tangles with the juvenile death penalty," by Bruce Bower

Mental maturity? New data on teens' unfinished brain development may aid efforts to get rid of the juvenile death penalty in the United States.

Later this year, the U.S. Supreme Court will hear arguments about whether federal law should continue to permit executions of 16- and 17-year-olds convicted of murder. On this life-or-death issue, controversial legal and ethical views on teenagers' capacity to control their behavior and obey the law will take center stage. However, a relative newcomer to the debate – the burgeoning science of brain development – may critically influence the high court's final decision.

A coalition of psychiatric and legal organizations plans to submit a brief to the justices contending that teenagers often make poor decisions and act impulsively because their brains haven't attained an adult level of organization. Consequently, the coalition argues, teenage killers are less culpable for their crimes than their adult counterparts are. Capital punishment of teens thus violates the constitutional amendment protecting citizens from cruel and unusual punishment.

"Our objection to the juvenile death penalty is rooted in the fact that adolescents' brains function in fundamentally different ways than adults' brains do," says David Fassler, a psychiatrist at the University of Vermont in Burlington and a leader of the effort to infuse capital-crime laws with brain science.

Age-related brain differences pack a real-world wallop, in his view. "From a biological perspective," Fassler asserts, "an anxious adolescent with a gun in a convenience store is more likely to perceive a threat and pull the trigger than is an anxious adult with a gun in the same store."

Fassler and two like-minded colleagues – neuropsychologist Ruben Gur of the University of Pennsylvania in Philadelphia and lawyer Stephen Harper of the University of Miami – spoke in March at a Washington, D.C., press conference convened by groups that included the American Psychiatric Association and the American Bar Association.

Yet the zeal with which these organizations now wield brain studies to fight the juvenile death penalty masks a deep division among scientists about whether the data are ready for legal prime time.

Some researchers agree that capital-punishment laws should incorporate what's known about teenagers' incomplete brain development, even if the scientific story contains gaps. Don't excuse criminal behavior, these scientists say, but acknowledge that adolescents who kill don't deserve the ultimate punishment.

Members of another camp argue that brain science doesn't belong in court because there's no evidence linking specific characteristics of teens' brains to any legally relevant condition, such as impaired moral judgment or an inability to control murderous impulses.

"Juvenile death sentences bother me, but this is an ethical issue," remarks Harvard University psychologist Jerome Kagan. "The brain data don't show that adolescents typically have reduced legal culpability for crimes."

Frontal assault

Plans to apply brain science to balance the scales of justice come at a time when the juvenile death penalty is already on the defensive.

As of January 2004, 29 states prohibited capital punishment of juveniles. Legislation to bar the death penalty for offenders under 18 years old is being considered in 14 additional states. Juvenile-death-penalty foes find this trend encouraging, since the Supreme Court justified its 2002 ruling against executing mentally retarded offenders by citing bans on that practice in 30 states.

Another heartening sign for opponents of the juvenile death penalty occurred in December 2003, when a Virginia jury decided to sentence 17-year-old Lee Malvo to life in prison for his participation in the D.C.-area sniper killings.

However, growing evidence that teenagers possess unfinished brains has received far more attention in the media than in the courts, Harper says. The legal system doesn't appreciate that young people's brains aren't fully equipped for making long-term plans and reining in impulses, he contends.

Much of the concern about teen brains focuses on the frontal lobes. One way that scientists have learned about frontal lobe activity is by identifying associations between certain behaviors and increased frontal activity in healthy people. That work elaborated on previous studies of behavior changes in individuals who had suffered frontal-brain damage. Together, the findings implicate this neural region in regulating aggression, long-range planning, mental flexibility, abstract thinking, the capacity to hold in mind related pieces of information, and perhaps moral judgment.

Other investigations indicate that the number of brain cells and their connections surge just before puberty. But through late adolescence, pruning of excess neurons and their linkages produces substantial declines in the volume of the part of the brain, called the gray matter, that contains the cell bodies. Therefore, the brain changes during adolescence mirror the initial wave of gray matter expansion in the womb and during the first 18 months of life, followed by a trimming-back period.

Using magnetic resonance imaging (MRI) scanners to probe the brains of healthy teenagers and young adults, Elizabeth R. Sowell of the University of California, Los Angeles (UCLA) and her colleagues reported in 1999 that myelin, the fatty tissue around nerve fibers that fosters transmission of electrical signals, accumulates especially slowly in the frontal lobe.

The late phase of myelin formation, occurring in teenagers, provides a neural basis for assuming that teens are less blameworthy for criminal acts that adults are, Gur says. There's no way to say whether, for example, an individual 17-year-old possesses a fully mature brain. But the biological age of maturity generally falls around age 21 or 22, in Gur's view.

