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Encyclopedia of Human Ecology

Encyclopedia of Human Ecology

Volume 1: A–H

Edited by
Julia R. Miller, Richard M. Lerner,
Lawrence B. Schiamberg, and Pamela M. Anderson

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Preface

The human ecology field brings together all the following: (1) Multiple disciplines involved in the study of the individual and groups (e.g. biology, nutrition, psychology, sociology, epidemiology, demography); (2) Multiple disciplines involved in the study of environments as the settings or contexts of individual and group life and of environments as the sources of essential resources (e.g., family science, human environment and design, geography, anthropology, environmental science, urban planning, political science, environmental health); (3) Multiple professions intended to enhance individual and family life (e.g., marriage and family therapy, clinical and counseling psychology, social work, policy studies, law, food systems, dietetics, public health, medicine and other health professions, education); (4) Multiple professions concerned with preservation, conservation design, and management of the natural and designed environment and its resources (e.g., land use planning, agriculture, soil conservation, water quality, sustainable agricultural systems, environmental justice, housing and architecture, urban ecosystems, technology transfer, environmental impact assessment, ecological economics); and (5) Other disciplines and allied professions concerned with human development, human values, sustainability of the environment, and sustainable human ecosystem interaction for future generations (e.g., philosophy, religion, art, literature, population studies).

The intensity and range of research and intervention activities included within the field of human ecology represent a challenge to scholarship. How may all the information about this field be integrated in a manner accessible, meaningful, and useful to the next generation of the leaders of our nation and world? How may we best convey the key knowledge necessary for them to understand both the nature of their own development and the ways they may contribute positively to their own lives, to their families and communities, and to the designed and natural environments of which they will be stewards throughout their adult years?

Textbooks are not a sufficient answer, since they are most often written by representatives of one, or at most a few, of the several disciplines involved in the study of human ecology. They are thus necessarily limited in perspective.

Handbooks are not always the answer either; although they may contain chapters by scholars of a disciplinary array wider than that found in texts, each chapter is often a quite long, highly technical piece that may be of most use to other disciplinary specialists. A viable option, and the one we have elected to pursue, is an encyclopedia, one with entries written by specialists from various human ecological disciplines and professions, and designed to be accessible to young people, as well as to the key adult stakeholders in their healthy future: Parents, teachers, counselors, and leaders of youth-serving organizations.

Such an encyclopedia can represent an important and timely contribution to the field of human ecology. As a single authoritative source, it can encompass a range of concepts, topics, and issues involved in the study of human ecology. Our goal has been to have *Encyclopedia of Human Ecology* constitute such a contribution and become a seminal resource for many professions. We believe that the *Encyclopedia of Human Ecology* (EHE) represents

much of the breadth and depth of disciplinary and professional expertise involved in the contemporary study of human ecology. This contribution exists because scholars and practitioners representing a broad range of disciplines and professional fields in human ecology have written entries for the EHE. In addition, each EHE entry includes a list of representative references, citations that should aid the reader to gain more detailed information about the substance of an entry.

Through the substance and features of the EHE, we believe the volume will be of value to young people ranging in age from middle school through the beginning of college, and to their parents, teachers, and program leaders. People in each of these groups may have some knowledge of particular facets of human ecology but nevertheless may profit from increasing their acquaintance with the breadth of available information. This breadth of disciplinary and professional information spans theories and methods pertinent to the individual, the family, the community, and the designed and natural environment. In addition, sociocultural, human-built, and physical-biological environmental levels of organizations are included. In particular, issues of racial, ethnic, gender, age, cultural, life-style, and physical-handicap diversity are emphasized throughout the EHE.

Our wish is to capture the vitality and diversity of the field. We hope, then, that the EHE, with its multidisciplinary and multiprofessional scope, will do justice to the features of human ecology that make it so attractive as a field of inquiry, as well as so centrally important to society. If the EHE is successful, it will serve as a vital resource to young people as they seek to acquire the information they need to understand and to enhance their world and the lives of the people in it.

There are numerous colleagues to whom we are indebted for helping us develop this encyclopedia. Most important, we are grateful to the authors who contributed their expertise to the encyclopedia, as well as their vision for and passion about enhancing the lives of children, families, communities, and the natural and designed ecologies within which we live. We also greatly appreciate our colleagues at Michigan State University and Tufts University. They urged us to undertake this project and gave us unflagging support and wise counsel at every stage of our work. In addition, we are deeply grateful for the professional and enthusiastic assistance throughout the development of the encyclopedia that was provided by the editorial office at the Applied Developmental Science Institute, Eliot-Pearson Department of Child Development, Tufts University, which is led by Karyn Lu as managing editor. We also thank all the editors at ABC-CLIO for their support, expert guidance, and collegial spirit.

Finally, we thank our families for their unwavering good spirit. Their love and support nurtured us throughout our work. They are our most important developmental assets, and with enormous gratitude we dedicate this encyclopedia to them.

Julia R. Miller
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Human Ecology: A View of the Issues

What knowledge, from what disciplines, is needed in order to understand the interdependence of humans with their physical-biological, social-cultural, and human-built environments? What information is needed to frame human decisions and actions that will enhance the quality of human life and the quality of the environment? What professions need to be consulted in order to find means to promote desirable behaviors and healthy development, to ameliorate already existing problems, and to optimize future life paths?

Once information about the ecology of human life has been gained, how do we use it to foster responsible citizenship, the prudent stewardship of the natural and the designed environment, social justice, and the institutions of civil society? How do we inform young people about these questions, and how answers to them affect their lives and those of their families and communities? How, through the delivery of this information, may we empower young people to contribute productively to society and culture?

These questions point to the central issues in the field of human ecology, but these issues are obviously not limited to one field. In fact, contemporary scholarship has undergone a substantial expansion of the range of disciplines and professions seen as needed for addressing these questions (Lerner 2002). Reflecting an increased understanding of the global interdependency of humans and their environments, this scholarship has promoted an integration of disciplines and professions (e.g., Lerner and Miller 1993; Miller and Lerner 1994; Lerner, Miller, and Ostrom 1995). Accordingly, current emphases in both physical science and human science stress the view that complex phenomena and stubborn problems of contemporary society require collaborative efforts from a human ecological perspective among several disciplines and professions (Lerner 2002). One of the basic premises of human ecology is the interactive relationship between humans and their environment. Basically, the environment is an ecosystem comprised of air, soil, water, living organisms, physical structures, and built environments. Further, as G. G. Marten emphasized in his recent book, *Human Ecology: Basic Concepts for Sustainable Development,* the central core of human ecology is the social system; the human activity that impacts ecosystems is influenced, to a great extent, by the society in which human beings live. More importantly, Marten (2001) stressed that values and knowledge influence the way people process information and act in and on the world. In human ecology, emphasis is given to the creation, use, and management of resources (both material and human) for survival, creative adaptation, human growth and development, and fostering sustainable growth that protects of the environment (Bubolz and Sontag 1993). The uniqueness of human ecology lies in its focus on viewing humans and their environments as integrated wholes, mutually influencing each other (Bronfenbrenner 1979, 2001; Bronfenbrenner and Morris 1998).

In prior decades, cutting-edge science has tended to be reductionist and mechanistic (Lerner 2002). In addition, this approach to science has differentiated hierarchically between basic and applied research: Colleagues whose professional activities were devoted to the design, delivery, and evaluation of policies and programs (whose aim was to enhance the course of human lives and/or

to enhance the environment) were seen as engaging in activities that were secondary in status and importance to endeavors pursued by laboratory scientists or theorists (Lerner et al. 1994).

However, the human ecological perspective runs counter to this reductionist viewpoint, a perspective that mistakenly splits basic science and application. The roots of the human ecological perspective lie historically in the work of home economists, primarily working within the land-grant institutions.

The American Land-Grant University and the Genesis of Human Ecology

The contemporary mission of the American land-grant university is typically stated to be teaching, research, and service (with service often used interchangeably with the terms extension or outreach). The three components of this mission and the order in which they are enunciated have an important basis in the history of our nation (Enarson 1989), and it is useful to provide a brief recapitulation of this history.

As explained by the National Association of State Universities and Land-Grant Colleges (Enarson, 1989), the American land-grant university system was created through the first land-grant university act, the Morrill Act, which was signed into federal law by President Abraham Lincoln on July 2, 1862; this act provided 17.4 million acres of land to the states in order that each might have at least one college whose purpose was "to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

A second Morrill Act was signed into law by President Benjamin Harrison on August 30, 1890, directing the states to provide a "just and equitable division of the fund to be received under this act between one college for white students and one institution for colored students." The enactment of this law was an impetus for the creation of seventeen "historically black land-grant colleges" in Southern and Border States.

The Hatch Act was approved by Congress on March 2, 1887; it mandated the creation of agricultural experiment stations "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture and to promote scientific investigation and experiment respecting the principles and applications of agricultural science" (National Association of the State Universities and Land Grant Colleges 1989, 13).

The Smith-Lever Act was signed into law by President Woodrow Wilson in 1914; this law was intended to allow land-grant institutions to extend instruction beyond the boundaries of campuses. The purpose of this extension was to "aid in the diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the applications of the same" (National Association of the State Universities and Land Grant Colleges 1989, 15). The act further specified that the cooperative extension work of land-grant institutions "shall consist of the giving of instruction and practical demonstrations in agriculture and home economics to persons not attending or resident in said colleges in the several communities, and imparting to such persons information on said subjects through field demonstrations, publications, and otherwise" (15).

The federal acts that created the combined teaching, research, and outreach mission of the land-grant system worked together to create an institution that may be described as a university for the people of a state. That is, the land-grant university's functions of knowledge generation (research), knowledge transmission (teaching), and knowledge utilization (outreach) exist to improve the lives of the people of its state as they live in their communities. This land-grant mission was refined through the vision of scholarship articulated in the field of home economics.

In 1892, Ellen Swallow Richards, the first woman faculty member within any science program in the United States (at the Massachusetts Institute of Technology), proposed a science of human ecology focused on the home and the family, a science she labeled *home oekology* (Bubolz and Sontag 1993). This German concept focused on the interrelationship between organisms and the environment and was based on the premise that life and the environment should be viewed as inseparable parts of a whole or system (Bubolz 2002). Since this time, the vision of the land-grant university as the university for the people of its state has been operationalized within the field of home economics/human ecology as a university for the children, families, and communities of its state. Moreover, the human ecology vision of the

tripartite land-grant mission means that research, teaching, and outreach should be viewed as integrated activities. Teaching about or research conducted within the ecologically valid, that is, actual or real world settings within which children and families live their lives (i.e., within their homes and within their communities) is predicated on an understanding of the needs, values, and interests of the specific people and the particular community the land-grant institution is trying to serve. Accordingly, when knowledge generation or transmission occurs in a context that allows the community to value and see practical significance for these facets of knowledge, the application of this knowledge by the specific communities becomes more likely.

This view is derived from the land-grant, human ecology vision of the synthesis of the university's knowledge functions with the needs and values of the community. The perspective of human ecology provides both a theoretical foundation for this synthesis and a means for strengthening the rationale for a conception of basic research that focuses on the community-specified problems of the community's children and families. At the same time, the emergence of the land-grant university was not the only factor in the development of human ecology as a field.

The Emergence of the Human Ecology Field

The attention to the integration of knowledge within instruction, research, and outreach is not a new phenomenon. Historically, the belief that valid knowledge should make a difference to every aspect of human life can be traced to Plato. This idea reached an important stage in late nineteenth-century America with the work of John Dewey, a strong advocate for both integration and application of knowledge (Schiamberg 1988).

The field of home economics provided an impetus as well. As formerly noted, Ellen Swallow Richards saw the new field she was launching as based on the reciprocal influence of humans and their environments (Kilsdonk 1983). Initially, this first woman of science was greatly impressed and influenced in her thinking by the statement establishing the Massachusetts Board of Health: The preamble of the statement stated that no Board of Health can separate the physical nature of man from his moral and intellectual parts. The three qualities cannot be separated and act and react upon one another. All three are acted upon by the forces of nature that surround us and any influence exerted to the injury of one may indirectly injure others (Clarke 1973).This statement served as the foundation upon which she built her work in environmental science. For her, it was impossible to separate the physical, moral, and intellectual aspects of human nature, and it was obvious that there were forces in the natural world that influenced the way people lived, affecting their physical, social, and perceptual environments (Clarke 1973).

In essence, Richards focused on examining the reciprocal relationships between the home and its environment. Given its origins as a multidisciplinary field of inquiry, human ecology built its body of knowledge upon a foundation of integrative thinking in order to address critical issues related to a conjoint study of individuals and families.

The relevance of this orientation for contemporary issues facing America is striking. These issues include persistent and pervasive poverty, economic development, health, environmental quality, and others confronting children and families. Universities have been challenged to view their scholarship from a perspective that is problem-focused rather than discipline-based (Boyer 1990; Lynton and Elman 1987). The above-noted problems facing the nation do not fall neatly into disciplinary categories and cannot be solved by isolated disciplines (Schiamberg 1985, 1988). Therefore, the challenge is to bring integrative scholarship to bear on these problems (Brown 1987).

From the inception of the field, professionals in home economics/human ecology have been committed to the integration of knowledge from diverse disciplines to address quality-of-life issues. Indeed, this integrated multidisciplinary perspective has been critical to the evolution of the body of knowledge in this field. Moreover, M. Suzanne Sontag and Margaret M. Bubolz (1991) recently noted that integration (of concepts, theories, education, and practice in several specializations within home economics) has surfaced as a critical need in resolution of practical problems of families. This need can be addressed because the field integrates conceptual frameworks, theoretical formulations, and methodologies used in different specializations and disciplines into new, distinct, and synthetic paradigms. Further, as Bubolz and Sontag (1991) noted, human ecology reflects a multidisciplinary and systems philosophy and methodology.

As implied above, today, perhaps more than ever before, human ecology is challenged to strengthen its integrative orientation to the complex problems facing individuals, families, and the environment. The scholarly and societal issues involving America's children and families within the context of their environments are indisputably complex. For their resolution they require collaboration between those professionals who do basic scientific research and those who design, deliver, and evaluate service. Likewise, professionals and lay people must accept the responsibility of being politically active and knowledgeable if they want to have any meaningful impact on problem-solving and decision-making efforts related to their future quality of life.

