CHAPTER 1

Children and Adolescents

Unique Audiences

Sometimes wise and disconcertingly like adults, children are nonetheless children. To the wonder, joy, and vexation of adults, they are different. As they grow older, they become increasingly like us and therefore intelligible to us, but at each age or stage of development there is something for adults to learn more about, to be amused by, and to adjust to.

—Professor Aimee Dorr, 
Television and Children: A Special Medium for a Special Audience (1986, p. 12)

Over the past twenty or thirty years, the status of childhood and our assumptions about it have become more and more unstable. The distinctions between children and other categories—“youth” or “adults”—have become ever more difficult to sustain.

—Professor David Buckingham, 
After the Death of Childhood: Growing Up in the Age of Electronic Media (2000, p. 77)

Children and young people are a distinctive and significant cultural grouping in their own right—a sizeable market share, a subculture even, and one which often “leads the way” in the use of new media.

—Professor Sonia Livingstone, 
Young People and New Media: Childhood and the Changing Media Environment (2002, p. 3)
Parents could once easily mold their young children’s upbringing by speaking and reading to children only about those things they wished their children to be exposed to, but today’s parents must battle with thousands of competing images and ideas over which they have little direct control.

—Professor Joshua Meyrowitz, 
*No Sense of Place: The Impact of Electronic Media on Social Behavior* (1985, p. 238)

Because it was one of her favorite movies, Louise decided to rent a DVD of the film *E.T. —The Extra-Terrestrial* to share with her two children, a 4-year-old and a 10-year-old. The 10-year-old immediately liked the alien character, laughing at the creature’s peculiar appearance and eating habits. The 4-year-old, on the other hand, tensed up the first time she saw E.T.’s strangely shaped hand with its two slender, protruding fingers. The young child asked several nervous questions: “What is that?” “Why is he hiding?” “What’s wrong with his fingers?” Shortly thereafter, the 4-year-old announced that she did not like this “show” and that she wanted to turn the channel. When E.T.’s face was finally revealed on screen, the 4-year-old let out a yelp and buried her face into her blanket. Louise was dismayed at her young child’s reaction, wondering how anyone could be frightened by such a benevolent creature.

Although this example involves a fictitious family, the incident is likely to resonate with parents who are often perplexed by their children’s responses to the media. Indeed, a great many parents have reported that their preschool children were unpredictably frightened by the gentle but strange-looking alien called E.T. (Cantor, 1998). Likewise, G-rated movies such as *Bambi* and *Beauty and the Beast* have provoked fear in younger children (Hoekstra, Harris, & Helmick, 1999). One study even found that younger children were frightened by Michael Jackson’s music video “Thriller,” which featured the popular singer transforming into a werewolf (Sparks, 1986).

These reactions are not unique to a few films or videos. Research has documented strong differences in the types of media themes that frighten people across age (Harrison & Cantor, 1999). The types of stories that most often upset children younger than 7 involve animals or distorted-looking characters such as ghosts and witches (see Figure 1.1). Such themes greatly diminish in impact by the time people reach adolescence and adulthood. Instead, portrayals involving blood and physical injury are most likely to trigger negative emotions in older viewers.

From an adult perspective, a young child’s fears of monsters and ghosts are difficult to explain. But they signal the importance of considering children’s unique orientation to the world in trying to understand how the media can affect younger audiences (see Figure 1.2). In this chapter, we will explore how children and adolescents interact with the media, concentrating on the crucial role that human development plays in this process. As background, we will first give an overview of the media environment and media habits of today’s youth. Next, we will explore several major principles or ideas that can be gleaned from child development
research: Children are different from adults, children are different from each other, and adolescents are different from children. We will conclude the chapter with a focused look at specific cognitive skills that emerge during childhood and adolescence that are relevant to making sense of the mass media.
A recent headline in the New York Times warned that “28 Arrested in Florida Online Sex Sting” (Newman, 2007). Several of the predators worked for the Walt Disney Company and were caught when they arrived at a suburban house purportedly to meet with an underage girl. According to research cited in the article, 1 in 7 children (14%) say they have received an online solicitation, and 1 in 11 children (9%) have received a solicitation characterized as aggressively sexual in nature. Such statistics help to stir a sense of panic about the impact of media technologies on youth. But even more traditional forms of media can raise concerns. Reality programs on television feature couples who are tempted sexually in remote locations. Rap artists such as Eminem and 50 Cent celebrate hatred, revenge, and violence in their music. And video games have become increasingly violent. A popular video game series called Grand Theft Auto allows the player to take on the role of a criminal in a large city, engaging in numerous illegal activities, including killing police and military personnel.

There is no doubt that today’s youth are confronted with a media environment that is very different from the one faced by their grandparents or even their parents (see Figure 1.3). Terms such as digital television, gangsta rap, and Google did not even exist 20 or 30 years ago. One of the most profound changes concerns the sheer proliferation of media outlets and technologies. Children today live in a “multidevice, multiproduct, multichannel world” (Carr, 2007). The advent of cable and satellite television has dramatically increased the number of channels available in most homes today. Digital cable is multiplying this capacity. Many homes in the United States also are equipped with CD players, DVD players, personal computers, wireless Internet access, and digital cameras. At a very young age, then, children are learning about keypads, CD-ROMs, mouses, and remote controls.

As these technologies proliferate, they are changing the nature of more traditional media. The TV screen, which once provided a way to watch broadcast television, is now being used for a much wider range of activities, including online
shopping, video-on-demand, and viewing digitally recorded photographs and home movies. Newspapers can still be delivered to the doorstep or they can be received online. In other words, old distinctions between the television screen and the computer screen or between print and broadcast are becoming less meaningful.

And as media technologies converge, so too are the corporations that own them. In January 2001, America Online, the largest Internet service provider, and Time Warner, the world's biggest entertainment company, joined to become the largest media merger in history. Together, these two media giants own four film studios; CNN, HBO, Cinemax, and the WB networks; several book publishers; three major record companies; a large cable television system; and more than two dozen popular magazines. All of this, plus the merger, means access to more than 24 million Internet subscribers. The deal represents a powerful integration of content and delivery, meaning that programming can be created, promoted, and delivered by a single corporation. This $165 billion megamerger is one of many examples of corporate synergy and partnership.

Such mergers have sparked heated debates in the United States about the dangers of monopolistic growth (Bagdikian, 2000; Noam & Freeman, 1997). Furthermore, media corporations that were once primarily American based now have major stakes in the international market. So our capitalistic, privately owned media system and the cultural messages we produce are being exported worldwide. And as these media industries grow, they are becoming increasingly commercial in nature. For example, advertising is now a regular part of the Internet (see Chapters 2 and 11) and is creeping into cable television and even movie theaters.

In the relentless search for new markets, media corporations are increasingly recognizing and targeting youth as a profitable group of consumers (see Chapter 2). Television networks such as Nickelodeon and the Cartoon Network are designed for young viewers; magazines such as Sports Illustrated for Kids, CosmoGIRL!, Skateboarding, and Teen Voices are a growing phenomenon; and even Web sites are aimed specifically at children and adolescents. Nicktropolis, a new site developed by Nickelodeon, allows young children to enter an immersive 3-D virtual world where they can design their own rooms, interact with characters, and chat with other kids in real time. Even technologies are being marketed to youth. Colored iPods and child-friendly cell phones are in high demand, even among elementary schoolers (see Figure 1.4). By the end of 2006, some 6.6 million of the 20 million American children between the ages of 8 and 12 had their own cell phone (Foderaro, 2007). The proliferation of such handheld devices, which now allow access to the Internet, means that children can experience media around the clock, 7 days a week.

Finally, digital technology is altering the very nature of media experiences. Images and sounds are more realistic than ever, further blurring the distinction between real-world and media events. Children can enter virtual worlds in arcades and even in their bedrooms, traveling to different places, encountering strange creatures, and playing adventurous and often violent games. And these new media are far more interactive, allowing youth to become participants in their quest for information, action, and storytelling.