Although 18 years old represents an arbitrary cutoff age for receiving a capital sentence, it's preferable to 17, according to Gur.

"These brain data create reasonable doubt that a teenager can be held culpable for a crime to the same extent that an adult is," agrees neuroscientist J. Anthony Movshon of New York University.

Fear factor

Abigail A. Baird of Dartmouth College in Hanover, N.H., also suspects that delayed neural development undermines teens' judgment in ways that affect their legal standing. "There's no reason to say adulthood happens at age 18," Baird says. Unlike Gur, however, she estimates that the brain achieves maturity at age 25 or 26.

A 1999 investigation led by Baird and Deborah Yurgelun-Todd of Harvard Medical School in Boston raised the possibility that certain characteristics of teens' brains make it difficult for them to recognize when other people are scared. They tested 12 teenagers, ages 12 to 17. A functional magnetic

resonance imaging (fMRI) scanner measured changes throughout participants' brains in blood flow, which studies have indicated reflect dips and rises in neural activity. As the teens briefly viewed and identified fear in pictures of people who had intentionally tried to look scared, the researchers observed marked increases in activity of an almond-shaped inner-brain structure called the amygdala.

Neuroscientists suspect that the amygdala is important for learning to attach emotional significance to facial expressions and other stimuli. However, the results of Baird and Yurgelun-Todd indicated that there may not be a simple relationship between amygdala activity and accurate face reading.

The teen volunteers – all with active amygdalas – incorrectly identified one in four fear expressions, usually labeling them as angry, sad, or confused.

In an ensuing fMRI study directed by Yurgelun-Todd, 16 participants ages 12 to 17 also erred frequently when labeling the emotion on fearful faces. Those less than 14 years old answered incorrectly about half the time and yet showed the most amygdala activity, while older teens made fewer errors and displayed less activity in the amygdala and more in the frontal lobes than the younger participants did.

Previous studies had found that, when given the same task, adults label most fearful expressions correctly and exhibit much more activity in the frontal lobes than in the amygdala.

The results in these small experiments remain preliminary. Even if the findings hold up, it's not clear whether young teens' difficulties in discerning fearful expressions stem from incomplete brain development or reflect unique duties assumed by the frontal lobes during adolescence. What's more, teenagers and adults have yet to be similarly tested with faces displaying emotions other than fear.

Baird's ongoing research suggests that the teen frontal brain indeed responds to spontaneous emotional expressions on the faces of friends and family members.

"Kids say that the posed expressions we show them look kind of weird," Baird says.

Other evidence suggests that mental efficiency in solving emotion-related tasks – indicated by the time taken to answer them correctly – suffers with the arrival of puberty, when gray matter volume in the frontal lobes hits its peak, according to Robert F. McGivern of San Diego State University.

Response speed improves gradually after puberty and stabilizes at around age 15, a time when substantial neural pruning and myelin expansion in the frontal lobes have already occurred, McGivern and his colleagues reported in 2002.

The researchers had studied 246 youngsters, ages 10 to 17, and 49 young adults, ages 18 to 22. In one trial, participants saw a series of faces with various posed expressions – happy, angry, sad, or neutral – after being told to answer "yes" if they saw a happy face and "no" for all others. Each face appeared for only a fraction of a second.

The participants then completed three additional trials in which they were told to answer "yes" for angry, sad, or neutral faces.

Girls responded to these problems more slowly at ages 11 and 12 than they did at age 10, while boys took longer to answer at age 12 than they did at ages 11 or 10. These declines closely corresponded to puberty's onset in each sex, McGivern says.

Cycles of brain growth in boys and girls, which are timed differently during adolescence, sometimes aid and sometimes hinder mental dexterity in detecting various emotions, in McGivern's view.

Risky business

Scientists are also beginning to probe the brain's contributions to teenagers' penchant for risky and impulsive behaviors, such as experimenting with illicit drugs. Preliminary data indicate that, while

playing a simple game to win monetary prizes, adolescents exhibit weaker activity than young adults do in a brain region that scientists consider to be crucial for motivating efforts to obtain rewards or attain goals.

A team led by James M. Bjork of the National Institute on Alcohol Abuse and Alcoholism in Bethesda, Md., used fMRI to scan the brains of 24 people, half between ages 12 and 17 and the rest between 22 and 28. Brain measurements were taken as the participants decided whether to press a button upon seeing various visual cues, only one of which they had been told to respond to. On some trials, correct answers yielded prizes of 20 cents, 1 dollar, or 5 dollars. On others, correct answers prevented losses of those amounts.