Our position is that human ecology—at least, in theory, if not always completely in practice—is a relational, multidisciplinary, and multiprofessional field of scholarship. It involves the integration of disciplines and professions in the service of enhancing both knowledge about, and services to, the diverse people, families, and communities of our nation and world. There are at least two other dimensions of integration involved in the multidisciplinarity and multiprofessionalism of the field: (a) the generation and transmission of knowledge (i.e., research and teaching) are combined with the application of knowledge (service); and (b) the generation, transmission, and application of knowledge occur in concert with communities and the needs in respect to individual and family life that exist within them (Miller and Lerner 1994).

Although the field of home economics and human ecology was influenced by the reductionism and split thinking that dominated psychology and the rest of the social sciences in the mid-twentieth century, the last two decades of the century saw a return to the tradition of integration with which the field began (Overton 1998). In particular, the current focus involves a linkage of science and service in enhancing the development of individual lives, of the family, and of the community, and in promoting the kind of sustainable use of resources that will preserve the quality of the environment (Fisher and Lerner 1994). This focus constitutes, in effect, a new paradigm for the sciences and the professions involved with human behavior and the environment, a critical science model in which theory, research, and practice are seen as integral parts of a whole (Bronfenbrenner 2001).

The Contemporary Dimensions of Human Ecology

In essence, the history of the field of human ecology has produced a field marked by at least five features:

1. Changes in the philosophy of science involved in the study of human life as well the study of the environment (Overton 1998, in press). The disciplines and professions involved in the study of human ecology have moved from mechanistic or organismic frameworks that emphasize unidirectional influences to contextual or developmental systems perspectives that emphasize reciprocity and a system or pattern of relationships.
2. The development of theories that have been derived from developmental systems perspectives (Lerner 2002). In particular, the human ecological view of human behavior development, the life-span view of human development, and the developmental contextual model provide strong bases for understanding the multiple influences on human behavior in context (Lerner 1998). Indeed, these theories emphasize that the key "unit" of scientific analysis is the temporally changing *relation* between humans and their multilevel environments (Lerner 1991).
3. The development of theories that are concerned with the functioning of systems in their social-cultural, human-built, technological, and physical-biological environments and with the linkages between micro and macro system levels (Bronfenbrenner 2001; Bronfenbrenner and Morris 1998). Systems theories emphasize feedback and the lawful consequences for the total system of often unforeseen actions within component parts of the system (Thelen and Smith 1998).
4. The development of appropriate methodologies to understand and test development and behavior in context from a systemic perspective (Lerner, Dowling, and Roth in press). The idea of temporally changing person-environment relations has led to the generation of methodological strategies such as longitudinal sequential designs, change-sensitive measurement, multivariate-longitudinal statistical methods, and techniques that are both quantitative (e.g., structural equation modeling or times series

analyses) and qualitative (e.g., ethnographic analyses or focus group methods) (Baltes, Reese, and Nesselroade 1988; Nesselroade and Baltes 1974; von Eye 2002).

5. An understanding of the mutually enriching relationship between intervention research—or applied science—and basic scholarship (Fisher and Lerner, 1994). On one hand, the ideas promoted by this new paradigm stress that human behavior and development occur in relation to the changing, real-world settings of human life. On the other hand, this paradigm points out that individual, social, and political decisions and actions have long-term consequences for the environment (Bronfenbrenner 2001). As a consequence, tests of theoretically based ideas about how to alter the relation between people and contexts involve the introduction of policies and programs intended to change these relations (Lerner et al. 1994; Miller and Lerner 1994). As such, the evaluation of these policies and programs then not only provides information about their efficacy but also offers basic understanding of means to enhance the course of human life or the course of environmental change (Lerner 2002).

In the early twenty-first century, then, the above five changes have emerged to characterize the cutting edge of both scholarship and service in the multiple disciplines and multiple professions involved with research, policy, and programs directed to humans in interaction with their environments. This synthesis shapes both concepts and scholarly activities within the field of human ecology.

The Present Encyclopedia

Given the complexity of the field, an encyclopedia, as discussed in the Preface, seems an especially appropriate way to make the knowledge contained in the field of human ecology available to the broad audience to whom it is potentially useful. Likewise, this resource is of critical importance to those individuals (lay people, educators, professionals in human services fields, and political decision makers) who must become more actively involved in quality-of-life issues as our boundaries are stretched in this global society.

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A

Abortion

See Adolescent Pregnancy and Prevention; Prenatal Decision Making by Adolescents

Abuse

See Child Abuse; Domestic Violence; Elder Abuse in the Family; Sexual Abuse; Violence in Teen Dating

Accidents: Environmental Causes and Preventions

Accidents are unintentional events that cause tissue damage to an individual. They are the leading cause of death in the United States for children and adolescents ages 1–25. Every year, about 10,000 Americans under age 18 die from accidental injuries. An additional 10 million children and adolescents visit emergency rooms after accidental injuries, and countless others experience pain or withdraw from planned activities without seeking professional medical care (National Safety Council 1999).

In many ways, accidents are misnamed: Accidents are usually not purely accidental. Human behavior causes many accidents, and therefore many accidents are preventable. For this reason, scientists prefer the term "injuries" instead of "accidents." To fully understand the ecology of accidental injuries, we must consider both the factors that lead to injury and the ways we can prevent injury. Factors that cause injury will be addressed first.

Researchers identify a number of factors that put children and adolescents at increased risk of accidental injury. Some factors are social. For example, children whose parents do not monitor the children's behavior, whose parents are frequently absent, intoxicated, or ill, and whose parents fail to supervise the children during dangerous activities are at increased risk of injury (e.g., Peterson et al. 1995). Also of concern is the child's own temperament, or personality. Children who are impulsive and have poor self-control—that is, those children who are unable to control their impulses when attempting dangerous activities—tend to have more accidental injuries (e.g., Schwebel and Plumert 1999). Other factors are understood less completely at this time, but also appear to be related to increased risk of injury. These include cognitive factors such as children's tendency to overestimate their ability to do physical tasks, emotional factors such as children's mental illness (in particular, having oppositional or attention deficit hyperactivity disorders), and peer factors such as pressure to attempt potentially hazardous activities.

Demographic data also suggest some children and adolescents are at increased risk of injury. Boys consistently have a higher rate of injury than girls (e.g., Morrongiello 1997). Finally, environmental factors must be considered as risk factors for accidents. For example, an adolescent who has a summer job working on a farm and operating heavy machinery on a daily basis is at greater risk for arm and leg injuries than an adolescent who works in a legal office for the summer. A child who lives in an impoverished neighborhood where lead-based paint was used in older homes is at

Scene of an accident (Skjold Photographs)

greater risk of lead poisoning then a child who lives in a newly built suburban home.

In considering techniques to prevent accidents, scientists consider two broad categories of interventions: those designed to alter people's behavior and those that alter people's environments. Both are effective ways to prevent injuries. Prevention techniques that target people's behavior tend to focus on ways to change the way people act when they engage in potentially dangerous activities. One successful example of this type of intervention is the use of bicycle helmets. Epidemiological data suggests that the use of bicycle helmets sharply decreases the severity of head injuries children and adolescents experience after bicycle accidents that result in a blow to the head. Another example of a successful accident prevention campaign targeted at individual's behavior is the use of seat belts in automobiles. Countless lives have been saved as a result of interventions to increase seat belt use.

Prevention campaigns targeted toward environments are designed to change potentially dangerous situations so that the environment is safer. An example of this is the placement of mulch in playgrounds to reduce the chance of injury when a child falls off climbing toys. A second example of an environmental intervention to prevent accidents is the implementation of graduated driver's license laws. These laws, now in place in many U.S. states, require adolescents to learn to drive in a series of steps. For example, initial regulations permit driving only during the daytime while supervised by a parent or guardian. Over time, drivers are allowed to drive during nighttime hours, with other adolescents in the car, and without adult supervision. Preliminary evidence suggests that graduated driving laws are effective in reducing the number of accidents involving adolescent drivers (Foss and Evenson 1999).

Scientists and legislators agree that accidents are among the most serious public health problems facing American children and adolescents. Unlike other health problems, accidents are not caused by something like a virus or bacteria; in many cases, human decisions and human behavior lead to accidental injury. Although tragic accidents continue to occur on a daily basis, progress is being made. The rate of accidental injury among children and adolescents is slowly declining (National Safety Council 1999). As researchers continue to cooperate with government officials, manufacturers of commercial products for children and adolescents, and with the general public, the rate of accidental injury among society's youth will be reduced further.

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See also: Adolescents, Alcohol Use Among; Children of Alcoholics

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Acculturation

Given the increasing diversity in our world today, the concept of acculturation has become more and more important. In brief, acculturation is defined as the process of change and adaptation that results from continuous contact between people of different cultures (Redfield, Linton, and Herskovits 1936). The concept of acculturation is important because it helps us to understand how exposure to new, different, and diverse sociocultural environments can influence (and be influenced by) psychological changes within the person (Rogler, Cortes, and Malgady 1991). Although the term "acculturation" can be applied to all types of people—from immigrants, to minorities, to everyday people adjusting to a new environment—it is most commonly used in studies of immigrants and refugees and their children.

Currently, there are two main models of acculturation (Nguyen and von Eye 2002). One emphasizes assimilation (the bipolar approach), and the other, cultural pluralism (the bidimensional approach). In the bipolar model, acculturation is defined as an assimilative process through which mi-

nority individuals acquire the behaviors and values of the host society (Franco 1983). It is often described in terms of high vs. low acculturation (or acculturated vs. not acculturated)—where high acculturation indicates assimilation into the host society (e.g., being Americanized) and low acculturation indicates maintenance of one's ethnic culture (e.g., remaining Mexican) (Cuellar, Harris, and Jasso 1980; Suinn, Ahuna, and Khoo 1992). In this model, one's original, ethnic culture is pitted against the host culture, and the assumption is that one can be, for example, either Mexican or American, but not both (see Figure 1).

In contrast, the bidimensional (or two-dimensional/2D) model suggests that cultural involvements are not polar opposites and that one can be involved in both the ethnic and host culture at the same time (i.e., it is not an "either-or" situation—one can be fluent in both Spanish and English, for example). Most relevant in culturally plural societies, this model suggests that acculturation can include involvements with both the host and the ethnic culture and that such involvements can and should be measured separately (Dona and Berry 1994). In contrast to the bipolar model, the 2D approach allows for several types of adaptation—e.g., bicultural, marginal, assimilated, and traditional—rather than seeing only assimilation as true adaptation (see Figure 2).

In this model, acculturation can be described in terms of its two dimensions (involvement in the host culture and involvement in ethnic culture) and in terms of four styles, or modes, of adaptation: bicultural, marginal, assimilated, and separated. Bicultural adaptation means an involvement with both the ethnic and host cultures, whereas marginal adaptation means an involvement with neither, so that one is alienated from both cultures. If one is assimilated, one is involved only with the host culture;, or traditional adaptation, refers to an involvement only with the original, ethnic culture (Berry 1992). Most experts today prefer the bidimensional model, since they see the bipolar approach as conceptually problematic.

Acculturation and Adjustment

The form acculturation takes can have many consequences for the functioning of the individuals involved. Past research has revealed various impacts on adjustment—ranging from clinical symptomatology, to educational achievement, to family harmony. Despite the research, however, concepts of the nature of the links between acculturation and adjustment can conflict. This conflict is partly due to the different models and measurements of acculturation used and partly to the different factors that can affect acculturation-adjustment links (e.g., gender, age, socioeconomic status, geographical context, and the like). In general, though, acculturation has been linked to adjustment in the following ways:

Assimilation and Adjustment

Research has linked high levels of acculturation (or assimilation) with various clinical disorders, including depression, phobia, suicide, and substance abuse/dependence (Burnham et al. 1987; Caetano 1987; Klonoff and Landrine 1999; Sorenson and Golding 1988). High levels of acculturation have also been linked with higher rates of delinquency and deviant behavior (Buriel, Calzada, and Vasquez 1982; Vega et al. 1993), higher rates of smoking and anorexia (Unger et al. 2000), and higher rates of family conflicts and school difficulties (Portes and Rumbaut 2001). In one study of Southeast Asian adolescents (Cambodian, Laotian, and Vietnamese), for example, it was found that youth who were becoming too assimilated into American culture were less successful academically (Rumbaut 1991). In another study of immigrant youth across the United States, it was found that those who had high levels of acculturation suffered poorer health outcomes and engaged in more risk behaviors (Harris 1999). Compared to less assimilated peers, these youth were more likely to be obese, to have fair or poor health, to experience learning difficulties, and to have missed school because of a health or emotional problem. They were also more likely to use controlled substances, to engage in violent and delinquent behaviors, and to have had sex and to have had it at a younger age.

A review of these findings suggests that increases in acculturation (assimilation) alienate individuals from the support of their ethnic group and give rise to self-hatred and hatred of their ethnic group. These increases can lead to damaging behaviors and beliefs that are a part of the dominant culture—to an acceptance of hurtful stereotypes and prejudices about one's ethnic group, and to the practice of discrimination toward one's ethnic group.In sum, it seems that a sense of belong-

Asian foreign language sign in the U.S. (Michael Siluk)

ing with those in one's ethnic culture helps to facilitate a sense of support, identity, and mental health, and a lack thereof leads to greater difficulties (Rogler, Cortes, and Malgady 1991).

Separation and Adjustment

In the second group of findings, low levels of acculturation (or separation) have also been linked to greater difficulties. Whether measured by length of residency, by loyalty to the culture, or by English proficiency, low levels of acculturation have been associated with various problems, including depression, withdrawal, delinquency, somatic symptoms, and substance abuse/dependence (e.g., Lim, Levenson, and Go 1999). Similarly, low levels of acculturation have also been linked to a greater number of negative life events (e.g., divorce, death, hospitalizations) and a greater dissatisfaction with life (e.g., boredom, dreariness, sadness) (Salgado de Snyder 1987). Furthermore, low levels of acculturation (as measured by ethnic involvements) have also been linked to higher distress, higher depression, and lower self-esteem (Nguyen, Messé, and Stollak 1999).

Researchers suggest that when acculturating individuals have been uprooted from traditional interpersonal relationships, they are more likely to experience loneliness and isolation in their new environment. Such challenges, coupled with a lack of instrumental skills (e.g., knowledge of the host language, access to various resources, familiarity with cultural norms) may prevent the uprooted individual from becoming familiar, comfortable, and competent in her new world. Consequently, these predicaments may lower self-esteem and give rise to dysfunctional behavior (Rogler, Cortes, and Malgady 1991).