How are youth of today responding to this modern and complex media environment? A recent national study took an in-depth look at the media habits of
American children (Roberts, Foehr, & Rideout, 2005). Surveying more than 2,000 children ages 8 to 18, the study documented that youth today are surrounded by media. The average child in the United States lives in a home with three TVs, four CD or tape players, three radios, three VCR/DVD players, two video game consoles, and one computer. More telling, the media have penetrated young people's bedrooms. A full 68% of American children between the ages of 8 and 18 have a television in their room. Moreover, 54% have their own VCR/DVD player, and 49% have a video game console that connects to their bedroom TV (see Figure 1.5). Having a TV as well as a video game console in the bedroom is more common
among African American than Caucasian youth. Hispanic youth fall in between the other two groups in the proportion having television equipment in the bedroom.

In terms of exposure, the average U.S. child between the ages of 8 and 18 spends 6½ hours a day using media (Roberts et al., 2005). Yet, despite all the technologies available, most of this time is spent watching television (see Figure 1.6). On average, American children watch 3 hours of TV per day. Notably, one out of five children in the national study by Roberts et al. (2005) reported that they had watched 5 or more hours of TV on the previous day. The study also revealed that parents typically do not exercise much control over their children's media experiences (see Figure 1.7). More than half (53%) of the children reported that there are no rules in their home about how often and what they can watch on TV, and an additional 23% said there were rules but they were seldom enforced. Of course, when parents themselves are queried, many more report supervising their children's media exposure (Gentile & Walsh, 2002).

Underscoring how important parental oversight is, children who have a TV set in their bedroom spend substantially more time watching television than do those without a set in their room (Robinson, Winiewicz, Fuerch, Roemmich, & Epstein, 2006).

Although computers are rapidly spreading in American homes, access to this technology continues to be tied to income. Roughly three fourths (78%) of children in families with annual incomes of less than $35,000 have access to a home computer, compared with nearly all (93%) of those in families with incomes greater than $50,000 (Roberts et al., 2005). Even when they have a computer, children in low-income families are less likely to have an Internet connection.

More recently, a national study looked closely at the media habits of infants and preschoolers (Vandewater et al., 2007), age groups that many assume are too young to be involved much with media. Contrary to this assumption, the average American child between the ages of 6 months and 6 years spends about 1½ hours a day using media. Again, most of this time is spent watching television or videos/DVDs (see Figure 1.8). In fact, children younger than age 6 spend more time

![Figure 1.6](Image)

**Figure 1.6** Average Time Children (8–18 Years of Age) Spend With Different Media Each Day

**SOURCE:** Adapted from Roberts et al. (2005).
watching TV and videos than they do reading (or being read to) or playing outside. Perhaps most surprising, 20% of children younger than age 3 have a TV set in their bedroom; roughly 40% of 3- to 6-year-olds have a TV in their room.

American children are not so different from some of their counterparts abroad. One study of more than 5,000 children living in 23 different countries found that the average 12-year-old spent 3 hours a day watching television (Groebel, 1999), a figure remarkably comparable to that found in the United States. Another study of 12 European countries found that televisions and video recorders are in nearly every home, but having such technology in a child’s bedroom varies considerably by country (d’Haenens, 2001). For example, more than 60% of children in the United Kingdom have a TV in their bedroom, whereas less than 20% of children in Switzerland do. As in the United States, those children who have technological equipment in their bedrooms also spend more time with the media each day.

To summarize, youth today are confronted with a media environment that is rapidly changing. Technologies are proliferating, merging, and becoming more interactive. And the content featured in these technologies is increasingly graphic, realistic, and commercial in nature. At the same time, media use is at an all-time high. Youth today spend anywhere from one third to one half of their waking hours with some form of media (see Figure 1.9). Preteens and teens frequently are engaging in more than one media activity at a time, called “media multitasking” (Foehr, 2006). And much of this media use is becoming more private as children retreat to their bedrooms to watch TV, play video games, or listen to music. We will now highlight several developmental principles that underscore the need to consider youth as a special audience in today’s media environment.
Figure 1.8

SOURCE: Baby Blues by Rick Kirkman and Jerry Scott. Reprinted with permission of King Features Syndicate.

Figure 1.9

SOURCE: Baby Blues by Rick Kirkman and Jerry Scott. Reprinted with permission of King Features Syndicate.
Children Are Different From Adults

Most adults believe that they personally are not affected much by the mass media. In a well-documented phenomenon called the “third-person effect,” people routinely report that others are more strongly influenced by the mass media than they themselves are (Hoffner & Buchanan, 2002; Perloff, 2002). This difference in perceived impact gets larger as the age of the “other” person decreases. In other words, adults perceive that the younger the other person is, the stronger the effect of the media will be (Eveland, Nathanson, Detenber, & McLeod, 1999). Interestingly, even children endorse a kind of third-person effect, claiming that only “little kids” imitate what they see on TV (Buckingham, 2000).

Are children more susceptible to media influence than adults are? At the extremes, there are two radically different positions on this issue (see Buckingham, 2000). One view is that children are naive and vulnerable and thus in need of adult protection. This stance sees the media as inherently problematic and in some cases evil because they feature material that children are simply not yet ready to confront. Buckingham (2000) points out that “media panics” have been with us a long time, especially those concerning the impact of sex and violence on children. Such panics gain steam any time a public crisis occurs, such as the massacre at Columbine High School, or any time a new and unknown form of media technology is developed (Wartella & Reeves, 1985).

A contrasting view is that children are increasingly sophisticated, mature, and media savvy (Livingstone, 2002). According to this position, efforts to shield youth from media are too protectionist in nature, smack of paternalism, and construe children as acted upon instead of actors. Instead, children should be empowered to take control of their own media experiences, negotiating and learning along the way. Buckingham (2000) argues that this position is widely shared among those who see children as independent consumers who should be able to spend their own money and buy what they want.

These very different perspectives illustrate that notions of childhood are constantly being defined, debated, and renegotiated over the course of history (James, Allison, Jenks, & Prout, 1998). In truth, neither of these extreme positions seems very satisfying. Children are not entirely passive in the face of the mass media, nor are they extremely worldly and discriminating. The reality is probably somewhere in between. Nevertheless, most parents, developmental psychologists, policymakers, and educators would agree that children are not the same as adults (see Figure 1.10).

Several features of childhood support this distinction. First, children bring less real-world knowledge and experience to the media environment (Dorr, 1986). Every aspect of the physical and social world is relatively new to a young child who is busy discovering what people are like, how plants grow, what animals eat, and where one neighborhood is located relative to another. As they get older, children explore increasingly abstract concepts and ideas such as the social norms of their culture, what prejudice is, and how life begins. In almost every arena, though, children possess a more limited knowledge base compared with adults.

One implication of this is that children can fail to understand a media message if they lack the background knowledge needed to make sense of the information.
As an illustration, in 1996, researchers at the Children’s Television Workshop (now called Sesame Workshop) wanted to produce a *Sesame Street* segment about visiting the doctor. On the basis of preliminary interviews, the researchers discovered that preschoolers mostly associated doctor visits with getting shots and that they had little knowledge of the importance of such vaccinations (“Feeling Good,” 1996). Had the producers not discovered this, they might have created a script that focused too much on getting shots, inadvertently reinforcing children’s negative and limited impressions of the purpose of going to a physician.

As another example, researchers working on the *Sesame Street* Web site wanted to create an activity that would help preschoolers learn about e-mail. In developing the “*Sesame Street* Post Office,” the researchers discovered that preschool children have little, if any, experience with e-mail or with composing letters (Revelle, Medoff, & Strommen, 2001). In other words, the children’s background knowledge was quite limited. Taking this into account, the post office activity was designed to be very concrete by having the child choose a Muppet to e-mail from a set of pictures of Muppets and then choose questions to ask from a set tailored to each Muppet (see www.sesameworkshop.org/sesamestreet/mail/sspo/). The child’s message is displayed on the screen before it is sent so that children can see how their choices influence the composed letter. Researchers also determined that adding a “Dear [name of Muppet]” to the beginning of the e-mail and a “Your friend, [name of child]” to the end of it helped children understand the conventions of letter writing.