The prospect of gaining or losing money elicited many common responses in the brains of teens and young adults, the scientists reported in the Feb. 25 *Journal of Neuroscience*. However, on potential moneymaking trials, teens displayed unusually weak activity in the right ventral striatum, a structure at the brain's base that's been implicated in fueling the motivation to acquire rewards.

This finding is consistent with the theory that the amount of stimulation that's enough to give adults a motivational boost is insufficient to arouse teens. To get the same rewarding feeling, teens may seek the added lift that comes from risky behaviors. Bjork and his coworkers plan to conduct larger fMRI studies of teen motivation that include youngsters prone to delinquency and drug abuse.

There's still a long way to go in untangling how brain development influences what teens do and why they do it, remarks Jay N. Giedd of the National Institute of Mental Health in Bethesda. Courts and legislatures grappling with the juvenile death penalty nonetheless need to consider the brain's unfinished status during adolescence, especially in the frontal lobes, according to Giedd, a pioneer in research on brain development.

Adds neuroscientist Bruce McEwen of Rockefeller University in New York City, "There's enough known about brain development to call for serious discussions between scientists and the legal community."

Immature data

UCLA's Elizabeth Sowell, another prominent brain-development researcher, takes a dim view of the movement to apply neuroscience to the law. Delayed frontal-lobe maturation may eventually be shown to affect teenagers' capacity to make long-term plans and control their impulses, she says, but no current research connects specific brain traits of typical teenagers to any mental or behavioral problems.

"The scientific data aren't ready to be used by the judicial system," she remarks. "The hardest thing [for neuroscientists to do] is to bring brain research into real-life contexts."

The ambiguities of science don't mix with social and political causes, contends neuroscientist Bradley S. Peterson of the Columbia College of Physicians and Surgeons in New York City. For instance, it's impossible to say at what age teenagers become biologically mature because the brain continues to develop in crucial ways well into adulthood, he argues.

A team led by Sowell and Peterson used an MRI scanner to probe the volume of white and gray matter throughout the brains of 176 healthy volunteers, ages 7 to 87. The researchers reported in the March 2003 *Nature Neuroscience* that myelin formation – measured by the total volume of white matter in the entire brain – doesn't reach its peak until around age 45.

Although gray matter volume generally declines beginning around age 7, it steadily increases until age 30 in a temporal-lobe region associated with language comprehension.

Such findings underscore the lack of any sharp transition in brain development that signals maturity, according to neuroscientist William T. Greenough of the University of Illinois at Urbana-

Champaign. Definitions of adulthood change depending on social circumstances, Greenough points out. Only 200 years ago, Western societies regarded 16-year-olds as adults.

"Brain science offers no simple take-home message about adolescents," says B.J. Casey of Cornell University's Weill Medical College in New York City. "It's amazing how little we know about the developing brain."

Brain-scanning techniques, including the popular fMRI, remain a "crude level of analysis," Casey notes. At best, blood-flow measurements indirectly tap into brain-cell activity as people perform a task, such as identifying emotions in posed faces, that may superficially simulate a real-world endeavor. What's more, many critical brain-cell responses are too fast for MRI to track.

Brain data, particularly those on delayed frontal-lobe growth in adolescents, also need to be put in a cultural and historical perspective, Harvard's Kagan asserts. Frontal-lobe development presumably proceeds at roughly the same pace in teenagers everywhere. Yet current rates of teen violence and murder vary from remarkably low to alarmingly high from country to country, he notes.

"Something about cultural context must be critical here," Kagan says.

"Under the right conditions, 15-year-olds can control their impulses without having fully developed frontal lobes."

If incomplete brains automatically reduce adolescents' capacity to restrain their darker urges, "we should be having Columbine incidents every week," he adds.

Several research teams have now undertaken the difficult task of searching for links between specific traits of teens' brains and their real-life decisions and behaviors, says psychiatrist Ronald Dahl of the University of Pittsburgh Medical Center. "Brain data are eventually going to support reduced legal culpability for adolescents," Dahl predicts "but we're not quite there yet."

It remains to be seen where the Supreme Court is.

"Discarded Lives: Children Sentenced to Life Without Parole," By John Hubner

[John Hubner is the author of *Last Chance in Texas: The Redemption of Criminal Youth* (Random House, 2005).]

In the late 1800s a special juvenile court was created with the goal of altering the trajectories of troubled lives. But a wave of "tough on crime" legislation has put thousands of child offenders in prison for life, with no hope of freedom.

At age eight, Dietrick Mitchell was sweet-natured and eager to go to school. By 16, he was "a mess, without discipline," says his aunt, Linda Mitchell, who raised the boy in Aurora, Colo., west of Denver. Dietrick did not know his father; his mother was "into drugs, she was cracked-out. She kept Dietrick because she wanted the social welfare."