Biculturalism and Adjustment

Researchers who have found a link between biculturalism and adjustment have suggested that difficulties are worse at both acculturative extremes (i.e., separation and assimilation), and that healthy adjustment is achieved at an optimal balance point (i.e., at biculturalism). This balance requires integration between the ethnic culture's supportive elements and the host culture's instrumental skills. Support for this argument comes from a study of Hispanic adults (Lang et al. 1982). It found that bicultural Hispanics were better ad-

justed in terms of life quality, depression, and psychological adjustment than were those who were either monoculturally Latino (separated) or monoculturally U.S. mainstream (assimilated).

Similarly, José Szapocznik and his collaborators found (as reported in a 1980 study) that in the Cuban families studied drug abuse was a function of monoculturality (belonging to only one culture), seen in over-acculturated youths, as they called those who had become pretty completely Americanized, and under-acculturated mothers. The youths were found to have high rates of drug abuse and impulsive and antisocial behavior, while the less acculturated mothers were found to use more sedatives and tranquilizers and to exhibit more neurotic behaviors. The researchers caution that it is not the retention of the ethnic characteristics or the assimilation into the host society that is pathological per se. Rather, it is the lack of bicultural involvement that is problematic, because it renders members of ethnic minorities inappropriately monocultural in a bicultural context. Hence, it is the exaggerated assimilation with the host society or the exaggerated maintenance of ethnic culture (separation)—one to the exclusion of the other—that is detrimental. Biculturalism appears to be optimal for adjustment because it enables individuals to function in both of their daily cultural contexts.

An Ecological Perspective on Acculturation

It is important to note, however, that the acculturation-adjustment relationships depicted here are not as simple and clear-cut as they appear. As suggested earlier, many factors can shape these relationships (e.g., socioeconomic status, or SES, ethnic group, immigration policy); two general factors are context and one's interaction within that context.

Although various factors in the context (e.g., availability of community resources, experiences of discrimination, sense of fit in the context) can have a profound impact on the adjustment of minority populations, they have often been overlooked in past research. Few studies have described, let alone measured, the potential influence of context. Most seem to study ethnic groups in isolation, as though they could be isolated from their sociocultural and historical backgrounds.

Yet some studies suggest that contextual factors are vital in shaping the acculturation and adjustment of minority groups. Andres Gil and William Vega (1996), for example, studied Cuban and Nicaraguan families in Miami and found that the Nicaraguans experienced more difficulties (i.e., more language and acculturation conflicts, more perceptions of discrimination) than did their Cuban counterparts. Furthermore, they made less money than the Cubans, despite having similar levels of education. Gil and Vega attributed these findings to the different conditions in the groups' context, explaining that the Cubans fared better because they had more supportive enclaves and resources than did their Nicaraguans neighbors—who, in contrast, encountered greater barriers in their resettlement to Miami (more exploitation by police, more restrictions in obtaining job permits and legal residence, and so on).

Huong Nguyen (2000) also demonstrated the importance of context. Using a sample of Vietnamese and Mexican adolescents, Nguyen tested an ecological model of acculturation. The main premise of this model is that to fully understand the nature of acculturation-adjustment relationships, it is essential to understand the context in which such relationships evolve. The model holds that acculturation is a process that connects the individual with his context. Its levels of involvements are links to one's sense of competence and belongingness. In conjunction with the demands and resources of the context, competence and belongingnesspredict one's behavior. Thus it is not the culture itself, but rather the fit between the individual and the environment that facilitates or impedes adjustment.

Nguyen's findings demonstrated support for this ecological model in several ways. First, she found that the two ethnic groups differed in adjustment and cultural fit in expected ways. Compared to their Vietnamese peers, Mexican youth reported fewer experiences of discrimination and a greater sense of fit within their context (i.e., in Lansing, Michigan, where the study was conducted). They also fared better in terms of personal adjustment (as seen in depression, symptomatology, self-esteem, and life-satisfaction) and interpersonal adjustment (as seen in family and peer relationships). These findings corresponded with the community resources in Lansing. They suggested that individuals who have more ethnic resources in their context (as the Mexicans do in Lansing) would have more support, and thus, a

better sense of fit and adjustment than peers who have fewer community resources (as the Vietnamese do).

Second, Nguyen demonstrated that there were differential acculturation-adjustment patterns (for both ethnic groups), which corresponded to the demands of the context. Compared to adolescents who were less involved, those who were more involved in the U.S. culture were more adjusted on the whole, taking into account the personal domain (i.e., self-esteem, life-satisfaction, disposition to delinquency), the interpersonal domain (i.e., family, peer, and teacher relations), and the academic domain (i.e., school GPA, reading scores, and academic aspirations). In contrast, youth who were more involved in the ethnic culture reported more mixed functioning than peers who were less ethnically involved). They fared better in terms of family relationships and academic aspirations, but worse in terms of depression, symptomatology, and math and reading scores. Nguyen attributed these findings to the dominant U.S. presses and resources in the Lansing context. Given that Lansing is 84 percent White (and only 8 percent Mexican and 0.2 percent Vietnamese) (U.S. Census 1990), it is likely that adolescents who are more involved in the U.S. culture are more likely to feel a sense of fit in their environment. Their U.S. skills and involvements may be more useful in Lansing and thus more likely to facilitate adjustment. Conversely, those with high ethnic involvements may have a more difficult adjustment, because their ethnic involvements are rendered useless in a context that has little support or utility for such involvements.

Finally, Nguyen demonstrated that cultural fit (one's fit within the context) predicted better adjustment on the majority of indices measured—across personal (i.e., depression, symptomatology, self-esteem, life-satisfaction), interpersonal (i.e., family, peer, and teacher relations), and academic domains (i.e., reading scores, academic aspirations). Moreover, she demonstrated that cultural fit mediated numerous links between acculturation and adjustment. This set of findings is especially compelling; it demonstrates that it is not so much the cultural involvement that is adaptive or maladaptive per se, but rather, what the involvements mean in context—i.e., the cultural fit that they lead to—that facilitates or impedes one's functioning.

Taken together, the findings of Nguyen and Gil and Vega demonstrate the utility of an ecological perspective—i.e., of examining an individual's context (e.g., community resources) and his/her interaction within that context (e.g., cultural fit)—when studying acculturation-adjustment links. As Dina Birman and her colleagues so aptly conclude in an article soon to be published, "there is no 'best' acculturative style independent of context."

Huong H. Nguyen
Alexander von Eye

See also: Adolescence in a Cultural Context; Children from Immigrant Families; Ecodevelopmental Theory; Ethnic and Racial Identity in Adolescence; Families, Southeast Asian; Family Diversity; Hispanic Immigrant Experience; Parent Education Programs for Immigrant Families

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Achievement Motivation

The study of achievement motivation is the study of students' learning beliefs and behavior in classrooms and other educational settings. Achievement motivation consists of a constellation of beliefs, attitudes, and emotions that students come to hold as a result of their educational experiences. From an ecological perspective, achievement motivation is viewed as influenced by parents, teachers, and peers, as well as the larger culture in which children grow. Educational researchers have learned that students' beliefs about learning influence both the kinds of work they choose to do in the classroom, as well as their persistence while they do their work. This information has been very helpful to teachers, as it suggests that students who have low confidence or otherwise struggle with perceptions of low ability can be helped by being oriented to different ways of thinking about learning.

Students' beliefs about the relationship between effort and ability have been the focus of much study. Bernard Weiner has found that, in their attempts to understand the causes of their successes or failures, students tend to attribute their grades to four causes: effort, ability, luck, and other external factors, such as the ease or difficulty of a test or assignment (Weiner 1985; 1994). Weiner's attribution theory proposes that students interpret these

causes along three basic dimensions: location (internal or external), stability, and controllability. Weiner has shown, for example, that most students tend to view ability as something that is internal, relatively stable, and uncontrollable. In contrast, effort tends to be viewed as something that is internal, unstable, and controllable.

Further, Weiner has demonstrated that the cause to which students attribute their performance is directly linked to how they come to feel about their abilities, and that these emotions are actually predictive of the next steps that students will take in their learning. For example, students who believe they did poorly on a test because they waited until the last minute to study will most likely feel guilty and make a concerted effort to study in advance of the next test. In contrast, students who believe that they did poorly because they are not smart enough are likely to feel ashamed and therefore will probably not try very hard to prepare for the next test. Students are much better off, then, if they can be helped to interpret failure as resulting from lack of effort rather than lack of ability, since effort is something they can improve, while ability is something they really cannot do anything about.

However, other researchers have shown that the ways in which students interpret their grades is very much influenced by the structure of learning in their classroom. John Nicholls (1989) studied students' attributions for success and failure in cooperative and competitive classrooms. He found that when students learn in cooperative as compared to competitively oriented classrooms, they are less likely to view ability as something that is limited and over which they have no control. Furthermore, they do not report feeling ashamed if they do poorly on a test or assignment—they tend to focus instead on how they can improve their grade in the future. Cooperative learning, then, tends to minimize students' concerns about their abilities, and orients them to *how,* and not *whether* they can master an assignment.

Not surprisingly, educational researchers who have studied ability grouping and tracking—the practice of selecting and placing students of similar ability in small groups or the same classrooms—have found that it too has the tendency to raise students' concerns about their abilities. The greatest benefits seem to be reaped by higher level students, who report greater enjoyment of their learning in classrooms with enthusiastic teachers who assign challenging work (Oakes 1985). In contrast, students placed in lower groups or tracks report learning in the company of peers who are very disruptive, and from teachers who are punitive and assign easy work.

The study of students' beliefs about their abilities grew naturally out of the research on attributions for success and failure. In an earlier study Nicholls (1979) found that from preschool through the first grade, most children believe that intelligence grows with effort, and they tend to say such things as "The harder I try, the smarter I get." By the second grade, however, many children abandon this belief for the view that effort itself is an indication of low ability. They now express such ideas as, "The harder I *have* the try, the dumber I must be." The notion that effort can be interpreted as a sign of low ability means that, for some students, it can become a double-edged sword (Covington 1979). That is, most students readily acknowledge that they can probably do better if they try harder, but for many the mere act of trying is an admission of low ability.

The fact that some students do not interpret the need to try hard as indicative of low ability has led educational researchers to examine how students may think differently about ability itself. John Nicholls (1989) and Carol Dweck (1999) have found that, in general, students tend to think about ability or intelligence in two distinct ways. Some students think of ability as a quality that is limited and that limits what they will be able to accomplish. In experiments, these students are likely to avoid learning a new skill if there is a chance that they may make mistakes, thereby revealing their lack of ability. Instead, they will choose to work on a task they already know how to do. These students also tend to be very concerned about how well they are doing in the classroom relative to others. In contrast, other students think of ability as a quality that grows with effort. They tend to enjoy challenging assignments, even if they know they will make mistakes. Indeed, these students tend to view mistakes as a natural part of learning, and are focused more on their own progress rather than their relative standing in the classroom. These very different views about ability probably arise from the different influences that parents and culture bring to bear on their development.

Across the social sciences, researchers in edu-

cation, psychology, anthropology, and sociology agree that students' beliefs about learning and achievement do not evolve in a vacuum. Many investigators have sought to understand the roles that family and culture play in the development of students' achievement-related beliefs. Scholars concur that parents have a profound influence on their children's developing achievement beliefs, both through the ways in which they talk about schooling and the actions they take in the service of their children's education (Bempechat 1998; Epstein 1987; Rogoff 1990; Sigel, McGillicuddy-DeLisi, and Goodnow 1992; Stipek and Gralinski 1991). Indeed, parents' own beliefs about learning guide their educational socialization practices, which in turn influence their children's developing beliefs. This notion has been demonstrated rather decisively in research on gender differences in mathematics achievement. Interestingly, researchers have found that mothers tend to hold very different beliefs for boys versus girls with respect to the causes of success and failure. Mothers tend to attribute boys' failure to lack of effort, but girls' failure to lack of ability (Holloway and Hess 1985). Mothers also tend to attribute boys' success to ability, but girls' success to effort. The implicit message to boys is that they are smart, and need to try harder when they fail. In contrast, the message to girls is that they are not smart, and when they do well, it is because they tried hard. Some have speculated that mothers' differential beliefs may account, in part, for the fact that more girls than boys tend to opt out of higher level mathematics and sciences courses in high school, leaving many fewer young women than men who major in mathematics-related studies in college and choose careers in mathematics, science, or engineering.

Cultural psychologists and psychological anthropologists have proposed that there exist "folk theories" of learning that are embedded in culture and serve as powerful guides for how individuals understand, or make meaning of, their learning experiences (Bruner 1996; Serpell and Hatano 1997). For example, scholars who study Japan have argued that the cultural tendency toward collectivism and interdependence lead to particular understandings of learning that emphasize self-improvement in the service of maintaining relationships with one's social groups, including family, school, and peers (Kitayama et al. 1997; Kitayama 2000). Effort, then, has social as well as academic meaning for students (Holloway 1988). There is no shame in trying hard to overcome difficulties in learning—expending effort is both an expected and necessary aspect of self-improvement. In contrast, researchers have described American culture as one that fosters independence and encourages children to fulfill individual needs in the service of establishing and maintaining self-esteem (Kitayama et al. 1997). Students tend to view effort as something they can invest in at will, for their own, individual benefit (Holloway 1988).

These cultural differences, although very general, have been used to explain the higher mathematics achievement of Japanese and Chinese relative to American elementary and high school students. In studies comparing achievement and motivation in Japanese, Chinese (Taiwan), and American students, Harold Stevenson and his colleague found that, while all mothers and children placed more emphasis on effort than ability, American mothers and their children were much more likely than their Asian counterparts to focus on ability as a potential cause of success or failure (Stevenson and Stigler 1992). Indeed, Japanese mothers do not tend to see ability as a factor that could limit a student's performance in school (White and LeVine 1987). These findings suggest that the Japanese cultural tendency toward self-improvement may foster beliefs about ability that are helpful for learning.