The lack of real-world knowledge also can make children more willing to believe the information they receive in the media. It is difficult to evaluate a story for accuracy or truthfulness in the face of no alternative data. An adult watching a TV advertisement is able to evaluate that message in the context of knowledge about the television industry as well as a vast array of personal experiences with purchasing products. A child, on the other hand, rarely has this rich set of knowledge structures on which to rely. As an illustration, Figure 1.11 presents children’s perceptions of how truthful advertisements are (Wilson & Weiss, 1995). In a sample of nearly 100 girls ages 4 to 11, a full 45% reported that ads tell the truth “most of the time” or “always.” Given this level of trust, a young child seems fairly defenseless when...
confronted with a slick TV ad that costs thousands of dollars to produce and may yield millions of dollars in sales profit.

A second feature that distinguishes childhood from adulthood is the strong eagerness to learn that marks the early years (Dorr, 1986). Parents experience this with exhaustion sometimes, as their infant daughter puts one more object in her mouth or their preschool son asks for the twentieth time, "What's that?" or "Why?" Such curiosity is a hallmark of childhood and is celebrated by educators. But it means that children are as open to learn from the mass media as from other sources, particularly in situations when firsthand experience is not possible. For example, most American children are not able to visit Japan, but they can learn about the country by reading a book or viewing a TV documentary. A preschooler can even watch Big Bird in Japan, a Sesame Workshop production available on DVD. These examples show the educational benefits of the media. Unfortunately, a child could also learn about Japan by visiting a Web site created by a hate group that disparages people of Asian descent.

A third feature that characterizes childhood is a relative lack of experience with the media. Admittedly, these days some children are actually more media savvy than their parents. Indeed, many children know how to surf the Web or program the digital video recorder while their parents still fumble with these technologies. One study found that 19% of children younger than age 6 were able to turn on the computer by themselves (Rideout & Hamel, 2006). But it is still the case that with most media, adults simply have spent more time with the technology. Adults readily appreciate, for example, that the placement of a story in a newspaper signals something about its importance, that public television is a noncommercial channel in contrast to the broadcast networks, and that there are different genres and subgenres of movies. In contrast, children often show an incomplete understanding of production techniques such as dissolves and split screens (Beentjes, deKoning, & Huysmans, 2001), have difficulty distinguishing nightly news programs from shows such as Hard Copy and Current Affair (Wilson & Smith, 1995), and do not fully appreciate the commercial nature of most media in the United States (Dorr, 1980).
This lack of familiarity with the technical forms and structure of the media makes a child less able to critically evaluate the content presented.

To summarize, children differ from adults in a number of ways that have implications for responding to the media. Younger age groups have less experience with the real world and at the same time possess a strong readiness to learn about those things with which they are unfamiliar. They also tend to be less savvy about the nature, the intricacies, and the potential distortions of the mass media. Such naïveté makes a preschooler and even an elementary schooler more likely to believe, learn from, and respond emotionally to media messages than is a more mature and discriminating adult.

Children Are Different From Each Other

It may be easier to recognize that children are different from adults than it is to appreciate how much children differ from one another. In some ways, the label *children* itself is misleading because it encourages us to think of a fairly homogeneous group of human beings. As the E.T. example at the start of this chapter illustrates, a 4-year-old thinks and responds to the world very differently than a 12-year-old does. But even a group of 4-year-olds will exhibit marked differences in how they respond to the same situation. In fact, sometimes it is difficult to believe that two children are the same age or in the same grade level.

On any elementary school playground, kindergartners can be readily distinguished from sixth graders—they are shorter in height and normally weigh less. Their heads are smaller, they dress differently, and they tend to be more physically active. But even more profound differences exist in their cognitive functioning. Younger children attend to and interpret information in different ways than do their older counterparts. Several influential perspectives on children's development support this idea, including Piaget's (1930, 1950) theory of cognitive development as well more recent models of information processing (Flavell, Miller, & Miller, 2002; Siegler, 2005).

Age is often used as a marker of these differences in cognitive abilities, although there is tremendous variation in how and when children develop. Still, most research reveals major differences between preschoolers and early elementary schoolers (3–7 years of age), on the one hand, and older elementary school children (8–12 years of age), on the other, in terms of the strategies that are used to make sense of the world (Flavell et al., 2002). These strategies have important implications for how children respond to mass media, as will be discussed below in the section titled “Developmental Differences in Processing the Mass Media.”

Cognitive development is not the only factor that distinguishes children from each other. Personality differences also set children apart. For instance, some children are withdrawn or inhibited in unfamiliar situations whereas others are not (Kagan, 1997). Children also differ in the degree to which they possess prosocial dispositions toward others (Eisenberg, Fabes, & Spinrad, 2006), the degree to which they are capable of regulating their emotions (Stegge & Terwogt, 2007), and the degree to which they enjoy novel or stimulating situations (Zuckerman, 1994).

Research consistently shows sex differences among children too. For example, girls tend to prefer activities that are less vigorous than boys do (Eaton & Enns, 1986), and
boys typically are more physically aggressive (Baillargeon et al., 2007). In terms of
cognitive skills, girls generally obtain higher grades in school and do better on tests
involving writing, whereas boys do better on visual-spatial tasks (Halpern, 2004).

The fact is that children, even those who share biological parents and are raised in
the same environment, differ on many dimensions (Scarr, 1992). And children them-
selves recognize these differences early in development. For example, children become
aware of their own gender by around age 2 (Berk, 2000). During the preschool
years, they begin formulating mental conceptions of activities, norms, attributes, and
scripts that are associated with being male or female (Bem, 1981). Young children’s
initial understanding of gender as a social category is often based on superficial qual-
ities such as hair length and dress (see Figure 1.12). As they enter elementary school,
children’s conceptions grow to be more sophisticated, and they become keenly inter-
ested in gender-role information in the culture. They actively search for cultural
meanings about gender in their homes, on the playground, and in the media (see
Bussey & Bandura, 1999). In other words, the unique characteristics that differenti-
ate children in turn get represented and reinforced in the culture.

All of these unique characteristics make it difficult to come up with a single
prototype for what a child is like. Therefore, when we make generalizations about
children and the media, we must be careful to take into account the developmen-
tal, personality, and gender characteristics of the individuals involved.

Adolescents Are Different From Children

Adolescence is often characterized as a time of challenge and turbulence (Roth &
Brooks-Gunn, 2000). Along with bodily changes that can be quite dramatic, teens
are faced with increased independence and growing self-discovery. Scholars of ado-
lescent development refer to these changes as developmental transitions or passages
between childhood and adulthood (Arnett, 1992a). In other words, the sometimes
stormy periods are a necessary and normal part of growing up (Gondoli, 1999).

Unfortunately, parents and even the general public often view the teenage years
with some trepidation. One national poll revealed that 71% of adults describe
today’s teenagers negatively, using terms such as irresponsible and wild (Public Agenda, 1999). Some of this public opinion is likely fueled by the media’s preoccupation with high-profile cases of troubled teens who become violent. Contrary to public opinion, though, most teens are able to navigate adolescence in a socially responsible way, learning new competencies and new roles on the path to adulthood (Graber, Brooks-Gunn, & Petersen, 1996; Petersen, 1988).

What are some of the developmental hallmarks of adolescence? One of the main challenges a teen faces is identity formation (Schwartz & Pantin, 2006). During the teenage years, boys and girls alike begin to ask questions about who they are and how they differ from their parents. This emerging sense of the self is fragile and malleable as teens “try on” different appearances and behaviors. An article in Newsweek magazine described the teen years like this: “From who’s in which clique to where you sit in the cafeteria, every day can be a struggle to fit in” (Adler, 1999, p. 56). There is growing evidence that adolescents use the Internet to experiment with their identities. For example, one study found that 50% of 9- to 18-year-olds who use the Internet had pretended to be somebody else while communicating by e-mail, instant messaging (IM), or chat (Valkenburg, Schouten, & Peter, 2005). Teens also spend a great deal of time posting photographs, videos, and personal information on popular Web sites such as YouTube, MySpace, and Facebook. As they experiment with ways of expressing themselves online, some have argued that the Internet is changing the way that teens communicate with each other about their identities (Eagle, 2007).