On a fateful day in August 1991, a friend gave Dietrick the keys to a Toyota. Dietrick did not have a license, but he spent the day drinking and driving around Denver with his 18- year-old girlfriend in the front seat and a 14-year-old boy in back. When a police officer spotted the car and turned to follow it, Dietrick took off. He rounded a corner and looked back to see if the officer was behind him.

Danny Goetsch, 16, and two friends were walking three abreast. Danny was in the street near the curb; the Toyota hit Danny, sending him airborne. His head came down on the curb. Dietrick and his friends fled. Danny died the next day. When Dietrick saw the story on television, his aunt says, he 'went

into a state of shock.' After he told her what had happened, she told Dietrick he had to face the consequences and took him to a police station. She did not hire an attorney.

Prosecutors charged Dietrick with first-degree murder with "extreme indifference." Although experts testified that the accident was not likely gang-related, the 14-year-old passenger told the court Dietrick had shouted, "That's three points!" after hitting the victim, as if he would be rewarded by a gang. The jury convicted Dietrick, and in 1992 he joined the swelling ranks of child offenders in the United States serving life without parole. He turned 30 in prison last year.

A new report by Amnesty International and Human Rights Watch (HRW) found that at least 2,225 prisoners in the United States are serving life without parole for crimes they committed as minors. The sentence is rare elsewhere in the world — a total of 12 child offenders are serving life terms in Israel, South Africa and Tanzania. But in the United States, two decades of mandatory sentencing laws and increasing prosecutorial discretion to try children as adults have created an entire population of young prisoners who will live the rest of their days behind bars.

Linda Mitchell was devastated. "A boy was dead who should be alive, but I saw it as an accident," she says, "Dietrick wasn't trying to kill Danny."

"Dietrick did a terrible, stupid thing. But should he pay for that terrible stupid thing by being locked up for the whole of his natural life? Giving him life without parole didn't stop hit and runs; they happen all the time."

Dietrick's dead-end sentence did, however, conform to the extreme racial disparity in child life without parole sentencing. The AI-HRW report found that black youth are serving life without parole sentences at a rate that is 10 times higher than white youth. This is consistent with studies published by the Department of Justice's juvenile division, the Office of Juvenile Justice and Delinquency Prevention (OJJDP), which have shown there is an over-representation of minorities at all levels of the juvenile justice system.

There are varying opinions on why minority youth are incarcerated at higher rates than white youth. In the first, racial bias plays no role. Proponents of this theory argue the higher rates are the inevitable result of minority youth committing more crimes and more serious crimes than white youth. Another theory is that racism and poverty play their part in a complex social equation. "There is discrimination in the recurring circumstances, in the hard but true fact that if you are poor and a minority, your opportunities for rehabilitation are diminished," says Dr. Leonard E. Lawrence, former chair of the Texas Youth Commission Board of Directors and a professor emeritus of psychiatry at the University of Texas Health Science Center at San Antonio. "We have to take those conditions into consideration, but we cannot use them to excuse criminal behavior."

But researchers who study the effects of race in the juvenile justice system believe that, under the third scenario, skin color all too often is the determining factor in sentencing, particularly when it comes to making the fateful determination of whether a case is heard in juvenile or criminal court. Daniel Macallair, co-founder and executive director of the Center on Juvenile and Criminal Justice, co-authored a 2000-2001 study of 18 courts across the country that found that of cases involving youth filed in adult courts, 43 percent of African American youth and 37 percent of Latino youth received a sentence of incarceration as compared with 26 percent of white youth. "Discrimination against kids of color skyrockets when juveniles are tried as adults," Macallair says. "There's a double standard: Throw kids of color behind bars, but rehabilitate white kids who commit comparable crimes."

That the United States, almost alone in the world, should be trying so many teenagers as adults is one of the great changes — and ironies — in world jurisprudence. The world's first juvenile court was established in Chicago in 1899, a landmark event for the United States as well as the world. The court was designed to do more than settle disputes and determine sentences. Its aim was to alter the trajectories

of troubled young lives. The court hired probation officers to interview parents and teachers and write reports that revealed the social causes of crime. It established a clinical division where psychologists probed a delinquent's inner world.

But the purest expression of the new juvenile court was found in Denver, where, in 1903, Judge Benjamin Lindsey established a juvenile court that was completely independent of the criminal court, which he called "a medieval torture chamber."

In Lindsey's court the judge was *parens patriae*, the caring father that most young offenders who appeared before him did not have. The judge had the power to hold accountable young offenders as well as adults who had contributed to their delinquency, and he did. But Lindsey saw his primary role as developing and implementing plans designed to turn young offenders into young citizens. From 1903 to 1927, Lindsey presided over a court that legal historians have called 'a vigorous machine for social engineering.'