Critics have recently urged researchers to move beyond the tendency to characterize an entire population of people according to one, overall cultural belief. They have argued that, within any population, there exists a rich and varied continuum of beliefs. Increasingly, researchers are seeking to understand differences *within,* and not just *between* cultural groups. Using qualitative methods of inquiry, including in-depth interviewing and ethnographic research, scholars are uncovering the different ways in which a particular cultural belief is interpreted and even contested in a given society. For example, in a series of interviews and observations with Japanese preschool directors, Susan Holloway (2000) found that there is indeed a consensus among these educators that children need to learn how to get along with the other children and adults in their lives, a goal that has been described as particularly Japanese (White and LeVine 1987). While the development

of social skills was a primary concern, Holloway found that all the preschool directors she interviewed availed themselves of the ideas of both Western and Japanese educational theorists. This illustrates the extent to which it is problematic to adhere to dichotomous characterizations of Japanese society as collectivist and American society as individualist. Further, these Japanese preschool directors used very different means to socialize children into Japanese culture, which is very rich and complex.

This example demonstrates that the major advantage stemming from the study of within-group differences is that it allows educational researchers to move beyond cultural stereotypes and toward a greater understanding of the richness that exists in the differing views that individuals hold about child development. For the study of achievement motivation, this implies that researchers need to move beyond the tendency to characterize students' beliefs at one or the other end of a continuum. In order to develop a deeper understanding of how students' achievement beliefs and behaviors develop and evolve over time, researchers need to conduct studies that embed a qualitative component within a larger quantitative investigation. Research that includes in-depth interviews, ethnography, and case studies will advance knowledge. In so doing, it will be better positioned to help teachers, who work hard every day to motivate their students and foster a love of learning.

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See also: Curiosity; Gender Roles and Society; Resiliency; Self, Self-Concept, and Self-Esteem; Self-Efficacy

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Adherence

See Treatment Adherence

Adolescence in a Cultural Context

Adolescence is the stage of life when societies prepare their children to take on adult roles and responsibilities. The way parents and other educators work on this preparation is closely related to societal values and beliefs, the type of economy the society is based upon, its social structures and organization, and how the family unit is composed and regulated. Developmental tasks, rather than being universal challenges, are cultural expressions of normative age-specific goals and standards the children have to deal with. Parental child-rearing practices are not only a manifestation of the parents' own values and traditions, but a reflection of the subsistence tasks and roles the adolescents are expected to fulfill in their society as adults (Ogbu 1981). The competencies the individual will need as an adult shape the map on which different developmental paths are delineated, whereas the physiological and biological characteristics of the individual determine the general potential that individual has for the growth of unique sociocultural behaviors. Because an important goal of child rearing is to socialize children to fulfill the cultural tasks of a particular culture, there may be variation between cultures in important domains of lifespan development. During adolescence the impact of differing child-rearing traditions is evident, for example, in association with the individuation process, the development of self-concept and identity formation, and the nature of future orientation.

The dimensions of "individualism" and "collectivism" have been used to conceptualize different cultural values and characteristics on a societal level. The modern Western societies of North America, Australia, and northwestern Europe are generally seen as more individualist, whereas countries in Asia, Africa, Latin-America and East Europe are seen as having stronger collectivist values. On an individual level these characteristics are related among other things to the value placed on individual autonomy and assertiveness as opposed to interdependence and compliance. Differences in sex-role expectations are generally seen as following the same geographical pattern: More individualist societies are more egalitarian in sex-role expectations, whereas more traditional gender roles are usually found in collectivist cultures.

During the last two decades of the twentieth century and the beginning of the twenty-first, researchers have focused on the way cultural and ecological factors are integrated in, and affecting, parental child-rearing practices. During this process it has become increasingly apparent that developmental content and outcomes that were thought to be general are rather culture specific. This is certainly true for what used to be considered universal major developmental tasks during adolescence, such as becoming more independent from parents, initiating new and more mature relations with peers, and forming a personal and distinct self identity (Gardiner, Mutter, and Kosmitzki 1998).

The focus on individual autonomy and personal achievement as we know it from Western nations influences the meanings and dynamics of close relationships; when emphasis is put on interdependence and harmonious social interaction, the effect is different. Tension and conflict seem to be a necessary part of the former relations, in order to advance individuation and separation from parents. During Western adolescence, as children transfer intimacy and confidence from parents to peers, become more self-assertive, and challenge many of the parental values, there seems to be an intensification of this strain. Overt statements of disagreement with authority figures are expected in the same way as conflicts between adolescents and parents, and they are valued as important in the development of self-expression and autonomy (Rothbaum et al. 2000).

The strong emphasis on the need to be interrelated with significant group members within the interdependent cultures sets the stage for more harmonious interactions, in which attention is directed toward the needs and well-being of others. Cooperation is cherished, and disagreements and conflicts avoided. Maturation is seen more as a process of gaining control over inner attributes, rather than as a process of learning to express them. Since gaining independence from parents is not an important issue for adolescents of these so-

cieties, there is less intergenerational strain between adults and their young children. And in cases where there are antagonistic feelings toward parents, the young person will hesitate to express these sentiments, out of respect for parental authority and to maintain group harmony. Adolescents of collectivist cultures tend to continue spending much of their leisure time in the company of parents and family, and the relations they have with peers are not apt to conflict with those they practice with significant adults (Schlegel and Barry 1991).

In individualist cultures, close friends play an important role in the process of gaining independence from parents. Young people prepare to leave their families by spending most of their waking hours away from home; either at school or in the company of peers. Intimate relations with same-age friends provide a safe haven while adolescents are struggling to achieve confidence in their own choices and decisions.

But even if Western adolescents tend to spend more time with and confide more in their friends as they grow older, and even if there are quite a few controversies with parents over rules and regulations, the relationship with parents remains close and important. In most cases, the two network groups seem to have complementary functions in the lives of young people. Parents are trusted for advice on future events like schooling and career choices, while close friends are important sources of consultation about everyday issues like styles and social events and other recreational activities (Shaffer 2000).

There is an important gender difference in peer relations between collectivist and individualist societies that may reflect a variation in gender-role expectations between the two cultures. While girls in the Western countries tend to be more peer-oriented and have stronger ties with their friends than boys, the contrary situation is usually found in non-Western societies. This is especially true in more traditional cultures, where formal education often ends during adolescence. Girls tend to spend much of their time with their mothers and other female adults, taking part in grown-up activities that prepare them for the roles they will assume as married women. Young girls' relationships with same-age peers often take place in this situation. The intimate bonds between mothers and daughters are thus maintained, while adolescent interaction is molded after the adult pattern. Boys, on the other hand, may take part in subsistence tasks with their fathers, but do not gain the same intimacy with them. Although they may participate in adult work, they are often left to themselves in company with other young boys, while the adult males are dealing with political issues or getting together for socializing purposes. Nevertheless, the bonding with the peer group will not be strong unless there are initiation ceremonies that mark a separation of the young boy from his family, so that he will no longer sleep and eat in the house of his parents. In this case the peer group will be of more importance than other social groups to the young boy (Schlegel and Barry 1991). Diverse patterns of interpersonal relations also affect the potential for social support, and it has been observed that adolescents of interdependent cultures report stronger supportive ties within their different networks than Anglo-Americans (DeRosier and Kupersmidt 1991, Triandis et al. 1985).

One of the cornerstones in the establishment of a mature identity, a major developmental task for adolescents, is the person's self-concept. Even if the process of differentiating the self from the environment starts very early in life, the social and cognitive development of adolescence contribute to a refinement of the self-concept, which becomes more psychological, abstract and coherent. There seems to be an agreement that all humans recognize themselves as physically distinct beings. But there are important variations in the content and structure of the self-concept and some of the psychological processes related to it, implying that the way people think about themselves reflect the cultural context they are part of (Kagitcibasi 1996). Differences in people's beliefs about the relationship they have with others, and specifically the degree to which they see themselves as separated from or connected with others, are associated with differences in cognition, emotions, and motivation (Markus and Kitayama 1991).

In modern Western societies people tend to see themselves as separated from others, and they think of the self as a self-contained, autonomous unit with clear boundaries, defined by the physical body. Each person comprises a unique configuration of individual desires, preferences, attributes, and abilities that remain stable across different situations. The expression of these inner qualities motivates and regulates behavior. Individuals with

an independent self tend to describe themselves with reference to their inner characteristics, and to see themselves as different from others. The independent self is typically encountered in Western societies, and has therefore been seen as an expression of underlying individualist values. In contrast to the belief that people are separated from and independent of each other is the belief that people are fundamentally connected with one another. Among those who hold this belief, the emphasis is on the fact that it is crucial for humans to be part of various interpersonal relationships and to maintain interdependence among individuals. Since it is the-self-in-relation-to-others that guides behavior, a heightened awareness of the needs and desires of others is necessary. Interdependent individuals tend to see themselves as more like others, and to think of themselves in terms of the relationship they have with various in-group members. Consequently their self-concept is less stable and changes structure according to the situation. The interdependent self is the more typical self-concept of collectivist cultures.

Obviously these differences in how people think about themselves have a substantial impact on other processes of adolescents' identity formation, both in relation to content areas like family and peers, and in relation to what strategies are preferred in dealing with identity issues (Marcia 1980).

But it is not only in the development of the self-concept that there is variation between cultures with importance to the identity formation of adolescents. Many cultures have specific rites of passages that mark the transition into adolescence. These rituals are expressions of how the young person is expected to contribute to the society. As such, they may ease the process of identity formation, making the exploration of and commitment to career, sexuality, and ideology, issues of so much importance in Western societies, less pertinent (Schlegel and Barry 1991). Thinking about and planning for the future is a universal aspect of life-span development. This is of special importance for adolescents, not only because of the long-term consequences of the decisions made during this stage of life, but also because exploring and committing to future interests is crucial in their identity formation. In an extensive review of the literature on the development of future orientation during adolescence, Jari-Erik Nurmi (1991) illustrated the influence of normative developmental tasks on this process. During adolescence there seems to be a cross-cultural increase in worries about and interests in normative developmental tasks such as education, career, and starting a family.

Nurmi further elucidates how this process is embedded in the social and cultural context the adolescents participate in, as well as the importance of historical and social factors in the contents of adolescents' future orientation. Whereas there is a general tendency for girls to be more preoccupied by their future families, gender variation in educational and career concerns is clearly associated with differences in gender role expectations in each society. Concerns about such issues as parental divorce, pollution, nuclear war, entering the army, and unemployment are reported in societies and periods of times where these issues have played a significant role. Of interest here is the way the dimensions of independence and interdependence are reflected in the future orientation of adolescents. The focus on autonomy and independence in Western countries as opposed to the interdependence in collectivist cultures is expressed in relation to the issue of future family: Young people in the former group will mention their personal future family, whereas youth in the latter group tend to have the parental family as a frame of reference in their future orientation. Common goals and interests that Western adolescents are inclined to report are closely related to their own popularity, happiness, leisure activities, and achievement. Even if they seek the advice of their parents in important matters like education and career planning, they feel free to make and responsible for making autonomous decisions about their future. Their counterparts from collectivist societies are more prone to record issues related to their own and their family's health, other people's death, as well as to other people's courtship, marriage, and children. Very often the family will take care of the planning of the future for their children; in every instance the parents will be very influential in the decisions of the adolescents.

Sociocultural expectations imparted to the adolescents in terms of developmental tasks do not only affect the adolescents' orientation to the future. Dealing with these tasks may be stressful for young people, and the main problems associated with their psychological well-being are related to

issues about school, parents, boy- or girlfriends, and peers. In societies where formal education is crucial for future career, the transition from elementary to secondary school is a challenge in itself. But as graduation from high school is getting closer, the burden of schoolwork and pressure to succeed seem to cause distress for a large proportion of the students in many societies. In their description of adolescent life in traditional communities, Alice Schlegel and Herbert Barry (1991) report young girls distressed by the expectation that they should find an appropriate partner, and young boys distressed by antagonistic relations with their fathers. The *Sturm und Drang* of adolescence that has been thought to be a result of raging hormones and physiological changes may just as well be related to everyday problems concerning developmental tasks adolescents have to cope with.

Internal conflicts, wars, famines, and other catastrophes of nature are contributing to a growing gap in living standards and possibilities between third-world nations and developed countries, a gap that has increased migration at a rate unknown in history. Due to globalization, more and more individuals and families are able to cross national borders to settle down in foreign societies for shorter or longer periods of their lives. Individuals and groups of people of differing cultural and ethnic origins are interacting with each other more than ever in all parts of the world. Consequently, more and more children and adolescents are experiencing an acculturation process as part of their development from infancy to adulthood. Unfortunately, however, little information is available about the idiosyncratic aspects of immigrant children's cultural ecological context, and this context needs to be delineated in greater detail to get a better understanding of their social, emotional, and cognitive development.

What is clear is that a growing number of families from the collectivist cultures of Asia, Latin America, and Africa have settled down in the individualist societies of northwestern Europe and North America. Immigrant parents tend to continue the child-rearing practices of their culture of origin when they arrive in a new country of settlement. It has also been demonstrated that immigrant adolescents adhere to the same family values as their parents, in the same way as their domestic peers hold onto the values their caretakers advocate. However, we lack systematic empirical knowledge about developmental tasks that would be more typical of a collectivist immigrant cultural context. Concerning gender roles, immigrant adolescents may face more traditional expectations about what future tasks to fulfill in the family, whereas in the schools and the society at large, they are met with more egalitarian role expectations, encouraging especially females to opt for an education that will secure them economic independence. Preparation for the future role as a mother and housewife necessitates that immigrant adolescent girls spend their leisure time with their families, whereas in the outside world they are expected to develop intimate relationships with peers and voice their personal opinions against their parents. An interdependent family environment may involve aspirations that their offspring in the future shall contribute to the economic and social support of older family members, while the larger society insist they make autonomous decisions and put their personal happiness in the first place.

How immigrant children and adolescents balance various family-inculcated collectivist values and traditions against the individualist values of the host society is not yet understood very well. Neither do we know whether and in what ways this balance affects the development of their self-concept and close relationships with in-group members during the life span as a whole, and during adolescence in particular. Traditionally, acculturation is perceived as a stressful process (Berry and Sam 1995). However, so far there are no conclusive findings indicating that the general psychological well-being and adaptation of immigrant adolescents is inferior to that of the host national youths. It seems reasonable that a positive acculturation process includes the learning of diverse cultural competencies and gaining the knowledge about where and when to apply them appropriately that is helpful in the adaptation of acculturating youth.