A second challenge of adolescence is increased independence. Parents naturally feel less need to supervise a 13-year-old who, compared with a 5-year-old, can dress, study, and even go places alone. Teens often have jobs outside the home and by age 16 can typically drive a car, furthering their autonomy. In one study, the percentage of waking hours that teens spent with their families fell from 33% to 14% between the 5th and 12th grade (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996). Time away from parents can provide teens with opportunities to make independent decisions. It also can allow for experimentation with a variety of behaviors, some of which are not very healthy. A large national study involving more than 90,000 adolescents in Grades 6 to 12 found strong differences between those teens who regularly ate dinner with a parent and those who did not (Fulkerson et al., 2006). In particular, teens who spent less dinner time with parents showed significantly higher rates of smoking, drinking, depression, violence, and school problems, even after controlling for family support and family communication. The direction of causality is difficult to pinpoint here because it may be that troubled teens simply choose to spend less time at home. However, other studies have also documented the importance of parent involvement as a buffer against unhealthy behaviors during the teenage years (Cookston & Finlay, 2006).

This point leads us to a third feature of adolescence—risk taking. Today’s teens face tough decisions regarding a number of dangerous behaviors such as smoking, drug use, and sexual activity. And there is no doubt that adolescence is a time of experimentation with reckless activities (Gullone & Moore, 2000). For example, recent estimates suggest that every day, more than 6,000 American youth start smoking cigarettes (American Lung Association, 2003). Furthermore, a recent national survey revealed that 47% of 9th through 12th graders reportedly have had
sexual intercourse (Centers for Disease Control and Prevention, 2006). The same study found that 18% of the teens had carried a weapon during the 30 days preceding the survey, 43% had drunk alcohol, 20% had used marijuana, and 37% of sexually active students had not used a condom.

Some of this risk taking may be a function of what scholars have labeled “adolescent egocentrism” (Dolcini et al., 1989; Elkind, 1967, 1985). In particular, teenagers often seem preoccupied with their own thoughts and appearance and assume others are equally interested in their adolescent experiences. This view of the self as unique and exceptional can in turn lead to a feeling of invulnerability to negative consequences (Greene, Krcmar, Walters, Rubin, & Hale, 2000). In other words, self-focused teens think they are different from everyone else and that tragedies occurring to others “won’t happen to me.” Indeed, studies show that teens routinely underestimate their own personal chances of getting into a car accident compared with the risks they assume others face (Finn & Bragg, 1986). Similar misjudgments have been found among sexually active young girls who underestimate the likelihood that they themselves might get pregnant (Gerrard, McCann, & Fortini, 1983). One study linked this type of optimistic bias to teen smoking. Arnett (2000) surveyed 200 adolescents and found that a majority agreed that smoking is addictive and causes death for “most people.” Yet compared to nonsmokers, adolescent smokers were more likely to doubt that they themselves would die from smoking even if they engaged in such behavior for 30 or 40 years.

Risk taking also can be viewed as an adolescent’s effort to assert independence from parents and to achieve adult status (Jessor, 1992). However, not all teens engage in reckless behaviors, and even the ones who do seldom limit their activities to those legally sanctioned for adults. Arnett (1992b) argues that risk taking must be viewed in the larger context of an adolescent’s socialization. Some teens experience narrow socialization, which he characterizes as involving strong allegiance to the family and community, clear expectations and responsibilities, unambiguous standards of conduct, and swift sanctions for any deviation from those standards. Other teens are raised in an environment of broad socialization, where independence and autonomy are encouraged, standards of conduct are loose or even self-determined, and enforcement of standards is lenient and uneven. Arnett argues that in addition to parents, the schools, the legal system, and even the media contribute to these overarching patterns of socialization. As might be expected, risk taking is more prevalent in cultures in which socialization is broad rather than narrow (see Arnett, 1999, for review).

A fourth feature of adolescence is the importance of peers. Teens spend a great deal of time with friends and place a high value on these relationships (Berndt, 1996). On average, teens spend up to one third of their waking hours with friends (Hartup & Stevens, 1997). In her controversial book The Nurture Assumption: Why Children Turn Out the Way They Do, Judith Harris argued that parents have a minimal influence on their child’s development other than to nurture and shape the child’s peer group (Harris, 1998). Peer groups certainly do make a difference during adolescence. Studies have documented the role of peers in the initiation of behaviors such as cigarette smoking (Chassin, 1985), drug use (Halebsky, 1987), and sexual intercourse (Whitbeck, Yoder, Hoyt, & Conger, 1999). Engaging in reckless
behavior often helps a teen become a member of a peer group, and the group itself can foster a sense of collective rather than individual invincibility (Arnett, 1992a).

But peer influence is not as straightforward and not necessarily as negative as some might assume. Friends actually can be a source of support for teens and also can increase self-esteem (Hartup & Stevens, 1999). Generally, adolescents are more susceptible to antisocial peer pressure when they have more delinquent than non-delinquent friendships (Haynie, 2002), when they have poorer relationships with their parents (Dishion, 1990), and when they are alienated from community support structures such as schools (Arnett, 1992b; Resnick et al., 1997).

Last but not least, puberty and sexual development are hallmarks of adolescence. Body hair, acne, muscle growth, and weight gain are only a few manifestations of the dramatic physical changes that occur during the teenage years. Puberty typically begins during early adolescence, around age 9 or 10 for girls and roughly 1 to 2 years later for boys (Archibald, Graber, & Brooks-Gunn, 2003), although there are large individual variations. At the same time as their bodies are changing, many teens experience an increased energy level as a function of significant changes in their endocrine system (Petersen & Taylor, 1980). Furthermore, increased hormonal production of androgens and estrogens stimulates the growth of reproductive organs (see Rekers, 1992).

As might be expected, the hormonal and physical changes associated with puberty are accompanied by an increased interest in sexuality. In one study, for example, 12- to 15-year-old girls who were more physically mature (i.e., earlier pubertal timing) reported a greater interest in seeing sexual content in the movies, television, and magazines than did those who were less mature (J. D. Brown, Halpern, & L'Engle, 2005). Thus, at some point during adolescence, most teens will become intensely curious about sex and will seek information about sexual norms, attitudes, and practices in their culture. It is no accident, then, that popular teen magazines devote a great deal of space to sexual issues and relationships (Walsh-Childers, 1997).

Whether the teenage years are characterized as tempestuous or transitional, there is no doubt that significant developmental changes occur during this period. Adolescents spend more time alone or with friends and less time with parents. This growing independence comes at the same time that teens are exploring their own identities and their sexuality. The challenge is to provide these young people with enough latitude as well as guidance so that the decisions they make will result in a healthy rather than risky lifestyle.

### Developmental Differences in Processing the Mass Media

So far, we have focused on broad developmental features that characterize childhood and adolescence and that differentiate these periods from adulthood. Now we will turn our attention more directly to young people's interactions with the media. Any individual who encounters a mediated message must make sense of and interpret the information that is presented. Like adults, children and adolescents construct stories or readings of media messages that they encounter (Dorr, 1980).
Given some of the pronounced differences in experience and maturation described above, we can expect that interpretations of the same content will vary across the life span. That is, a young child is likely to construct a different story from a TV program than is an older child or a teenager.

These different interpretations may seem “incorrect” or incomplete to an adult viewer (see Figure 1.13). But even among mature adult viewers, there are differences in how people make sense of stories. For example, one study looked at people’s reactions to a 1970s TV sitcom called *All in the Family*, which featured a bigoted character named Archie Bunker (Vidmar & Rokeach, 1974). The research revealed that interpretations of the program varied widely based on individual attitudes about race. Those viewers who held prejudiced attitudes identified with Archie Bunker and saw nothing wrong with his racial and ethnic slurs (see Figure 1.14). In contrast, viewers who were less prejudiced evaluated Archie in negative ways and perceived the program to be a satire on bigotry.