Sixty-five years after Lindsey left the bench, Dietrick Mitchell went to trial. By then, criminologists and legislators in states around the country considered the juvenile court as archaic as the stiff Victorian suits Lindsey once wore. They believed Lindsey's ideas were perhaps fine for his day, when kids were pickpockets and truants, but experts warned they could not be applied to the young thugs who began to appear in the 1980s. As the crack cocaine epidemic infested cities, a surge in violent teenage crime occurred — largely the result of street gangs fighting to control its distribution. OJJDP studies show that between 1983 and 1994, arrest rates for juveniles charged with violent offenses jumped 78 percent. The juvenile homicide rate in America reached an all-time high in 1994, with more than 2,300 victims killed that year.

Fear was rampant as television beamed images of young homicidal killers as lethal as the semi-automatic weapons they carried. Network news inundated homes across the United States with images of defiant teenage murderers, sometimes flashing gang signs.

"America is now home to thickening ranks of juvenile 'Super Predators,' radically impulsive, brutally remorseless youngsters," Princeton professor John J. DiIulio wrote in the 1996 book *Body Count*, co-authored with John P. Walters and William J. Bennett.

The juvenile court and the inherent idea that children are excellent candidates for redemption were swept away by fear of 'Super Predators' and by politicians out to prove they were tougher on crime than their opponents. In some states, childhood was 'defined down' so that youth ages 16 and 17 who committed certain crimes were automatically transferred to adult criminal courts. In other states, youth who committed certain crimes were automatically transferred to criminal courts, no matter what their ages. Prosecutors, not judges, decided whether a case would be heard in juvenile court or transferred to adult criminal court.

Yet the idea that youth had suddenly evolved into the human form of the robot in *The Terminator* was at odds with the latest scientific research. Brain researchers using magnetic resonance imaging (MRI) had established a biological basis for the premise on which the juvenile court was founded and for what parents already knew: teenagers really are immature. MRIs show that the frontal lobes, specifically the prefrontal cortex, do not develop fully until the early 20s. This is the part of the brain responsible for the cognitive control of behavior, for impulse inhibition. The prefrontal cortex regulates aggression, weighs cause and effect and considers long-term consequences.

"Children are uniquely suited for change," says David Berger, an attorney for O'Melveny and Myers LLP who conducted research on the AI-HRW report in his capacity as pro bono counsel to Amnesty International USA. "They grow up and mature, often becoming unrecognizable to those who knew them in childhood."

After 1993 the murder rate among juveniles dropped 68 percent, and the menace of the alleged 'Super Predator' plague had faded. OJJDP reports show that between 1993 and 2000, juveniles arrested for murder dropped 74 percent. By 2000, murders committed by juvenile offenders were at their lowest levels in 20 years. The number of juvenile homicides plummeted to around 1,200. Experts cite a strong economy combined with a declining market for crack, plus community policing and efforts to keep weapons out of the hands of juveniles, as reasons for the decline.

DiIulio ended up wishing he had never coined the term 'Super Predator.' In 2001, he told the *New York Times*, "If I knew then what I know now, I would have shouted for prevention of crimes." But news of the falling juvenile crime rate did not register with the public, who remained fearful, or with their elected officials. Even today, the cry 'adult time for adult crime' continues to echo in state capitols across America and supports the practice of sentencing child offenders to life without parole.

Rep. Ray Rose, a Colorado state representative, has been a consistent supporter of child life without parole laws. "Public safety has to come first," Rose says. "Even if only 10 percent re-offend, what do you say to the families they hurt? What do you say when they ask, 'He was locked up in prison. Why was he ever released?'"

Youth must be 18 to vote, 16 to drive and 18 or 21 to purchase alcohol and tobacco. But the justice system has blurred the distinction between child and adult. At least 28 states limit or completely eliminate juvenile court hearings for youth charged with certain crimes (ranging from violent assaults to less serious drug offenses). At least 14 states and the District of Columbia have given prosecutors the discretion to bypass the judge and move juvenile cases directly into adult court for particular crimes.

And in 42 states, teenagers can be sentenced to life without parole.

Ninety-three percent of youths serving life without parole in the United States have been sentenced for murder. The AI-HRW report found that in four of the years studied between 1985 and 2001, teenagers convicted of murder were in fact more likely to get a life without parole or death sentence than adult murderers. Largely because of mandatory sentencing laws, the percentage of teenage murderers given life without parole in 2000 was three times higher than it was in 1990.