Regarding peer relations, immigrant and ethnic minority members seem to display the same pattern as we described for traditional societies, with less peer orientation and peer support among females than is reported by their Anglo-American counterparts. Concerning family relations, there are studies that show that young people of immigrant and ethnic minority origin report less social support from their families than Anglo-Americans (Vaux 1985). In addition, there are empirical find-

ings implying that immigrants who are more acculturated, in the sense that they are more competent in the ways of the host society, report less family support than immigrants who are less acculturated (Shapiro et al. 1999). This indicates that there might be some social and emotional challenges to the balancing of different values during the acculturation process.

Globalization and modern technology have put the world on a spinning wheel of cultural modification and transformation. Acculturation is turning into a major developmental task not only for immigrant adolescents, but also for a worldwide generation of multicultural youth, who will have to negotiate the incongruities between parental expectations, values, and beliefs and those of the outside world. The present variation in values within national groups may increase, and the boundaries between individualist and collectivist cultures, interdependent and independent self-conceptions, may decrease. Contrasting cultural developmental tasks will be the challenges for a growing number of young people. Under such conditions one of the challenges for the societies' educators will be to decode and formulate clearly in as many ways as possible the content of the contrasting cultural developmental tasks.

Brit Oppedal

See also: Acculturation; Adolescent Identity Formation; Culture and Human Development; Erikson's Theory of Psychosocial Development; Ethnic and Racial Identity in Adolescence; Extracurricular Activity Participation; Families, Southeast Asian; Menarche; Parent Education Programs for Immigran Families; Racial Identity Development among African American Adolescents

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Adolescent Identity Formation

Achieving a sense of identity is the major emotional and social task of adolescence and involves defining who one is, what one's values are, and which direction one will pursue in life. According to Erikson, the search for self is one of the major forces behind many commitments such as sexual orientation, personal relationships, and level of involvement in society, as well as moral, political, and religious commitments. It is the final developmental crisis before adulthood (Erikson 1950). While this momentous task of forming a concept of oneself begins in the later years of childhood, the majority of it takes place during the adolescence.

The early stages of identity formation can be seen in childhood where the child describes him/herself in terms of personality traits such as "I

am shy" or "I am funny." The child in middle childhood is able to talk about herself in the past, present, and future and is able to establish links between these time frames. In early adolescence, the teenager is not able to connect these self-statements, and may even give opposing descriptive characteristics. Such statements as "I am shy and I am outgoing" illustrate this. These contradictions in the description of self arise from the social pressures that force adolescents to display different selves in different social situations. As the adolescent's social world expands with the development of new social relationships, such as romantic relationships, relationship with parents, and relationships with siblings, peers, teachers, and employers, the paradoxical self-descriptions increase in frequency and can cause stress and anxiety because the adolescent finds that she is unable to explain or resolve them (Harter 1998; Harter and Monsour 1992).

According to Erikson's theory, during this period of time known as the identity crisis, teenagers will experiment with who they are, with what they believe in, and how they wish to be perceived. As mentioned previously, this stage is typically accompanied by feelings of confusion and distress, as adolescents experiment with various sets of values and goals. Because of this confusion and distress, young people in the midst of constructing their identity may vent their frustrations on themselves and others, which may result in antisocial and even self-destructive behavior. Creating a unified sense of self arises out of adolescents' need to bring together their identity as individuals and their identity as members of the society and culture they inhabit. Eventually, out of this period of soul-searching will arise a mature sense of self. The process of identity formation depends on how adolescents judge others, how others judge them, and how they judge the judgment process of others, as well as on their ability to evaluate these judgments in light of the culture (Cole and Cole 2001).

During middle and late adolescence, and with the development of the capacity for more abstract thought, teenagers are able to combine their various traits and concepts of self into higher-order abstract descriptors and begin to use qualifiers, such as "I am pretty intelligent" or "I am not completely outgoing" (Berk 1999). These statements reveal their awareness that psychological qualities such as intelligence or shyness can and often do change from one social situation to the next. As teenagers move toward the kind of unity discussed by Erikson in his theory of identity development, they will revise their views of themselves to include lasting goals and values.

Researcher James Marcia elaborates upon Erikson's ideas on identity formation and focuses on two factors that are essential for achieving a mature identity: crisis/exploration and commitment. Crisis/exploration refers to the process during which adolescents reexamine choices they and their parents have made; the process involves thinking about future opportunities in life and may include the initial stages of searching for alternatives that they find personally fulfilling. Commitment refers to adolescents pledging allegiance to the goals, values, and beliefs they have adopted for themselves. James Marcia identifies four possible patterns of crisis/exploration and commitment in coping with the task of identity formation. The four identity statuses are identity diffusion, identity foreclosure, moratorium, and identity achievement (Marcia 1966, 1999). Adolescents often shift from one status to another while forming their identity.

Identity Diffusion

The adolescents described by this status lack clear direction; they are not committed to any goals or values and are not actively involved in trying to reach them. They have never explored their ideals and goals or perhaps have tried and found the task to be too overwhelming. Teenagers who find it difficult to realize their occupation goals and life values are at risk for identity diffusion. These adolescents will experience difficulty in adjustment, and long-term diffused adolescents are the least mature in identity development. Typically, they employ concepts of fate and luck and have an "I don't care" attitude. They also tend to follow the crowd, resulting in occasional deviant behaviors such as substance abuse and violence.

Identity Foreclosure

Identity-foreclosed individuals are committed to a set of values and goals; however, they have reached this level of commitment without having explored the alternatives to them and show no signs of having experienced a crisis. Instead, they have accepted the ready-made identity handed to them by authority figures in their lives. These authority figures are usually parents; though they may also be

Children dressed similarly (Michael Siluk)

teachers, religious leaders, or even romantic partners. Child actors and teenagers in religious cults and royal families may experience identity foreclosure. Like teenagers in the identity-diffused status, identity-foreclosed teens are ones who are likely to experience difficulty in realizing their own personal goals and values in life. Adolescents who remain foreclosed also experience difficulty in adjustment and are often inflexible, dogmatic, and intolerant. They may use their commitments in a defensive manner in response to the threat of new ideas and ways of looking at things. Some foreclosed teenagers may join cults or other extremist groups, adopting a way of life very different from their previous one if they have been alienated or have sensed rejection from the people in their lives previously depended upon for their self-esteem, validation, and affection (Frank, Pirsch, and Wright 1990; Kroger 1995).

Moratorium

In this identity status, teenagers experience an identity crisis. They have not made any definitive commitments to a set of goals or values. Rather, they are in the process of exploring and gathering information and trying new activities. In Western culture, college triggers the exploration process for many, as they are exposed to a new lifestyle and new ideas. Teenagers who go to work after high school graduation instead of going to college most likely settle on a self-definition a bit earlier than college students. Moratorium is considered a psychologically healthy route to a strong and mature identity, whereas identity confusion and identity diffusion are seen as maladaptive. Young people who are exploring possible career goals, life choices, and their own set of values and beliefs tend to have higher self-esteem; they are more likely to engage in critical and abstract thinking and are more advanced in their moral thinking than those in the previous two identity stages. Teens in this stage also reported more consistency between their ideal self (who they want to be) and their real self (Josselon 1994). Adolescents in this stage spend a great deal of time thinking about who they are and thus may appear moody and in-

trospective. On the other hand, these teens are more likely to be secure in revealing their true selves to others.

Identity Achievement

Identity achievement is the final stage in achieving a mature sense of self, and young people who have reached this stage have experienced a period of crisis and decision making. Adolescents have explored the possible alternatives to what they believe and aspire to be in life and have formulated a clear set of goals and values that are self-chosen. Young people in this stage feel a sense of wholeness and psychological wellness, and a sense of purpose and direction. Much like adolescents who are exploring, those who have reached an achieved identity have a higher self-esteem; they are more likely to engage in critical and abstract thinking, and to have developed higher levels of moral thought. They also report a strong relationship between their ideal selves and their real selves.

Healthy identity formation is a critical part of cognitive and social development during adolescence. Because of this, many researchers have given much attention to identifying the factors that may influence identity development. Adolescent identity formation is the beginning of a lifelong process of refinement in commitment that illustrates the unique blend of personality and social context. (If the context in which one lives is altered, the possibility for personal change is evident.)

Teenagers who are part of a supportive and loving family can confidently move into a wider world of possibilities, thus enhancing identity development. Adolescents who are allowed to voice their opinions and have a good sense of both attachment to and separation from their parents develop a better sense of themselves than those who are not allowed to voice their opinions and do not have healthy levels of attachment and separation. Identity development also is dependent upon the school and community of the adolescent. Classrooms that promote high levels of abstract thinking and that permit students to take on leadership roles under the guidance of nurturing teachers and counselors foster identity development. The larger cultural and historical context of the adolescent also affects identity formation. In postmodern societies the exploration and commitment to identity domains of gender-role preference and vocational choice precede those that are religious and political in nature. In previous generations, when politics and war were foremost aspects of the culture and disrupted daily life (e.g., during the Vietnam War), the political ideals of young adults developed sooner (Archer 1989). Cultural norms and values regarding gay and lesbian life styles as well as issues facing ethnic minorities are also considered special problems facing adolescents in society today.

There are several things that adults can do to support healthy identity development in adolescence. Warm and open communication will help to provide both emotional support to the adolescent and the freedom to explore values and goals. Open discussions at home and in school encourage higher levels of thinking and promote rational and deliberate choices of values and beliefs. Opportunities to participate in extracurricular activities and vocational training programs, to explore ethnic heritage and learn about other cultures in a respectful manner, as well as the opportunity to talk with adults and peers who have experienced uncertainties about their own identities—all will allow adolescents to explore the real world and to gain advice about how to solve their own identity-formation dilemmas.

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See also: Acculturation; Adolescence in a Cultural Context; Erikson, Erik Homburger; Erikson's Theory of Psychosocial Development; Ethnic and Racial Identity in Adolescence; Identity Statuses; Identity Styles; Pubertal Development; Racial Identity Development among African American Adolescents; Sexual Identity Development

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Adolescent Mothers

Despite a recent decline in the teenager pregnancy rate, there were still 479,067 teenagers that gave birth in the United States in 2000 (Child Trends 2001). Research indicates that expectant teenagers need more services and support than other mothers. Teenagers receiving more social support tend to do better during and after their pregnancies than teenagers with limited social support. Expectant teenagers do not exist apart from the contexts in which they function. Therefore, it is important to recognize the role that these environments (e.g., parenting programs, schools, and communities) play in the development of teenager mothers and their children. These environments potentially provide support as teenagers transition into parenthood.

To identify the key environments of expectant teenager mothers, it is important to examine where most of their time is spent. Common environments for expectant teenagers include the teenager's family home, interactions with the baby's father, the school setting, and peer interactions. Together, multiple environments such as these make up the overall ecosystem of these individuals. In addition to these common environments, the expectant teenager also interacts with a variety of systems relating to health and social services in order to learn more about health care for the baby, as well as opportunities for financial assistance and child care. Although many of these environments are places in which the teenager already spends much of her time, it is important to understand that these systems may treat the teenager differently now that she is expecting a child. An awareness of the potential supports and barriers within each of these systems aids in understanding the teenager's pregnancy and parenthood transition.

The family environment (system) may consist of a small subsystem of immediate members (such as parents and siblings) or an extended subsystem including grandparents, cousins, aunts, and uncles—depending on the way the teenager defines her family system. Often, families are the core source of support for teenagers. Parents typically provide guidance, love, and financial support for their children as they transition to adulthood. In fact, research studies have found that pregnant teenagers who receive a great deal of support from their parents are less likely to be depressed and more likely to think that things are going well in their lives (Stevenson, Maton, and Teti 1999). Expectant teenagers may require more support from their families than other teenagers. For instance, families may need to provide special emotional support for the teenager. Teenagers may also need additional financial assistance to cover new expenses associated with raising a child.

In a recent focus group, we found that sometimes what seems like support from the family may actually be perceived as a stressor by the teenage mother. Although some teenagers reported that their parents would play a supportive role in child rearing, others were concerned that their parents' efforts to care for the new baby might undermine the teenager's effort to parent her own child. Nevertheless, support from the teenager's parent(s) can also enable the teenager mother to go to school or work while providing the baby with another loving relationship. Although some grandparents successfully assist with parenting, others may need help negotiating roles with their teenage daughters. Allowing teenagers to maintain some level of parental authority and responsibility may foster a healthier parent-child relationship over the long term.

The father of the baby is also likely to be an important part of the expectant teenager's ecosystem.

The father's involvement has been associated with the mother's overall psychological and emotional well-being, but his level of involvement often depends upon the quality of the relationship and the financial contribution he can make (Scott-Jones 2001). This correlation was confirmed by our observation that teenagers who believed that the fathers would consistently visit the baby and also contribute financially and emotionally seemed to have a more positive demeanor when discussing the father's role. However, as is often the case for adolescents, the romantic relationship may not endure, and the teenager may feel abandoned at a time when support is especially needed.

The friendship system often goes through many changes as the expectant teenager becomes physically and emotionally different from her peer group. In our recent ecological study of teenagers participating in a parenting program, teenagers reported that they had had to grow up quickly because of the pregnancy (Sanders et al. 2002). A shift in priorities and newfound maturity may cause them to break ties with their previous friends. Time demands with work and school, in addition to fatigue because of the pregnancy, set these teenagers apart from their friends, who may still be part of the teenage social scene. Still, friends may serve an important function as expectant teenagers prepare for a new family member while trying to maintain support and acceptance from peers.

The school system can offer the expectant teenager educational experiences that may lead to work or continuing education, allowing the teenager to make a better life for herself and her child. Some schools provide programs for pregnant teenagers that inform them about pregnancy, labor, and parenting. Information about prenatal development, nutrition, and effective parenting can be instrumental in their preparation for childbirth and parenthood. Several teenagers in our study reported that their experience of pregnancy actually motivated them to finish high school (Sanders et al. 2002). The teenagers pointed out that they would have to be responsible for another person in addition to themselves, and they wanted to be able to support their new child financially. Outside of the classroom, the school's culture (e.g., classmates' or administrator's attitudes) toward pregnant teenagers is also important. Teenagers who feel that they are being teased or treated unfairly because they are pregnant may drop out of school instead of graduating. Concerns about making up work and child care may also hinder a student's ability to work through the new demands of being a parent and attending school. Requirements for an immediate return to school may create a barrier to school completion if the teenager has a difficult delivery and needs an extended leave of absence. Those schools that foster positive student-teacher connections and child-care opportunities increase the likelihood of high school completion and academic success among these teenagers.