What cognitive activities are involved when a young person watches a television program, enjoys a movie, or plays a video game? In general, five mental tasks are involved (Calvert, 1999; Collins, 1983). First, the child needs to select important information for processing. When viewing television, for example, a multitude of auditory and visual signals are presented in a particular program or advertisement. Moreover, there are cues in the environment that often compete with the television, such as family members talking in the background or loud music from another room. A viewer must allocate attention to these myriad cues, consciously or unconsciously filtering out what is not essential and instead focusing on what is important in the situation.

Second, the child needs to sequence the major events or actions into some kind of story. Most media messages feature a narrative or storyline (Grossberg, Wartella, & Whitney, 1998). Television plots are the easiest example of this, but even an advertisement, a video game, a song, and a radio program convey stories.

Third, the child needs to draw inferences from implicit cues in the message. The media do not have the space or the time to explicitly present all aspects of a story. Television programs jump from one location to another, characters in movies have dreams or experience flashbacks, and even in video games characters travel in ways that are not always orderly or linear. A sophisticated consumer recognizes the need to “read between the lines” to fill in the missing information. But a young child may fail to recognize that time has passed between scenes (R. Smith, Anderson, & Fischer, 1985) or that the events depicted are only part of a dream (Wilson, 1991).

Fourth, to make sense of both explicit and implicit cues in the message, a child must draw on the rich database of information he or she has stored in memory that relates to the media content. For instance, a child who lives in a rural community will have an easier time making sense of a movie about a family that loses a farm to bank foreclosure than will a child who lives in an apartment complex in New York City. The rich set of past experiences and acquired knowledge forms a mental database that helps a child interpret new messages.

Fifth, the child typically will evaluate the message in some way. The simplest evaluation pertains to liking or not liking the message. Children as young as 2 years of age already show preferences for certain types of TV programs, such as those
featuring puppets and young characters (Lemish, 1987; Rideout & Hamel, 2006). As they grow older, children become increasingly sophisticated and critical of media messages (Potter, 2005). Not only are they capable of evaluating the content but they also begin to appreciate the forms, economic structure, and institutional constraints that characterize different media (Dorr, 1980). An adolescent, for example, may reject all mainstream American television programming because of its inherent commercialism.

Given this set of tasks, we can expect that children will process media messages in different ways across development. We now describe some of the major shifts in

![Figure 1.13](image)

**Figure 1.13**

SOURCE: Baby Blues by Rick Kirkman and Jerry Scott. Reprinted with permission of King Features Syndicate.

![Figure 1.14](image)

**Figure 1.14** Adults’ Reactions to the TV Show All in the Family as a Function of Viewer Prejudice

SOURCE: Adapted from Vidmar and Rokeach (1974).
cognitive processing that occur during the transition from early to middle child-
hood and during the transition from late childhood to adolescence. This is by no
means an exhaustive list but instead reflects some of the skills most relevant to
interacting with the media (for further reading, see Dorr, 1980; Flavell et al., 2002;
Valkenburg & Cantor, 2000).

Two caveats need to be made here. First, most of the changes highlighted below
occur gradually rather than abruptly during development (Flavell et al., 2002).
Piaget (1950, 1952) argued that younger children’s thinking is qualitatively differ-
ent from that of older children, such that their cognitive systems progress through
distinct stages (i.e., sensorimotor, approximately 0–2 years of age; preoperational,
2–7 years; concrete operational, 7–11 years; formal operational, 11 years and older).
However, recent research indicates that cognitive performance can be uneven
across different types of tasks and that children exhibit varied skill levels even
within a particular domain (Siegler, 2005). Thus, it is widely believed that develop-
ment is far less stagelike or abrupt than Piaget’s theory would have us believe.

Second, the ages during which these shifts occur vary markedly across children.
For rough approximations, we define younger children as those between 2 and 7, older
children as those between 8 and 12, and adolescents as those between 13 and 18.

Younger Children Versus Older Children

*From Perceptual to Conceptual Processing.* Preschoolers pay close attention to how
things look and sound. This focus on salient features has been referred to as perceptual boundedness (Bruner, 1966). Perceptual boundedness is defined as an
overreliance on perceptual information at the expense of using nonobvious or
unobservable information that may be more relevant (Springer, 2001). For
example, preschoolers frequently group objects together based on shared perceptu-
fal features such as color or shape (Bruner, Olver, & Greenfield, 1966; Melkman,
Tversky, & Baratz, 1981). In contrast, by age 6 or 7, children begin sorting objects
based on conceptual properties such as the functions they share (Tversky, 1985).
With regard to television, studies show that younger children pay strong visual
attention to perceptually salient features such as animation, sound effects, and
lively music (Anderson & Levin, 1976; Calvert & Gersh, 1987; Schmitt, Anderson,
& Collins, 1999). On the other hand, older children tend to be more selective in
their attention, searching for cues that are meaningful to the plot rather than those
that are merely salient (Calvert, Huston, Watkins, & Wright, 1982).

One creative experiment involving television reveals this distinction quite
clearly. Hoffner and Cantor (1985) exposed children to a television character who
was either attractive or ugly and who acted kind toward others or was cruel (see
Figure 1.15). Preschoolers generally rated the ugly character as mean and the
attractive character as nice, independent of the character’s actual behavior. In other
words, their evaluations were strongly affected by the character’s physical appearance.
Older children’s judgments, in contrast, were influenced more by the character’s
behavior than her looks.
Why are younger children so perceptual in their focus? Tversky (1985) has argued that all children can be swayed by strong perceptual cues in a situation, but that with development children come to suppress immediate, salient responses in favor of slower, more thoughtful ones. This shift undoubtedly is fostered by the acquisition of knowledge that is conceptual in nature, such as the idea that motives are an important predictor of behavior. Children of all ages, and even adults, also are less likely to be swayed by perceptual cues when they are dealing with situations and tasks that are familiar (Springer, 2001).

We can apply this developmental trend in perceptual boundedness to the example at the beginning of this chapter. The preschool child is transfixed by E.T.'s strange physical appearance, reacting with fright when she sees its distorted form. In contrast, the older child is able to minimize the character's looks and instead focus on the creature's behavior and motivation.

*From Centration to Decentration.* As noted above, children and even adults can respond strongly to salient features in a message. But another characteristic of younger children's thinking is that they often focus on a single striking feature to the exclusion of other, less striking features. This tendency has been called...
centration and is illustrated in some of Piaget’s classic liquid conservation tasks (see Ginsburg & Opper, 1979). In these tasks, a child is shown two glasses containing identical amounts of water. Once the child agrees that the amounts are identical, the experimenter pours the water from one glass into a third glass, which is taller and thinner (see Figure 1.16). The experimenter then asks the child whether the two amounts of liquid are still identical or whether one glass now contains more water. The typical preschooler concludes that the taller glass has more liquid in it. Why? Because the taller glass looks like it has more in it. In other words, the differential height of the liquids captures most of the preschooler’s attention.

![Figure 1.16 Typical Piagetian Conservation Task](image)
In contrast, older children are increasingly able to “decenter” their attention and take into account the full array of perceptual cues. The liquid in one glass is higher but that glass also has a different shape to it. It is taller and thinner. Also, pouring the liquid from one container to another does not change the quantity. The “amount” of the liquid stays the same. By recognizing that the liquid is the same, the older child is able to conserve continuous quantities.

The same developmental differences are found with other types of conservation tasks. For example, two rows of six pennies can be laid out next to one another, in a one-to-one correspondence. If one row is then compressed, a younger child is likely to perceive it as containing fewer coins because it is now shorter (Ginsberg & Opper, 1979). In contrast, the older child notes all the perceptual data in the situation and recognizes that the number of pennies is conserved or unchanged despite appearances.

O’Bryan and Boersma (1971) documented these differences further by examining children’s eye movements during conservation tasks. They found that younger children who are unable to conserve or master the task correctly tend to fixate on a single dimension, such as the height of the liquid in a glass. Older children who are able to conserve show more varied eye movements, shifting their gaze over many parts of the testing display.