Yet murder can be an elastic term, as is shown by the case of Erik Jensen, a young man serving life without parole in Colorado for felony murder, the crime of being present when someone else kills during the commission of a crime. The classic example is the driver of a getaway car charged with felony murder because one of his accomplices killed a guard during a robbery.

Erik Jensen was 17, and his friend Nathan Ybanez was 16, in 1998 when they were in a rock band prophetically named 'Trouble Bound.' Nathan had a difficult home life. His parents forced him to leave the band, then changed their minds; they enrolled him in military school, then changed their minds. Nathan ran away frequently. His parents were separated and Nathan had moved into an apartment with his mother Julie.

Erik and Nathan had plans one day in 1998, but when Erik arrived to pick Nathan up, Julie answered the door and said Nathan had to stay home. Nathan came up from behind and hit his mother over the head with a fireplace iron, then used it to strangle her. Erik thought about running and notifying authorities but instead stayed and helped clean up the blood and wrap the body in a rug. Nathan testified that Erik took no part in the killing, but prosecutors charged Erik with felony murder. Erik and Nathan were both sentenced to life without parole.

If Dietrick Mitchell, Nathan Ybanez and Erik Jensen live to age 70 and die behind bars, Colorado taxpayers will pay more than $6 million to keep them locked away, according to an estimate by the *Rocky Mountain News*. "Life without parole negates what most people believe about childhood, that a person is growing and can change and needs support to make those changes," says Alison Parker, the senior researcher for Human Rights Watch who authored the report. 'We're not saying open the prison doors.

We're saying, "Why not take a second look?' We have procedures in place that show whom should be given a second chance." Youth who had been given the death penalty were given a second chance of sorts late last year, when the U.S. Supreme Court declared the death penalty for juveniles unconstitutional in Roper v. Simmons. MRI brain research and the basic fact that adolescents are inherently different from adults played a part in the decision. Justice Anthony M. Kennedy noted that immaturity, by definition, can mean acting irresponsibly and being highly susceptible to negative peer pressure. Justice Kennedy concluded, "Even a heinous crime committed by a juvenile" is not "evidence of irretrievably depraved character."

Pat Jensen, Erik's mother, wants the courts to apply those insights into adolescent behavior to youth serving life without parole.

"Erik had no priors, he'd never hurt anyone," she says. "I absolutely say Erik should have been charged and convicted for what he did, but he absolutely shouldn't be serving life without parole. He was a stupid kid who made a stupid mistake. You hope a kid can pay for it and move on and be a better person. But not these days, not with these sentencing laws."

"Adolescent Legal Competence in Court" (MacArthur Foundation Research Network)

One of the pillars of the American justice system is the assurance that those who stand accused of crimes be mentally competent to understand and participate in their trials. The conventional standard for competence has typically focused on the effects of mental illness or mental retardation on individuals' capacities to grasp the nature of their trials or their abilities to decide how to plead. Yet as the courts, both juvenile and adult, see increasingly younger defendants some argue that the law should also take into account adolescents' lesser capacities owing to emotional and psychological immaturity.

This brief details findings from the first comprehensive assessment of juvenile capacities to participate in criminal proceedings using measures of both trial-related abilities and developmental maturity. The MacArthur Foundation Research Network on Adolescent Development and Juvenile Justice compared the responses of youth and adults in a series of hypothetical legal situations, such as plea bargains, police interrogations, and attorney-client interactions. Responses revealed the degree to which participants understood the long-term consequences of their decisions, their ability to weigh risks, and other factors related to developmental and cognitive maturity. Findings show that a significant portion of youth, especially under age 15, are likely unable to participate competently in their own trials, either in an adult or juvenile court, owing to developmental immaturity.

It is important to note that our study examined only youths' competence to stand trial, not their criminal blameworthiness (i.e., whether someone should be held fully responsible for an offense). These are two separate issues. For example, a young inexperienced driver who accidentally skidded off the road and killed another person might be competent to stand trial for the wrongful death of another, but could be judged less than fully responsible for the death because it was accidental. Whether youths of a certain age have abilities suggesting competence or incompetence to stand trial does not tell us whether youths of that age should or should not be held as responsible as adults for their offenses.