Receiving help for medical and unexpected child costs can be of great use to a teenage mother. Additional health and social services from agencies such as government-sponsored health and human service agencies can be an enormous support for the teenager. Unfortunately, these services can also create barriers for a teenager due to various requirements and restrictions issued by these systems. For example, a teenager mother may need extra money for her child to buy diapers and other needs, but if she lives with a parent, it may be more difficult to qualify for financial assistance.

Characteristics of the teenagers also influence how they cope with pregnancy and parenthood, and how they relate to parents, teachers, and other important people in their social networks. Personality, psychological well-being (e.g., self-esteem, depression), intellectual ability, and cognitive maturity are among the individual characteristics that may affect how well the teenagers handle the transition to parenthood. For example, research has shown that an aggressive personality is a risk factor for early pregnancy and an unresponsive parenting style once the child is born (Luster and Brophy-Herb 2000). Personality characteristics, such as being friendly and sociable, may also influence the teenagers' ability to elicit social support from others.

The teenager's developmental history (i.e., the experiences she had prior to pregnancy) can also affect how she manages the transition to parenthood. Teenagers who have grown up in difficult family circumstances (e.g., violence, abuse, neglect) are likely to face more challenges and have fewer personal resources than teenagers who have experienced more favorable family circumstances. Adolescents who have received good parenting during their formative years can draw upon that

experience as they care for their own infants. The teenager's history in school may also influence whether or not she returns to school and how long she stays in school if she does return following the birth of the baby. Trying to juggle school and parenting is difficult even for adolescents who enjoy school and have a history of school success. Expectant teenagers who have had few positive experiences in school may not persevere when school work is difficult, even though they realize that high school completion is important for getting ahead.

It is essential to remember that the environments in which these teenagers interact overlap and intersect with one another. The outcomes for teenagers and their children may depend on factors in multiple settings. For example, a teenager may receive academic support from her school to continue her education; however, she may not have adequate child care available at home or at school, making it nearly impossible to attend school. Similarly, the teenager may have a good relationship with her boyfriend and a supportive family; however, once the pregnancy is disclosed, the parents may discourage their daughter from continuing the relationship with her boyfriend. This can lead to strained relationships among the parents, daughter, and boyfriend and low levels of father involvement once the baby is born. An ecological perspective also recognizes that there are marked individual differences among expectant teenagers, and their unique characteristics influence where they spend their time and how those contexts are experienced. Two expectant teenagers facing similar levels of adversity might respond quite differently. Some teenagers show extraordinary determination in dealing with the often daunting challenges of early parenthood. One must explore the interplay between personal characteristics and contextual factors to explain individual differences in the long-term outcomes of expectant teenagers.

An ecological perspective offers a lens that is sensitive to the role that multiple environments (contexts) play in the positive transition of these teenagers into parenthood. The recognition that multiple contexts influence the well-being of the teenager and her child is important for designing effective intervention programs and identifying gaps in service (e.g., affordable, high-quality child care). The ecological perspective can also influence the thinking of policy makers who want to strategically invest public resources in ways that benefit teenager mothers, their children, and society at large.

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See also: Adolescent Pregnancy and Prevention; Prenatal Decision Making by Adolescents; Sexual Abstinence

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Adolescent Personal Fable

The adolescent personal fable, the belief that a youth may have that he is somehow immune to the bad things that happen to others, is an important individual ecological factor to consider when looking at the many factors that influence adolescent behavior. An example of this fable occurs when adolescents are cognitively aware of the negative consequences of a behavior but do not believe those consequences are relevant for them. It may also be noted where the youth thinks that no one understands how he feels when, in fact, many others share those same feelings. The opposite may also apply when an adolescent thinks that what is important to him is also important to others when it may not be. An ecological perspective looks at the many factors that influence adolescent behav-

ior. In addition to the many external factors, this type of adolescent egocentrism is an important concept to understand when working with adolescents, who may think that they are invulnerable to risks and that no one could possibly understand how they feel.

Youth may believe in an imaginary audience, a belief that "derives from a confusion between what is important to the young person and what he believes is important to others" (Elkind 1979, 217). Teens may be very self-conscious about their appearance, thinking everyone is noticing what they are wearing or how they look. "Thus, the adolescent falsely assumes that others are equally preoccupied with his or her behavior or appearance" (Harter 1990, 224). These feelings of being special and unique may occur in younger children, but they appear to be much more common in adolescents. It is helpful to remember how self-conscious youth can be about a physical trait that an adult might notice but not feel is of any real concern; the teen may see it as a major crisis. The external environment has a strong influence over adolescents, but this internal factor, shared by so many youth, is also important.

Adolescents may feel self-conscious in all that they do. They may also possess feelings of invulnerability that can affect any area. Teens may think they can drink at a party and still drive safely. They may engage in sexual activity and believe that there is no chance they could contract a sexually transmitted disease or get pregnant. They may break rules, assuming that they will not be caught. "The personal fable accounts, in part at least, for a variety of perplexing and troubling behaviors exhibited by the young teenager. It helps account for what appears to be self-destructive behavior but in fact results from a belief that the young person is special and shielded from harm" (Elkind 1979, 97). The adolescent personal fable may continue, in some form, into adulthood as well. "It is a story that we tell ourselves but that isn't true" (Elkind 1984, 36). This may account for illogical actions in adults as well, as with someone who has had too much to drink still thinking she can drive safely. Yet, even though it may still be present to some extent in adults, most youth will revise this fable, achieving a more realistic way of viewing life and the consequences of their actions as they mature. So, although this type of behavior may occur at various ages, it is most common and prevalent in adolescents.

At the same time that the adolescent personal fable can account for seemingly illogical and dangerous behavior on the part of adolescents, the benefit is that youth aren't immobilized by fear of the bad things that could happen due to the everyday dangers of life. Driving under the influence of alcohol is very dangerous, but even when one is driving while fully alert serious accidents can still occur. The sense of invulnerability that the personal adolescent fable may give youth could be seen as a benefit for them as they gain independence and find their place in society.

It is not clear exactly when the adolescent use of the personal fable begins or ends, and it likely varies considerably from youth to youth. As a general guide it "*probably* emerges in early adolescence, but not always, and *probably* declines by late adolescence, although the factors that govern probable appearance, onset, and decline have yet to be specified" (Lapsley 1990, 194). Simply realizing that it is usually present, to varying degrees, can be helpful when working with youth. While also considering the many environmental factors influencing youth, understanding this aspect of adolescent development may lead to steps that could be taken to help overcome, or at least, take into account, this personal fable.

Since most adolescents harbor feelings of invulnerability, to at least some degree, providing information about the negative consequences of high-risk behaviors alone does little to convince them of their vulnerability. This method does little more than challenge the youth's reality, even if it is a false reality in which they will not suffer negative consequences for any behavior. At the microsystem level, combining the information youth need to know with activities may help them gain a more realistic view of the risks involved with a given activity. Role-playing is one activity that may allow youth to see potential consequences. This type of skills-based programming can help youth develop the means to better deal with situations that might arise, where they could be tempted to engage in high-risk behavior.

The use of peer educators is another way for adolescents to see that others share many of the same thoughts that they believed were unique to them. Peer educators may be able to take the ideas and concepts adults feel are important in teaching youth about preventing high-risk behaviors and adapt them so that their peers can better relate the

information to their own lives. They "provide normative information rather than merely providing facts" (Price et al. 1993, 45). With peer educators, youth can see that not all their peers are drinking, using drugs, or having sex and that it is all right, even better, not to engage in these behaviors. Since the peer group is an important microsystem for adolescents, the youth involved in peer education also serve as positive role models to other youth. This is a win-win situation, in which the peer educators benefit from the positive feelings of helping out fellow teens and having their peers look up to them, while those who are educated are led to consider healthier choices for their activities. Even when the peer educators present the same information, it is often better received than if an adult provided it.

Another method for trying to convince adolescents of their vulnerability is to use simulations. With advances in computer technology, youth can experience virtual reality simulations of high-risk behaviors. Instead of simply reading or hearing about the possible consequences, teenagers can vicariously experience them. For example, in a program to promote sexual abstinence teens can make choices about their behavior on a virtual Friday night date (Calvin College 2001, http://www.calvin.edu). If they choose to go to a party and drink with their dates, the program provides feedback about the effects of alcohol on personal judgment. Teens can continue to make choices, including a choice to start kissing, make out, or even work up to "going all the way." Youth that do "go all the way" are randomized to get pregnant, get one of eight sexually transmitted diseases, or luck out (with further information on the number of teens each year who do contract sexually transmitted diseases and the number of adolescent pregnancies). For increased realism, youth randomized to get a sexually transmitted disease will be given information on what symptoms they might have and whether treatment is available, as well as any possible long-term consequences from the infection. Preliminary pre- and post-tests assessing adolescents' attitudes and beliefs about sexual activity and their intentions regarding what would be best for them personally indicate a slight positive change after using the program. With a simulation that may take the youth only five to ten minutes to complete, any positive change is encouraging. Further study is indicated, however, to fully assess the potential for this type of simulation to help encourage more responsible behavior in adolescents.

Another simulation geared to prevent drug use and focusing on the beginning use of marijuana has similar features (Calvin College 2001, http://www.calvin.edu/). The youth decides whether or not to try marijuana offered by a classmate and continues to make choices, receiving feedback throughout the scenario. Teens who choose to try marijuana can read about the effects marijuana would have on them. If youth choose not to smoke again later in the scenario they are given positive feedback for abstaining. If teens keep choosing to accept marijuana when offered it in each part of the scenario, the feedback reflects the ongoing problems that can develop with continued use.

As technology continues to advance, these simulations may move from cartoonlike drawings to increasingly complex animations. The simulations might also reflect the gender and ethnicity of the teen who is doing the simulation. This can be accomplished with simple programming features built into pre-simulation surveys and by using additional artwork so that youth can see a closer representation of themselves during the simulation.

Some early versions of interactive computer games demonstrated positive attitude and behavior changes (Starn and Paperny 1990). Preliminary anecdotal evidence also exists that shows the effectiveness of more recent programs, and there is hope that today's multimedia youth will be interested in and positively impacted by such programs. Using a virtual reality type of program may be one of the best ways to safely let youth explore the possibilities and choices they may encounter in real life. By providing realistic consequences, it may also be one of the few ways to help them realize that they are not invulnerable to potential negative consequences of their behavior.

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See also: Adolescents, Alcohol Use Among; Adolescent Pregnancy and Prevention; Developmental Transitions across the Life Span; Self, Self-Concept, and Self-Esteem; Sexual Abstinence

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Adolescent Pregnancy and Prevention

Over one million adolescent girls get pregnant every year, with over half of those young women giving birth (Ventura et al. 2000). The issue of adolescent pregnancy prevention has been a focus in both academic research and popular culture for several decades now. As time has progressed, the goal for research has grown from simply trying to prevent teens from becoming pregnant, and now includes understanding the motivations for pregnancy, the intergenerational pattern of young childbearing, and the consequences of an adolescent birth for both mother and child. Despite increased breadth in the field, one theme remains constant: Adolescent pregnancy is a complex issue, with no single cause or consequence.

Research addressing the causes of adolescent pregnancy focuses on four main areas: (1) individual/person factors (biology, hormones), (2) family/parenting, (3) societal factors, such as poverty, and (4) educational factors. Although each of these areas will be covered separately, it is important to remember that they may occur together, and interact, in the broader context of the adolescent's life.

Research on biological processes indicates that advanced hormonal development (in the form of early menarche) is related to early pregnancy in girls (Miller, Benson, and Galbraith 2001). Girls who mature earlier are likely to engage in sexual activity at an earlier age than their later maturing counterparts. This increased sexual activity leads to an increased risk for adolescent pregnancy. Research has also shown a positive relationship between a mother's age of menarche and her daughter's age of menarche, suggesting that one reason children of adolescent mothers are more likely to have children as adolescents is because both are likely to mature early and thus engage in early intercourse. Likewise, there is similar evidence relating to young men's hormonal development: The earlier they mature, the earlier they initiate intercourse.

The relationship between adolescent pregnancy and reduced educational achievement in adolescents has been well established. Adolescents who get pregnant or father children tend to have lower grades, more problems in school, and lower educational aspirations, and they are more likely to repeat a grade or need remedial education—or both (Scaramella et al. 1998; Corcoran 1999). In addition, adolescents who get pregnant have, on average, lower I.Q. scores than others. Several scholars have argued that early sexual behavior is just one set of problem behaviors that adolescents engage in that lead to early pregnancy. Others, including taking drugs, engaging in criminal activity, and low school achievement, have been hypothesized to combine to influence early pregnancy. In addition, some scholars believe that school-aged pregnancy is a response to reduced goals and aspirations related to limited educational success (Kalil and Kunz 1999). In fact, there is research in support of all of these possible influences. Early sexual activity is associated with drug and alcohol use and behavior problems in school. Additionally, girls who get pregnant and stay in school are less likely to have a repeat teenage pregnancy, suggesting those with higher educational aspirations are likely to move on a more productive path (Manlove, Mariner, and Papillo 2000). Although this research reflects perspectives on the influence of education on adolescent pregnancy, it is important to recognize that the precise causal paths are not yet clear. A girl may be engaging in problem behaviors because she is doing poorly in school and has low aspirations, which may be linked to her desire to have children early. Alternatively, she may be doing poorly in school because of the other

problem behaviors she participates in, and those behaviors may lead to the pregnancy.

In addition to educational achievement, societal factors such as poverty play a prominent role in teen pregnancy. Girls from low-income families are significantly more likely to have children at an early age and to have repeated adolescent births (Miller et al. 2001). As with the education arguments, there are two beliefs as to why this link may occur. First, researchers have argued that families in poverty are less likely to have the resources to adequately monitor their children and more likely to live in environments where multiple delinquent activities take place. A newer and more provocative argument is that, given their options in life, early pregnancy may be a viable life path for many low-income young women. When she is young and dependent, a woman may have more family support to have a child than if she waited until she were out of the house. She is also less employable as a teenager than she would be in the more "normal" childbearing ages. As with the education arguments, these two explanations are not necessarily mutually exclusive.