Applying the idea of centration to the media, younger children are likely to respond strongly to a single feature in a television or movie scene, such as a character’s red dress or a hero’s shiny weapon. The prominence of the cues as well as the child’s own interests will help determine what is most salient. Other perceptual cues such as the character’s hair color, name, physical size, and even certain overt behaviors may go unnoticed. In emotional stories, for example, a character’s feelings are often conveyed through facial expressions as well as situational information in the plot. Younger children will be more likely to fixate on one or the other of these sets of cues, even when they conflict (Wiggers & van Lieshout, 1985). Thus, in some cases, we can expect that this centration will interfere with a young child’s comprehension of the storyline (see Figure 1.17).

*From Perceived Appearance to Reality.* Another important cognitive skill during childhood concerns the ability to distinguish fantasy from reality. Much to a
parent’s amazement, a 3-year-old child may attribute life to an inanimate object such as a rock, have an invisible friend, and want Barney the dinosaur to come over to the house for a play date (see Figure 1.18). All of these tendencies reflect a fuzzy separation between what is real and what is not.

Numerous studies have found strong developmental differences in children’s perceived reality of television (see Dorr, 1983; Wright, Huston, Reitz, & Piemyat, 1994). Very young 2- and 3-year-olds show little understanding of the boundary between television and the real world (Jaglom & Gardner, 1981). In fact, at this age, children routinely talk to the television set and wave at the characters (Noble, 1975). For example, in one study, many 3-year-olds reported that a bowl of popcorn shown on TV would spill if the television set were turned upside down (Flavell, Flavell, Green, & Korfmacher, 1990).

By around age 4, the young child begins to appreciate the representational nature of television but still tends to assume that anything that looks real is real (M. H. Brown, Skeen, & Osborn, 1979). This literal interpretation has been called the “magic window” perspective, reflecting the idea that young children naively assume that television provides a view of the real world (Jaglom & Gardner, 1981). In fact, at this age, children tend to think that anything shown on TV is real, although most of this centers first on perceptual cues. For example, 5-year-olds typically judge cartoons as not real because they feature physically impossible events and characters (Wright et al., 1994). In other words, the young child judges content by looking for violations of physical reality (Dorr, 1983). It is important to note, though, that these emerging distinctions are initially quite fragile. Young children may be able to report that an animated character is “not real” yet still become quite frightened of it (Cantor, 1998). In one recent study (Wooley, Boerger, & Markman, 2004), preschoolers were introduced to a novel fantasy character named the “Candy Witch,” and even 5-year-olds believed she was real and not “pretend,” particularly if the witch purportedly visited their homes at night and left candy.

As children mature, they begin to use multiple criteria for judging reality on television (Hawkins, 1977). Not only do they notice marked perceptual cues but they also take into account the genre of the program, production cues, and even the

![Figure 1.18](image-url)

**Figure 1.18**

SOURCE: Baby Blues by Rick Kirkman and Jerry Scott. Reprinted with permission of King Features Syndicate.
purpose of the program. Most important, older children begin to judge content based on how similar it is to real life (M. H. Brown et al., 1979). Although they recognize that much of television is scripted, older children are likely to judge a scene or a program as realistic if it depicts characters and events that are possible in the real world (Dorr, 1983; Hawkins, 1977). In one survey, 28% of second and third graders and 47% of sixth graders spontaneously referred to “possibility” criteria in judging whether a series of characters and events on television were realistic (Dorr, 1983). In contrast, only 17% of kindergartners used this type of criteria. These trends are congruent with research on language comprehension, which suggests that the concept of possibility is not fully understood until around 8 years of age (Hoffner, Cantor, & Badzinski, 1990; Piaget & Inhelder, 1975).

Obviously, a child’s personal experiences will place a limit on how sophisticated these reality judgments can be. As an illustration, Weiss and Wilson (1998) found that elementary schoolers rated the TV sitcom *Full House* as very realistic, indicating on average that “most” to “all” real-life families are like the family featured in this program. These perceptions seem a bit naive given that the program is about a widowed father raising his three daughters with live-in help from his brother-in-law and his best friend.

*From Concrete to Inferential Thinking.* A final cognitive trend during childhood that has implications for the media is the shift from concrete to inferential thinking.
As we have mentioned above, a young child’s thinking is very tangible, focusing closely on what can be seen and heard (Bruner, 1966). For a 2- or 3-year-old, this means that attention can be swayed by highly salient cues that might actually be extraneous to the plot (Schmitt et al., 1999). For example, a purple costume might get more attention than the actions of the character who is wearing this garment.

By age 4, children can begin to focus more on information that is central to the plot than on incidental details (Lorch, Bellack, & Augsbach, 1987). Of course, younger children do best with age-appropriate content, programs that are relatively short in duration, and comprehension tests that assess forced-choice recognition rather than spontaneous recall (Campbell, Wright, & Huston, 1987). With development, children become increasingly able to extract events that are central to the storyline in a program (Collins, 1983). Yet the information younger children focus on is still likely to be fairly explicit in nature. For example, one study found that 4- and 6-year-olds most often recalled actions after watching televised stories, whereas adults most often recalled information about characters’ goals and motives (van den Broek, Lorch, & Thurlow, 1996). Actions typically are concrete and fairly vivid in television programming, making them easy to understand and represent in memory.

As discussed above, however, full comprehension involves apprehending not only explicit content but also implicit information in the unfolding narrative. For instance, in one scene, a protagonist might discover that a “friend” is trying to steal his money. In a later scene, the protagonist might hit the friend. The viewer must deduce that the protagonist’s aggression, which in isolation might appear unprovoked, is actually motivated by a desire to protect personal property. In other words, the viewer must link scenes together and draw causal inferences about content that is not explicitly presented. Studies show that older children are better able than their younger counterparts to draw different types of inferences from verbally presented passages (Ackerman, 1988; Thompson & Myers, 1985). The same pattern emerges in the context of television. By roughly age 8 or 9, children show dramatic improvements in their ability to link scenes together and draw connections between characters’ motives, behaviors, and consequences (Collins, Berndt, & Hess, 1974; Collins, Wellman, Keniston, & Westby, 1978). This shift from concrete to inferential processing has implications for other forms of media as well. A video game and even a Web site require the user to make connections across space and time.

To summarize, a number of important cognitive shifts occur between early and middle childhood. A preschooler watching television is likely to focus on the most striking perceptual features in a program. This child may comprehend some of the plot, especially when the program is brief and age appropriate. Yet comprehension will be closely tied to concrete actions and behaviors in the storyline. In addition, the preschooler is likely to have difficulty distinguishing reality from fantasy in the portrayals. As this same child enters elementary school, she will begin to focus more on conceptual aspects of the content such as the characters’ goals and motives. She increasingly will be able to link scenes together, drawing causal connections in the narrative. And her judgments of reality will become more accurate and discriminating as she compares television content with that which could possibly occur in the real world. Clearly, her overall understanding of a media message...
is quite advanced compared with what she was capable of as a preschooler. Nevertheless, her skills are continuing to develop even during her later elementary school years. Next, we will explore some of the cognitive shifts that occur between late childhood and adolescence.

**Older Children Versus Adolescents**

*From Real to Plausible.* As described above, older children use a variety of cues to judge the reality of media content. One of the most important yardsticks for them is whether the characters or events depicted in the media are possible in real life (Morison, Kelly, & Gardner, 1981). Adolescents become even more discriminating on this dimension, judging content as realistic if it is probable or likely to occur in real life (Dorr, 1983; Morrison et al., 1981). In Dorr’s (1983) research, almost half of adolescents defined real television events as those that were probable or plausible in real life. In contrast, probability rationales were seldom used by older elementary school children. To illustrate this distinction, a movie featuring an evil stepfather who is trying to poison his stepchildren might be very upsetting to a 9- or 10-year-old because this scenario could happen in real life. A teenager, on the other hand, is less likely to be disturbed by such content, reasoning that the vast majority of stepfathers in the world are not murderers. The movement to probabilistic thinking is consistent with studies of language comprehension that indicate that the ability to differentiate probability from possibility crystallizes during early adolescence (Piaget & Inhelder, 1975; Scholz & Waller, 1983).