- **Young Adolescents More Likely to Lack Capacities for Trial**

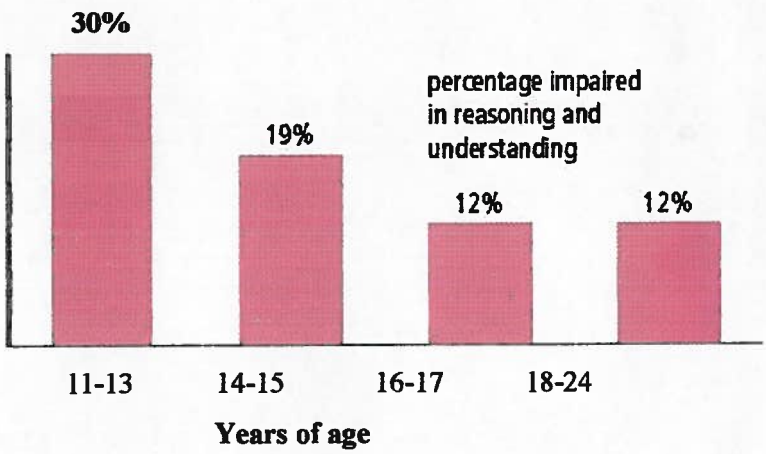
Network researchers interviewed 1,400 individuals aged 11–24 both in juvenile detention centers and in the community at large to determine whether teens differed from young adults (aged 18–24) in their abilities relevant for competence to stand trial. Youth were interviewed in Philadelphia, Los Angeles, northern Florida, and Virginia.

Using a standard assessment tool, the study first gauged the functional abilities defined in the existing legal concept of *competence to proceed*—the ability to understand the purpose and nature of the trial process; the capacity to provide relevant information to counsel and to process that information; and the ability to apply information to one's own situation in a manner that is neither distorted nor irrational.[1] This standard is regularly applied in adult courts with mentally impaired individuals.

Findings from the assessment showed that age matters. Those aged 11–13 performed significantly worse than 14–15 year olds, who performed significantly worse than 16–17 year olds and 18–24 year olds (adults).[2] Interestingly, the performance of 16–17 year olds did not differ from that of the young adults (aged 18–24) (see Figure 1).

The youngest group was nearly three times more likely than youth older than 15 to be significantly impaired in reasoning and understanding, two important components of legal competence. In other words, nearly one-third of 11–13 year olds and one-fifth of 14–15 year olds had deficits that courts might see as serious enough to question their ability to proceed in a trial. These patterns varied little by race-ethnicity, gender, socioeconomic status, or region of the country.

Figure 1: Young Teens are Nearly Three Times More Likely Than Older Teens or Young Adults to be Significantly Impaired in Reasoning or Understanding of the Adjudication Process:



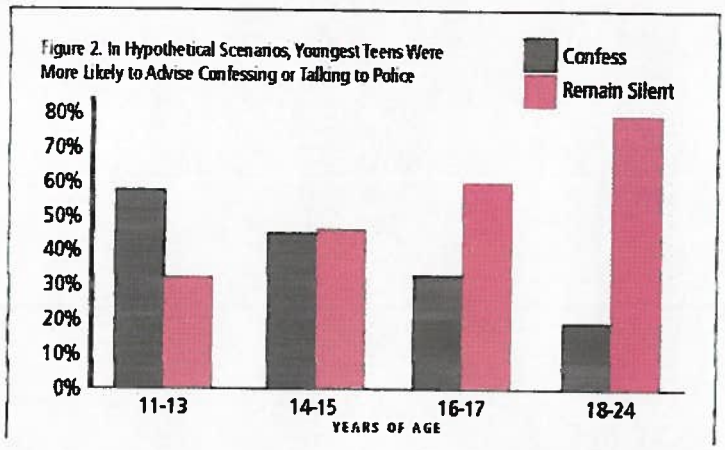
- **Level of Maturity Influences Important Choices**

The Network next assessed youths' emotional maturity in a legal decision-making context. The most relevant aspects of maturity in this context are the ability to take into consideration long-term consequences (future orientation), perceive and comprehend risks, deflect peer influence, and weigh whether to comply with authority figures.

Using the *MacArthur Judgment Evaluation*, a tool designed specifically for this study, researchers asked respondents to recommend the best and worst choices in three hypothetical situations: responding to police interrogation when one is guilty of a crime; disclosing information during consultation with a defense attorney; and responding to a plea agreement in exchange for a guilty plea and testimony against other defendants. Choices for police interrogation included confessing, denying the offense, or refusing to speak. Choices for the attorney consultation included full or partial disclosure, denial, or refusing to cooperate. Plea agreement options included accepting or rejecting the offer. Researchers also asked participants to identify the positive and negative consequences (or risks) of each of their

recommendations, and their responses were scored according to predetermined criteria for risk appraisal. Researchers measured youth's future orientation from these responses. Finally, to assess the influence of peer pressure, youth were told to imagine that their friends had chosen a different response and were given the option of changing their answer.

In general, the youngest teens (aged 11–13) proved less mature in their decision making than older youth. Younger individuals, for example, were more likely to endorse decisions that comply with what an authority seemed to want as measured by their willingness to confess and plea bargain.