Considerable research has been directed at explanations of adolescent pregnancy that are related to family functioning and parenting. Research on communication levels between parents and children has shown that parents who are more open with their children tend to have children who engage in sexual activity at later ages and thus are less likely to become adolescent parents. Likewise, parents who engage in appropriate levels of discipline are less likely to have children who get pregnant at early ages (Miller et al. 2001). Research on discipline is inconclusive, however; it is not entirely clear what an appropriate level is. What is clear is that neither a lack of discipline nor excessive discipline is appropriate. Instead, a moderate amount of discipline is generally thought to produce the best results. Additionally, children who have been abused, either physically or sexually, and neglected have a greater likelihood of early parenting (Miller et al. 2001). The general belief is that children of poor parenting environments are seeking to fill needs in early relationships and sexual behavior that they were unable to fill at home.

A subset of the parenting research concerns the impact of parenting values on adolescent's sexual decision-making process. This arena of research has received considerable attention in the context of intergenerational adolescent pregnancy (i.e., when successive generations of a family bear children at an early age) and in studying the link between early pregnancy and single-parent families. It has been argued that mothers serve as role models for their children's sexual development and behaviors (Fox 1981). Therefore, when mothers are not married or when they bear children at an early age, they are setting an example of precocious sexual behavior and disregard for marriage that their children will follow. The belief is that the adolescents will feel that since it was acceptable for their mothers to have sex early and to bear children out of wedlock, then it is acceptable for them to do so as well. This research suggests that simply by being single or young, parents will be inadequate role models for their children's future sexual relationships. Although research exists that substantiates the theory that being a single parent or a teen parent by itself does not offer any disadvantage (since it is the context in which most single and young parents raise their children that is important), some evidence has been found that indicates that mothers who have a greater number of pregnancies or a greater number of partners, or both, are more likely to have children who give birth at an early age (Whitbeck, Simons, and Kao 1994).

Most prevention efforts fall into one of two categories: school-based interventions and family-based interventions. School-based interventions tend to come in the form of classroom presentations and usually focus on maintaining abstinence (Franklin and Corcoran 2000). These programs mainly seek to educate young women about the dangers of early sexual behavior, both in terms of pregnancy and sexually transmitted diseases. They also focus on debunking the myth that most young people are having sex, which is the most cited reason adolescents give for their first intercourse. In reality slightly less than half of high school juniors and seniors have had sex, and many of those have only had sex once. Despite good intentions, these programs have had little impact on adolescents' behaviors, although they have been shown to affect adolescents' knowledge about sex and sexually transmitted diseases. Two reasons given for this discrepancy are that these programs do not have contact with students on a long-term, substantive basis, and that despite the knowledge gained adolescents have trouble, for many reasons,

Teenagers outside a Planned Parenthood office (Skjold Photographs)

translating this knowledge gained into a change in behavior.

The second set of programs seeking to prevent adolescent pregnancy are family-based programs, which tend to be long-term and intensive, seeking to not only educate but also to intervene in the life process of families (Eckenrode, Izzo, and Campa-Muller in press). Often these programs are done with low-income, new parents, since an increasing amount of research suggests that the early years are formative for later development. Programs that intervene with parents in order to impact children's outcomes are called two-generation family support interventions. These programs seek to impact multiple areas of family life that have been shown to affect children's outcomes, including enhanced parent-child relationships and increased economic self-sufficiency. Often these programs are delivered in the home and provide a valuable resource for young families. A subset of family intervention programs are programs that seek to intervene with mothers who have already had a teenage birth in order to prevent multiple adolescent births and to bolster the life chances of the young family. These programs tend to employ the same methods as two-generation programs and often have the same long-term goals.

Adolescent pregnancy and prevention have been studied intensively for several decades, and adolescent pregnancy remains one of the most important issues facing our youth. Research has uncovered many important links between education, family functioning, genetics, and the environment that are related to the likelihood of an adolescent getting pregnant. Each of these areas speaks to the complexity and breadth of reasons that may lead a young person down this path, and to the scope of interventions that must be used if we are to reduce the number of pregnancies faced by adolescents today.

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See also: Adolescent Mothers; Adolescent Personal Fable; Menarche; Prenatal Decision Making by Adolescents; Sexual Abstinence

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Adolescent Well-Being in Rural Environments

See Rural Environments, Adolescent Well-Being In

Adolescents, Alcohol Use Among

Alcohol use is prevalent among people beyond childhood and shows an intriguing association with ecological factors, such as family environment and aspects of the peer group. Typically, consumption increases rapidly across adolescence, shows a peak in the early twenties and declines gradually thereafter, that is, once the major developmental tasks of emerging adulthood are resolved. Whereas young children disapprove of drinking, from adolescence on alcohol consumption is most often seen as signifying one's growing social maturity.

Children drinking (Michael Siluk)

Consumption Prevalence and Age Trends

In an analysis of 11- to 15-year-old adolescents of several countries of the European Community, 25 percent claimed to have had their first drink before the age of 11. First experiences with alcohol often occur in the family context, such as taking sips of adults' drinks (Mayer et al. 1998). Heavier drinking often happens in the peer context in large groups of underage persons (Mayer et al. 1998). In a study on the timing of first alcoholic intoxication, Louise Masse and Richard Tremblay (1997) reported a median age of first intoxication of 15 years in males.

According to representative surveys, the lifetime occurrence of alcohol use among twelfth graders is in the order of 80 percent or higher. In contrast, episodic heavy drinking (five drinks or more in a row) occurs in about 30 percent (O'Malley, Johnston, and Bachman 1999). Concerning frequency, a third of the 14- to 24-year-olds in a large German community sample reported drinking less than once per week, a third up to twice a week, and only the remaining third reported consuming alcohol more often, including daily (Holly and Wittchen 1998). The increase in frequency and quantity peaks in the early twenties, followed by a similarly sharp decline, particularly for frequency. In general, gender differences in consumption are small among moderate drinkers.

Influences on Alcohol Use

Adolescence is characterized by growing attempts to find a particular place in life, which involves dealing with new social expectations and personal aspirations. The increasing interest at this time in novel and risky activities, and the unsupervised environments associated with them, probably also has neurobiological underpinnings (Spear 2000).

A deeper understanding of the age trends, associations with biographical transitions, and immediate consequences of alcohol consumption can be achieved by distinguishing two sets of developmental antecedents, originally derived from research on delinquency (Moffitt 1993): The large majority of adolescents show an increase of alcohol use that peaks in late adolescence and declines thereafter. In this group, alcohol use is a means for solving developmental tasks of adolescence, such as showing adultlike behavior and building peer relationships. After taking over adult roles (marriage, parenthood, first transition into work), high frequency and intensity of alcohol consumption tend to disappear. In contrast, a small group maintains

high levels of consumption beyond the normative transitions to adulthood. This behavior is rooted in long-lasting problems of adaptation, starting in early childhood and encompassing neurological problems, attention deficit, and impulsivity.

An early onset of drinking and higher levels of alcohol consumption are both associated with ecological factors: High levels of parental alcohol use, parental acceptance of drinking, and low closeness of the parent-child bond have been identified as risk factors for adolescents' alcohol use (Brook et al. 1990). Similarly, higher involvement with peers who use alcohol predicted the transition from abstinence to alcohol use in the one-year follow up (Fletcher, Darling, and Steinberg 1995).

Whereas countries like the United States, Canada, and the United Kingdom share relatively moderate consumption, some Mediterranean and Eastern European countries rank much higher. In longer perspective, consumption in industrialized countries increased dramatically after World War II, reaching unprecedented peaks in the 1970s and 1980s, followed by stable or slightly declining figures thereafter (Silbereisen, Robins, and Rutter 1995).

Consequences of Alcohol Use

Moderate consumption among those on the adolescent-limited trajectory corresponds prospectively to higher status and better cohesion within one's peer group, and is associated with a higher likelihood of romantic involvement. Moreover, adolescents seem to select leisure settings that offer opportunities for friendship contacts and that provide alcohol in the right quantity and environment, such as discotheques, quite deliberately, thus suggesting a constructive function of alcohol use in healthy psychosocial development (Silbereisen, Noack, and von Eye 1992).

Due to the overall moderate and/or time-limited alcohol consumption among adolescents, most of the negative consequences are immediate. According to Patrick Miller and Moira Plant (1996), between 5 percent and 30 percent of young people in midadolescence report problems associated with alcohol use in areas of social functioning, problems such as personal adversities (reduced school performance), difficulties in social relationships (tensions with friends), sexual problems (unwanted sexual encounters), and delinquency. More serious consequences are very rare: An estimate of the dependence potential of alcohol is a 6 percent share of those in a normal sample (ages 14 to 24) diagnosed with substance use disorder (Substance Abuse and Mental Health Services Administration 1996). Alcohol use is not a gateway drug, but it is certainly true that most users and abusers of other psychoactive substances begin with (and often maintain) the use of alcohol, and that earlier and heavier use is associated with later drinking problems (Kandel, Yamaguchi, and Chen 1992), but the causal mechanism is unknown.

Prevention

Given the multiple influences on alcohol use, multimodal interventions are needed to prevent an early onset of drinking and high levels of alcohol use. Concerning environmental factors, reducing contexts that facilitate the habituation of drinking is supportive, such as cutting down on the episodic availability of large quantities of alcohol in tempting locales. More specific measures try to minimize the harm by enforcing controls on the drinking settings, by, for example, establishing licensing hours, or by training bar tenders to refuse serving alcohol to drivers (Plant, Single, and Stockwell 1997).

Concerning prevention at the individual level, targeting adolescents at school is the rule. Given the role of alcohol use in response to normative developmental difficulties, most school-based programs address general life skills as well as substance-specific elements aiming at reducing risky behaviors and protecting young people from engaging in such risks of use and abuse. These typically offer factual information about alcohol-specific physiological and psychological states, the formation of negative attitudes, and practical training in how to resist unwanted offerings of alcohol by peers (Tobler and Stratton 1997).

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See also: Adolescent Personal Fable; Community Youth Development; Parenting Style; Violence in Teen Dating; Youth Development

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Adolescents: Real-World Research Techniques

In order to understand both the content and context of lives, new research techniques have been developed that capture momentary experience as it occurs. Such techniques provide a method for studying the activities, thoughts, and emotions of normal individuals as they interact with their natural environments (home, family, school, workplace, and so on). One technique that has been frequently used in the study of adolescents is called the experience sampling method (ESM). The unique advantage of the ESM is its ability to capture daily life as it is directly perceived in each moment, thus affording researchers an unsurpassed opportunity to examine the links between context and content. The method achieves this degree of immediacy by asking individuals to provide written responses to both open-ended and closed questions at several random points throughout each day of a normal week. The questions can be fully tailored to the interests and goals of the researcher, but often include queries focused on physical context (location, time of day), social context (number and description of others sharing the moment), activities, thoughts, feelings, concentration, and motivation (Hektner and Csikszentmihalyi in press).

The ESM delivers two advantages that combine and improve on what could otherwise be obtained with separate methods. First, it captures real life in much the same way that direct observations would, but by using the participant as the observer the method is able to gather data that an outside observer would miss. Second, the ESM gets at the person's internal thoughts and feelings much as rating scales on questionnaires would, but by collecting these ratings multiple times the method is able to depict the variety of a person's experience more accurately than a one-time questionnaire. Because the participant records experience the moment it occurs, the method avoids the potential distortions associated with the use of daily or

weekly retrospective diaries. Of course, the method is not without its limitations. One major drawback is its intrusiveness in participants' lives; not all research participants who are recruited for an ESM study will be willing to comply with its demands of responding several times a day. Another consideration is the high cost of implementation. Nevertheless, the burden for participants and costs to researchers are well worth it, given the richness of the data obtained through the ESM.

In most ESM studies, each participant is given an electronic signaling device, such as a pager or wristwatch. Several times a day over the course of a week, the device signals the participant by beeping or vibrating. Upon detecting the signal, the participant can shut the signal off and then complete a brief self-report form. Blank forms are typically bound together in a booklet, which participants carry with them, along with the signaling device, as they carry out their daily activities. The self-report form asks participants to note their location, activities, and thoughts, and to indicate on rating scales the other internal dimensions of their experience. Participants also describe their social context by noting whom they are with at the moment. Scales measuring internal dimensions of experience typically focus on the participant's quality of experience at the particular moment he was signaled. Questions focus on motivation (e.g., "Was there something else you would rather be doing?"), emotion, and mental concentration. As an alternative to using a signaling device and pencil and paper, new studies are being conducted that use palmtop computers to both signal participants and record their data.

Using the ESM, researchers have been able to determine how much time the average teenager spends at school (32 percent), at home (41 percent), and in public (27 percent), as well as how much of that time is shared with friends (29 percent), classmates (23 percent), family (19 percent), or no one else (27 percent) (Csikszentmihalyi and Larson 1984, 59–71). The time a teenager spends exclusively with one or both parents averages only about five hours a week. Over the past twenty years, the proportion of time high school students spend in school but outside of class—about a third of their school time—has remained remarkably consistent (Csikszentmihalyi and Schneider 2000, 142). These ESM investigations have also gone beyond cataloguing which activities people engage in, where, and with whom, to focus on the psychological states individuals experience in each context. Some of the findings to emerge in this area are that adolescents feel the highest levels of intrinsic motivation when they are in public parks or at friends' homes and the lowest levels when they are in class or at a job. They are happiest when with friends, are emotionally flat on average when with their parents, and are least happy when alone.

One person-in-context system that has been widely studied with the ESM is the adolescent in the school. ESM researchers have documented that high school students spend over one-third of their class time listening to the teacher lecture or to audio-visual presentations, but that they are actually thinking about the subject matter only 54 percent of the time during these activities. Students have the lowest levels of happiness and motivation in history classes, which are heavily dependent on lectures, and the highest levels in computer science and vocational education classes such as drafting. The latter are usually elective classes that require much individual work at solving problems. Indeed, choice, control, and student engagement in an individual or group project were the elements of a class period most likely to arouse both enjoyment and concentration (Csikszentmihalyi and Larson 1984; Csikszentmihalyi and Schneider 2000).

Other ESM studies have examined the daily interaction patterns of families to shed light on the processes that underlie adaptive versus maladaptive functioning. By having two parents and an adolescent complete ESM self-reports simultaneously, Larson and Richards (1994) were able to show that family members do not always experience the same perceptions, even when they are together. Other ESM researchers have concluded that the best family context for facilitating adolescent development provides strong emotional support, challenging opportunities, and high expectations.