*From Empirical to Hypothetical Reasoning.* A related development that occurs between late childhood and early adolescence is the shift from empirical to hypothetical reasoning (Flavell et al., 2002). Adolescents become increasingly able to understand abstract concepts, use formal logic, and think hypothetically (Byrnes, 2003). Along with this abstract thinking comes an ability to engage in inductive and deductive reasoning (Keating, 2004). An older child is able to reason conceptually too, but much of this process is based on collecting empirical evidence. A fifth or sixth grader, for example, may watch a person’s behavior across several situations and infer from these actions what the person’s motives are. In contrast, an adolescent might begin with a theory or hypothetical set of motives for a person and then observe behaviors to see if the theory is correct. In other words, the teenager is capable of more abstract thinking that need not be tied too closely to observable data.

Adolescents also are increasingly capable of suspending their own beliefs to evaluate the reasoning of someone else (Moshman, 1998). Put another way, teens can sometimes reason about arguments at an objective level.

The ability to think hypothetically means that a teenager can anticipate different plot events and predict logical outcomes as a storyline unfolds. The teen also is able to critique the logic and causal structure of different media messages. As abstract thought flourishes, the adolescent also may consider the meaning behind the message—who is the source and why is the message constructed this way? How would the message differ if it were designed by someone else with different motives?
Metacognitive Thinking. Metacognition refers to the ability to understand and manipulate one's own thought processes (Metcalfe & Shimamura, 1994). It is called metacognition because it refers to second-order mental activities: A person thinks about his or her own thinking. Adults routinely reflect on their own cognitive processing, especially during situations that highlight the need to do so. For instance, studying for a test or actually taking one requires a person to concentrate carefully on cognitive enterprises such as attention, comprehension, and memory.

Flavell and his colleagues (2002) have distinguished between two types of metacognition: metacognitive knowledge and metacognitive monitoring and self-regulation. Metacognitive knowledge refers to a person's knowledge and beliefs about the human mind and how it works. For example, most adults realize that short-term memory is of limited capacity (see section below on processing capacity), that it is generally easier to recognize something when you see it than to recall it outright, and that certain tasks are more difficult and demanding of the human mind than are others. But young children do not necessarily possess such metacognitive knowledge. In one study, for example, Lovett and Flavell (1990) presented first graders, third graders, and undergraduates with three tasks: a list of words to be memorized, a list of words to match up with a picture, and a list of words to memorize and match. Unlike the first graders, the third graders and the undergraduates were able to select what type of strategy—rehearsal, word definition, or both—would work best for each task. Yet only the undergraduates understood that the tasks would be more difficult with longer lists and unfamiliar words. Thus, as children develop, they become increasingly aware that the mind engages in a range of activities, including memory, comprehension, and inference (Flavell et al., 2002).

The second type of metacognition involves monitoring and readjusting one's ongoing thinking. Consider the test-taking instance, for example. An adult who is having difficulty with a certain section on a test might decide to jump ahead to an easier part for efficiency's sake and to build confidence before returning to the harder material. Research suggests that this type of self-monitoring is difficult during early childhood (see Flavell et al., 2002). In one study, preschoolers and elementary schoolers were instructed to examine a set of objects until they were sure they could recall them (Flavell, Friedrichs, & Hoyt, 1970). Older children examined them for a period of time, determined they were ready, and typically recalled all the items correctly. In contrast, the preschoolers examined the items, thought they were ready, and generally failed on the recall test. In other words, the preschoolers were not capable of monitoring their memory processes very accurately.

How do metacognitive knowledge and monitoring relate to the media? We can expect that as children approach adolescence, they will be better able to analyze the cognitive demands of different media and even different messages within a particular medium. According to Salomon (1983), some media require more nonautomatic mental elaborations or more AIME (amount of invested mental effort) than do others. In general, television requires less effort and concentration than reading, for example, because the former is highly visual and relies less on language skills (Salomon & Leigh, 1984). Thus, a teenager is more likely than a young child to recognize that a difficult book or a television documentary requires higher concentration than does watching MTV. Their awareness of different media will affect the
depth of processing they will use, which in turn will enhance comprehension and learning. Interestingly, when children are instructed to pay attention and to learn from TV, their mental effort and performance increase compared with what they do without such instruction (Salomon, 1983).

Also, as children reach the teenage years, they increasingly should be able to monitor their own reactions to the media, slowing down when they do not understand a book passage or reminding themselves it is only a movie when they feel scared. In one illustration of this, preschoolers and 9- to 11-year-olds were given different types of instructions for how to think about a frightening program they were about to watch on television (Cantor & Wilson, 1984). Children were told either to imagine themselves as the protagonist (role-taking set) or to remember that the story and the characters were make-believe (unreality set). The cognitive-set instructions had no appreciable effect on the preschoolers’ emotional reactions to the program. In other words, they showed little ability to use the information to alter how they perceived the program. In contrast, older children in the role-taking condition were more frightened by the program, and those in the unreality condition were less frightened compared with a control group that received no instructions at all (see Figure 1.20). The findings are consistent with the idea that as children develop, they increasingly are able to modify their thought processes while watching television.

Regulatory Competence. Adults have long assumed that much of cognitive growth occurs during the childhood years. Recent research on the brain contradicts this view. With better measurement tools such as magnetic resonance imaging (MRI), we are beginning to realize that there are substantial changes in brain development during adolescence (Kuhn, 2006). Much of this development occurs in the frontal

![Figure 1.20](image-url)
Two Overall Developmental Trends

Two other important trends occur continuously throughout childhood and adolescence and are not specific to particular age groups: increasing knowledge about the social, physical, and mediated world in which we live and increasing processing capacity.

Increase in Domain-Specific Knowledge. It may seem obvious to state that children gain increasing amounts of knowledge across different domains as they grow. But the point is still worth making because it has such important implications for interacting with the media. With each new experience, a child stores more and more information in highly organized ways in memory. The resulting knowledge structures, sometimes called mental templates or schemas, are powerful organizers that help children anticipate and assimilate new information (Fiske & Taylor, 1991). Research suggests that children as young as 3 years of age possess well-developed schemas or scripts for familiar events such as getting ready for bed and taking a bath (Hudson, Sosa, & Shapiro, 1997). As evidence of the power of these mental organizers, a young child is likely to protest quite strongly if someone tries to alter these routines.

Young children also develop schemas for stories that include information about the typical structure and components of a narrative (Mandler, 1998). Research suggests that a well-developed story schema can help a child to organize and interpret television programming (Meadowcroft & Reeves, 1989). In addition, children can form schemas about the social and physical world in which they live. In the social realm, for example, children develop templates for emotions that include information about expressive signals, situational causes, and display rules associated with each affect (e.g., Campos & Barret, 1984). These schemas undoubtedly assist a child in making sense of an emotional scene on television. Such schemas, in turn, can be shaped and modified by exposure to the media (see Wilson & Smith, 1998).

Not surprisingly, children develop schemas about the media as well (Calvert, 1999). Each form of the media has its own special audiovisual techniques and codes, which at least in the case of television have been referred to as “formal
features” (Bickham, Wright, & Huston, 2001; Huston & Wright, 1983). Television and film, for example, use production techniques such as cuts, zooms, fades, and special effects to signal shifts in time and changes in setting. Video games and computers have their own technological conventions. A user of the World Wide Web, for example, needs some understanding of search engines and hypertext. Knowing what to expect from each medium greatly increases a child’s sophistication with it (Calvert, 1999; R. Smith et al., 1985). For this reason, efforts to teach youth to become critical consumers of the media often include instruction about the conventions of different technologies (see Chapter 13).