The proportion of youth who recommended confession decreased with age, from about one-half of the 11–13 year olds to only one-fifth of the 18–24 year olds (see Figure 2). (Few individuals in any age group chose to actively deny the offense.) The proportion who advised accepting a plea agreement declined from nearly three-fourths of 11–13 year olds to one-half of young adults. Once again, the study revealed few statistically significant differences among those older than age 15.

In addition, younger teens were significantly less likely to recognize the inherent risks in various decisions, and they were less likely to comprehend the long-term consequences of their decisions. The study found no differences by age in the effects of peer pressure on decision making. Those with lower IQs, however, performed more poorly on all items.

Although perhaps not surprising, this finding is notable given that two-thirds of those under age 15 in juvenile detention facilities had an IQ lower than 89 compared with one-third in the community sample. Therefore, because a greater proportion of youth in the juvenile justice system are of below-average intelligence, the risk for incompetence to stand trial is even greater among adolescents who are in the juvenile justice system than it is among adolescents in the community. For example, among 11–13 year olds with very low IQ scores, more than one-half scored as poorly as adults who are typically found incompetent to stand trial. Once again, none of the findings varied by race-ethnicity, socioeconomic status, or locale.

These findings suggest that younger adolescents' developmental immaturity may affect their behavior as defendants in ways that extend beyond their competence to stand trial. Their responses indicate that they are often more willing than adults to confess to authority figures such as police, rather than remaining silent, especially if they believe it will result in an immediate reward, such as going home. For similar reasons, they may be more willing to accept a prosecutor's plea agreement.

- **Expanded Definition of Competence Needed**

Clearly, many of the youngest adolescents are less able to understand the trial process and are less mature in their ability to take into consideration the long-term ramifications of their decisions. Yet, the

relation between immaturity and competence to stand trial has not yet been defined legally. The findings reported here point to the need for a broader legal construct of competency, one that recognizes that developmental factors—namely, cognitive and psychosocial immaturity—may compromise the critical decision-making ability of many young criminal defendants in either adult or juvenile courts. The findings also suggest the need to consider various protections against trying youth who may not be competent; for example, making competency evaluations mandatory for adolescents below a certain age, and requiring competence evaluations for any youth sent to criminal court to be tried as an adult.

The findings raise a dilemma, however. If a sizable proportion of younger adolescents are unfit to stand trial owing to immaturity, how does society redress the crimes they committed? One option is to develop a dual system of competence, one for the adult courts and one for the juvenile courts, with more relaxed standards of competence in the latter. Youth deemed incompetent to stand trial in an adult court could be tried in a juvenile court under less demanding standards of competence. Of course, this lower standard of protection would also require less punitive sentencing that involves rehabilitative services for those youth. For those very few who would be deemed incompetent to stand trial in either court, dismissal of charges and adequate supervision with useful remedial services could be employed, as is already done in many states.

- **New Guides to Help Assess Juvenile Competence**

Legal and clinical practitioners have had few, if any, resources to help them understand how immaturity manifests itself in legal contexts with juveniles. The Network therefore sought to develop a set of flexible tools and practice guides that present the issues and identify the needed information to assess youth capacity and maturity in the context of legal competence. The guides are designed to be adaptable to the many different state juvenile justice laws and to the different audiences who might use the manuals, from judges to mental health practitioners.

Evaluating Juveniles' Adjudicative Competence: A Guide for Clinical Practice, and *Clinical Evaluations for Juveniles' Competence to Stand Trial: A Guide for Legal Professionals* draw from a national survey of existing practices for competence evaluations of juveniles, a nationwide review of juvenile competency laws, and a national set of consensus panels that included judges, prosecutors, defense attorneys, and mental health clinicians. The Network has begun introducing these guides through a series of workshops with mental health and legal professionals in 87 of the 100 largest U.S. jurisdictions.[3]

The findings of this latest research affirm the developmental reality of adolescence and underscore the need to expand the notion of competence to include cognitive and psychosocial maturity. The competency standard announced by the Supreme Court in *Dusky v. United States* (1960) is a functional test, and functionally it should make no difference whether the source of the defendant's incompetence is mental illness (the current standard for adults) or immaturity.

Sources

1 The tool is called the *MacArthur Competence Assessment Tool—Criminal Adjudication* (MacCAT-CA). For more information, see T. Grisso et al., "Juveniles' Competence to Stand Trial: A Comparison of Adolescents' and Adults' Capacities as Trial Defendants," *Law and Human Behavior*, vol. 27 (2003), pp. 333-363.

2 These are likely conservative estimates given that those youth with more serious mental health issues were screened out of the study.

3 The guides are available from Professional Resource Press, at www.prpress.com