In addition to developing schemas about the media, spending time with certain technologies can actually enhance cognitive thinking (see Subrahmanyam & Greenfield, 2008). For example, studies show that practicing certain types of video games can improve dynamic spatial skills in both children (Subrahmanyam & Greenfield, 1996) and adults (Feng, Spence, & Pratt, 2007). There is also evidence that video game playing improves strategies for dividing visual attention, presumably because players must cope with events that occur simultaneously at different places on the screen (Greenfield, deWinstanley, Kilpatrick, & Kaye, 1996). In addition, listening to a song seems to stimulate imagination more so than watching a music video of the same song does (Greenfield et al., 1987). All of these studies suggest a kind of interactive relationship between media exposure and schematic processing and development.

To summarize here, children can call on larger stores of remembered information across a variety of domains as they grow. In addition, they can integrate and combine information in more complex ways, forming more elaborate connections with what they already know (Siegler, 2005). In other words, their schemas become more elaborate and differentiated. Hence, their interpretations of media content will be richer and more complex.

Having a great deal of knowledge and experience in a given area has all kinds of benefits for cognitive processing. Compared to a beginner, the veteran has familiar concepts and ready-made strategies to apply to a problem (Siegler, 2005). Given that the terrain is familiar, the expert expends less cognitive energy and is free to apply mental workspace to high-order activities such as metacognition (Flavell et al., 2002). Consider for a moment how a 6-year-old might respond to a cigarette advertisement in a magazine compared with how a 16-year-old would process the same message. The 6-year-old presumably has never smoked, has little knowledge of how the lungs work, is unaware of the legal battles ensuing against the tobacco industry, is not cognizant of who paid for the placement of the ad in the magazine, and has little experience with the cost of various products in a grocery store. The teenager certainly has less experience than an adult would have in this domain, but compared with the grade schooler, the adolescent brings a much broader knowledge base from which to draw in interpreting and evaluating such an ad.

Increase in Processing Capacity. Regardless of age or level of development, all humans experience limits in the capacity of their working memory (Fougnie & Marois, 2006). In other words, certain situations and tasks are so demanding that
they exceed a person’s available cognitive resources. One way to demonstrate this has been through reaction time studies that show that people perform slowly or poorly on secondary tasks when their mental energies are consumed by a primary task (Kail, 1991; Lang, 2000).

Developmental research demonstrates that as children mature, they are able to hold increasing amounts of information in working memory (Cowan, Nugent, Elliott, Ponomarev, & Saults, 1999; Kail, 1990). For example, a 5-year-old typically is able to deal with only four or five bits of information at once (e.g., digits, letters), whereas the average adult can handle seven (Dempster, 1981). There are differing theoretical accounts for this increased processing capacity. Some have argued that the structure or size of one’s memory space actually increases with development (Cowan et al., 1999). Others have argued that the size remains fixed, but the functional use or efficiency of the space increases (Kail, 1991). As certain tasks become familiar, they are easily categorized into preexisting schemas. This categorization and routinization mean that fewer demands are placed on the cognitive system, and hence space is freed up for other cognitive processing.

Regardless of which view is correct, the implications are the same. Younger children have difficulty considering multiple pieces of information in working memory (see Figure 1.21). In addition, their capacities may be taxed quickly by a single cognitive activity that is somewhat novel and thus cannot be easily schematized. As children mature and gain experience in certain arenas, they can quickly classify new information into preexisting schemas. This schematization allows them to consider and interrelate more bits of information at once and to engage in concurrent cognitive tasks. In other words, they become more efficient information processors.

How does processing capacity affect children’s interactions with the media? Research suggests that older children are better able than younger children to consider multiple cues within a scene or across several scenes when interpreting a television portrayal (Collins et al., 1974; Hoffner, Cantor, & Thorson, 1989). Likewise, older children are able to track the main plot of a television story even

Figure 1.21
SOURCE: Baby Blues by Rick Kirkman and Jerry Scott. Reprinted with permission of King Features Syndicate.
when there is a subplot interspersed throughout, whereas younger children’s comprehension suffers in the face of a distracting subplot (Weiss & Wilson, 1998). Older children also are better equipped to handle fast-paced programming that involves the integration of information across rapid changes in time and place (Wright et al., 1984). As discussed above, older children also are better able to consider their own thought processes while attending to a television program (Cantor & Wilson, 1984).

Any time a media message is complex, lengthy, fast-paced, or delivered in a distracting environment, it is likely to present a cognitive challenge to younger children because of their more limited processing capacities. Extending these ideas to newer technologies, we might also expect that interactive media such as computer games will quickly tax the mental resources of a young child because of the need to simultaneously comprehend content and respond cognitively and physically to it. As processing capacity increases throughout childhood and adolescence, these once very difficult types of media interactions will become increasingly routinized.

**Conclusion**

The purpose of this chapter has been to underscore the fact that children are very different from adults and from each other when they interact with the media. Children are eager to learn, have less real-world experience, and have less developed cognitive skills, making them ultimately more vulnerable to media messages. The remainder of this book will explore how children and teens respond to different types of media content such as violence and sexual messages as well as to different media technologies such as video games and the Internet. We will continually draw on the concepts and developmental trends presented in this chapter to explain how children deal with the stimulating media world that confronts them. Clearly, there are robust developmental differences in children’s attention to and comprehension of media messages. These cognitive processes in turn have implications for emotional responding as well as behavioral reactions to the media.

**Exercises**

1. Think about your childhood. What is the first experience you remember having with the media? How old were you? What medium was involved? What type of content was involved? What was your reaction or response to the experience? Did your parents know about it? Could a child today have a similar experience? Why or why not?

2. For one day, chart the time you spend with the media (e.g., television, radio, books, Internet). Note which media you are using and what type of content you are experiencing. Also note when you are “media multitasking” or using two or more media at once (i.e., reading a book and listening to music). How much of your day did you spend with the media? Is your media use similar to that of the typical American child (see the Roberts et al. [2005] study described in this chapter)? How is it similar and how is it different?
3. Watch an episode of a TV sitcom that is popular with children. Think about the main theme of the program, the sequence of events in the storyline, and the nature of the characters. Based on developmental differences in cognitive processing, describe three ways in which a 4-year-old’s interpretation of the episode would differ from that of a 10-year-old. How would a 10-year-old’s interpretation differ from that of a teenager? What type of viewer do you think the program is targeted toward? Think about the program itself as well as the commercial breaks in addressing this question.

4. Some scholars argue that childhood is disappearing in today’s modern society. They maintain that children are dressing more like adults, talking like them, and experiencing adult activities and even adult media content. Can you think of examples to support this thesis? Can you think of examples that challenge it? How is childhood changing in the 21st century? Do you agree that childhood is vanishing? How crucial are the media in debates about these issues?

5. When you were a child, did your parents have rules about what you could do with the mass media? Did they have rules when you were a teenager? Did you have a TV set in your bedroom? Do you think parents should exercise control over their children’s media experiences? Why or why not?

6. Compare and contrast three rating systems designed to inform parents about media content: (a) the Motion Picture Association of America’s ratings for movies (see www.mpaa.org/FLmRat_Ratings.asp), (b) the TV Parental Guidelines for television shows (see www.tvguidelines.org/ratings.asp), and (c) the Entertainment Software Rating Board’s ratings for computer and video games (www.esrb.org/ratings/ratings_guide.jsp). Evaluate the three systems in terms of what we know about child development, as discussed in this chapter. Do the systems seem accurate? Are they likely to be helpful to parents? How could they be improved? Can you think of a movie, TV show, or video game that you think is rated inappropriately?

7. Watch a program targeted to children that airs on public broadcasting (e.g., Sesame Street, Dragon Tales, Maya & Miguel). Now compare it with a cartoon that airs on Cartoon Network, ABC Kids, or Kids’ WB. Compare and contrast the two programs in terms of plot, characters, formal features, and degree of realism. Which program seems better suited to the developmental capabilities of a 4- or 5-year-old? Why?

8. Find the lyrics to a song from a genre of music that is popular among young people today (e.g., hip-hop, rap). Now compare the lyrics to those from a Beatles’ song of the 1960s or 1970s. What do the songs say about adolescence? How are the songs similar in their representation of adolescent themes such as risk taking, social identity, peer relations, and sexuality? How are they different? Think about the social and political context in which these songs were written in addressing these issues.
References