Researchers will often combine the ESM with other methods to gather a wider array of information. In a recent study of adolescents, a follow-up session after the week of ESM included a one-on-one tape-recorded interview in which the interviewer asked for elaboration on particularly interesting moments (self-reports) in order to stimulate a conversation about specific issues (Csikszentmihalyi and Schneider 2000). Another version of the ESM has been called ecological mo-

mentary assessment (EMA), a technique most often used in behavioral medicine. Studies using EMA have focused on adolescents and adults who are struggling to end or control their dependence on alcohol, tobacco, or other drugs. Other EMA studies have been conducted to better understand how people cope with eating disorders, depression, migraines, chronic pain, arthritis, and panic disorders (Shiffman 2000).

Recently, non-ESM research techniques have been developed that incorporate the advantages of capturing experience from the participant's point of view while also allowing the researcher to focus more narrowly on a particular problem. For example, families or adolescent peer groups can be asked to talk about a particular topic or problem, and the interaction can be recorded on video- or audiotape. Then the tape is played back to the participants; at several points the tape is stopped, and participants are asked to describe and/or rate their inner feelings and thoughts at that point in the interaction. This technique has been used to study family communication styles and their relationship to how interested family members are in the conversation (Rathunde 1997).

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Adoption

Adoption is the process by which a person, usually a child, is legally made a part of a family. In most cases the adopting family does not include birth parents, except in instances where one parent is a birth parent and the spouse or partner adopts the child, or children. Adoption may be viewed either as a way to provide family life and homes for children who are orphaned or abandoned, or as a way to provide children to couples who might otherwise be childless. Throughout much of history, the latter position has been more prevalent, as it continues to be in the United States today.

Legislation regarding adoption varies by state, but almost entirely reflects the position of a minor child as property, thereby placing the needs of the adult participants of the process above those of the child. Examples of the conflict between the rights and needs of the child and the desires and benefits to the adults can be seen in the prevalence of closed adoption records, the reversal of adoption decisions after a child has been placed with a family for months or even years and a birth parent subsequently challenges the adoption, and other legal decisions that result in multiple placements for even very young children, as the adults involved struggle to achieve custody. Because there is so much variation in adoption law between states, any attempt to study specific cases or work with families requires substantial study of how the courts and the policy makers in the relevant states treat the issue.

When the child up for adoption was often the result of a pregnancy outside of marriage, protecting the identity of the birth mother or birth parents was of great concern. In the United States, this was the case up until late in the twentieth century. An illegitimate child was most often a scandal that families wanted to avoid, so homes for unwed mothers provided lodging, secrecy, and an elaborate mechanism for transferring the babies immediately after birth to either a waiting adoptive family or to some other facility, so that the birth mother had little or no contact with the infant.

Many mothers never saw their children, and the prevailing wisdom at the time was that the birth mother would forget the experience fairly quickly and get on with her life. The child was viewed as having no memory of the experience at all, and therefore not affected by the transfer. When women relinquished their children for adoption under these circumstances, they rarely had any hope of ever discovering what had happened to their children; the children themselves had little hope, and the adoptive families were often not aware there could be any reason for such a discovery.

During the past decade, in particular, changes in awareness of the adoption process from the perspective of all three parties have changed the way those concerned are considered in terms of their particular needs, feelings, and reactions to adoption at any point in its trajectory. Increasing numbers of reunions between birth parents and adopted children, made possible by Internet search resources, have inspired social and psychological research efforts to provide a better understanding of adoption and its impact on the familial, social, legal, and, increasingly, economic system of the United States today.

The child can no longer be viewed as a blank slate upon entry into the world. A baby is born with the ability to experience many senses, to recognize the birth mother's face and voice, and to feel loss at the separation from her, even if there is an immediate replacement in the form of a new primary caretaker. The newborn infant has memory and experiences the loss of the birth mother as abandonment and loss in just the same way John Bowlby's work has shown children react to separation. The feeling of abandonment and loss is no less real and painful because it is preverbal; in some ways, it may be more difficult to resolve because the source is not available to conscious memory. When those feelings manifest themselves in very young children as symptoms of grief, they should be treated sympathetically as they are feelings of grief which the child may need assistance in coping with. When the feelings manifest later as curiosity, whether casual or intense, about the birth family, they should not be seen as a rejection or lack of respect for the adopting family, but rather as a natural manifestation resulting from this early separation. In *Primal Wound,* Nancy Verrier, writing from her extensive research on the subject, indicates that adopting parents may see it as a sign of rejection when the infant fails to attach immediately and completely with them. It is rather a defense mechanism the child uses to ward off yet another catastrophic loss. Understanding this is critical to the adoptive parents, as well as to professionals who may be attempting intervention early in the adoption process or even many years later.

For the majority of birth mothers, the surrendering of a child is far more emotionally devastating than previously understood by the general public. Many feel intense attachment to their infants, regardless of what they expected prior to birth. The decision to surrender a child for adoption may be made on very rational terms, but the pain and grief still must be resolved. During the many decades in which out-of-wedlock pregnancies were hidden, birth mothers had no outlet for dealing with that grief. Their own families were sometimes unaware of the event, and even when they were aware, they often discouraged any discussion of the child or of the birth mother's grief. Again, the large numbers of birth parents who have been reunited with their adult children have led to an increase in the venues through which the feelings of both parents and children can be heard. Web sites dedicated to reunion assistance, to searching out adoptees, to searching out birth parents, and to many different aspects of adoption exist in the hundreds and are now providing a means for opinions and feelings to be expressed, often after decades of suppression.

Although loss is most profound for the infant and the birth parent(s), the adopting parents frequently contend with a sense of disappointment and loss because of their inability to give birth. Regardless of how much they love and enjoy their adopted children, many parents still would have wanted to experience pregnancy and birth. Just as the birth of one child does not fill the void left by a child who has died, the adoption of a child does not fill the void left by the inability to give birth. For families not knowledgeable about the impact of the separation experience on the child, adjusting to the adopted child and forming an attachment to it may be difficult, regardless of their love or their diligence in providing a good family experience. They may not understand the many manifestations of this experience, which may range from the child's apparent rejection of them to intense separation anxiety, and thus will be thwarted in their attempts to deal with these problems ef-

fectively. Some adoptive parents feel threatened when their children inquire about their birth families and express the desire to make contact. Many adoptive mothers have confessed to having anxiety from the very first that the birth parents would somehow take back the child. Even many years after this taking back might actually be a possibility, the emotional association of the birth parent with the potential loss of the child remains a potent force for many.

Although the specifics of adoption laws differ among states, with very few exceptions adoption records are closed. In only a handful of states can adopted adults obtain copies of their original birth certificates, with the most recent to open the records being Oregon in 1998, as a result of a statewide referendum. Some other states allow access under certain conditions, which may involve the age of the adoptee, the existence of siblings, or extraordinary conditions. In states having no such access, opening sealed legal documents can be accomplished only with the mutual consent of all parties involved or with court intervention. Adopted adults, even if in advanced years or needing critical medical information, are not able to access information about their identity. Legislative change has been slow, and often there is intense lobbying to prevent changes in laws that would make access to these records more reasonable. In several states where legislative action has not occurred, mutual consent registries have been initiated to allow contact between adopted persons and members of their birth families.

Perhaps in reaction to the decades of secrecy surrounding adoption and the forced mutual ignorance of all involved, many adoptive parents are now engaging in open adoptions, wherein they maintain contact with the birth mother. Contact may be as limited as an exchange of information through a third party or as extensive as maintaining physical contact with the birth family. Anecdotal information regarding open adoptions is generally positive, although balancing the needs and interests of three parties is not always easy. The major benefit is seen as being conferred on the adopted child, but often other members of the triad also report success in maintaining a new kind of extended family for their adopted and relinquished children.

In the United States, there has been a substantial decline in the numbers of infants relinquished at birth for adoption, and the number is currently less than 2 percent of babies born (Evan B. Donaldson 2001). Although there are many more couples and individuals seeking to adopt healthy infants than there are such infants available, there are still many infants with problems who need placement, and there are many older children with and without problems who are available for adoption. The decline in relinquished healthy infants has led to an increase in international adoptions, and those have more than doubled in the past decade. In addition to increased financial stakes, international adoptions carry unique concerns regarding obtaining family medical histories, obtaining any family history for the child's benefit, and the issue of maintaining aspects of the child's cultural background. A greater number of children in international adoptions have been institutionalized prior to adoption, and those children often come with increased emotional problems associated with their separation from the birth parent and subsequent placement in an institution, often for many months.

Lack of consistent regulation among states and among countries increases the risks associated with attempting adoption except through agencies. Because arranging adoption is not highly regulated in many states, there is a growing incidence of adoptions being arranged for financial gain by persons with inadequate knowledge of the many emotional and social ramifications of the process and with no real concern for the well-being of those families involved.

Anita Miller Stamper

See also: Child Custody; Remarriage

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Adulthood, History of

The idea of adulthood is now simply taken for granted as an obvious phase of the life course reflecting postadolescent maturity. However, an examination of the history of this idea suggests that adulthood as it is now known in Western countries is culturally unique. This is shown by the fact that in most languages, the idea of adulthood is apparently not important enough for a word to have emerged to express it. Even among the European languages, only English has a specific word designating a distinct stage of the life cycle set aside for adulthood (Côté 2000).

The word "adult" first appeared in English, according to the Oxford English Dictionary (OED), in 1531. The term "adulthood" did not appear until 1870. Moreover, the term "adult" followed a similar etymological path as other terms that emerged to represent the life course. It is derived from the Latin *adolescent,* which is the present participle of *adolescere* (to grow up, mature). *Adolescere* is the inceptive verb of *adolere* (to make grow), while *adultus* (grown) is the past participle. The term "adolescent" was brought into English usage in the 1400s, a half century earlier than the word "adult" (Côté 2000).

Without a language to describe the various stages, people did not make the age distinctions that Anglophones, and increasingly others, do now. The massive social, economic, and technological transformations that have taken place over the past several hundred years have altered the institutional structures of modern societies and, as these institutions have changed, so have people's lives: People started living longer, became healthier, and were less likely to raise children, especially large numbers of them. This led to the formation of age groupings that grew internally homogeneous and externally distinct from one another. Increasingly, people of different ages became differentiated from each other in terms of social roles and responsibilities, as well as in terms of expectations about the appropriateness of certain cognitive and emotional attributes (Mintz 1993).

The relatively recent appearance of a word to describe adulthood suggests that people needed something to depict the new societal conditions they faced, especially increasing uncertainty and the need to make life-altering choices. In traditional societies, people had little choice in how their lives played out. Instead, regardless of their age, people were bound by duties and obligations to fulfill family and community roles that were assigned to them according to their place in society. Young and old alike were expected to work for the common welfare of their family and community, regardless of their own preferences and needs. However, rapid societal changes gave rise to increased uncertainty and the need to know more about the world in order to make choices, thereby giving new meaning to the notion of "maturity" and widening the gap between those with little experience and knowledge (children) and those with more experience and knowledge (adults). This process was hastened by the decline of absolute religious authority and the rise of secular authority (e.g., governments, academic and professional experts). Increasingly, people became responsible for their own destinies in terms of choosing which duties and obligations to accept as part of their adult lifestyle (Merser 1987).

Today, as a result of the longer period necessary to find one's place in the adult world based on one's own preferences, most people do not feel they are "adults" until they are well into their twenties or even thirties. Jeffrey Arnett (2001) has examined these self-perceptions in a series of studies, finding in response to the question "do you feel you have reached adulthood," that among Americans aged 18 to 25, about 40 percent respond "yes," 5 percent "no," and about two-thirds answer "in some respects yes, in some respects no." For 26- to 35-year-olds, only about two-thirds say "yes." We need to look to 36- to 60-year-olds to find as many as 90 percent saying they feel have reached adulthood.

Arnett concludes that the transition to adulthood is now more psychological than sociological, as traditional social markers (employment, marriage, family) have lost their meaning for most people. Instead, the important markers involve psychological criteria: accepting responsibility for the consequences of one's actions, deciding on beliefs and values independently of parents and other influences, and establishing relationships with parents as an equal adult.

By the twentieth century, adulthood became the longest and least studied portion of the life course. The twenty-first century will likely see considerable research efforts devoted to helping people understand and cope with the lifelong demands of living in a world of great uncertainty and choice.

James E. Côté

See also: Adolescence in a Cultural Context; Developmental Transitions across the Life Span; Young Adulthood

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African American Families

An analysis of mainstream ecological theoretical frameworks reveals that African American families and children can be fully understood only in relation to the interaction of their social class, culture, ethnicity, and race (Garcia Coll et al. 1997). The variety of family settings, family interaction patterns, and socioeconomic environments has resulted in diverse family arrangements. The interactions of these factors have resulted in many different types of families, with a great diversity of family experiences. At the same time, there are many family similarities of African, Brazilian, West Indian, and African American families (Herskovitz 1938).

Although African American families are too varied to fit the prevailing monolithic view of Black families that is too often presented in the lay and research literature, many do have a past history of enslavement in common. In that respect, the historical past of many African American families is substantially different from all of the other immigrant groups that have come to the United States. American history books have, however, gone to great lengths to eliminate the stories of enslavement and dislocation of various groups of color across the centuries.

The reality is that families were brought into the country against their will as enslaved individuals, and that direct efforts were made to eradicate the African culture, efforts that have given African Americans an unreal image of their past and, therefore, their futures. This situation has resulted in an overlay of continuing racism by Whites and resentment by African Americans that is not clearly understood by those who are non-Black. The American enslavement experience brought loss of control, violent uprooting, and great pain. These brutal experiences have shaped the ideological forces that lead to modern day families, with their strengths and weaknesses (Wilkinson 1997).

At the same time, the African heritage of African American families has resulted in many of the strengths that have helped families to cope with adversity (Dodson 1997; Sudarkasa 1993, 1997). Among the cultural legacies that originated in Africa, family members felt the importance of maintaining communal family traditions, traditions that resulted in more matriarchal family systems. The importance of coresidential extended families and their support systems has been cited as one of the major survival systems (Billingsley and Hill 1968). Other legacies include oral traditions, spirituality, rhythmic-movements expression, and communalism (Boykin 1997).

A major survival factor for families of color is the support of relatives and friends, who form an extended, intergenerational group of persons. They often provide help in the areas of child care, household tasks, finance, eating and sleeping arrangements for young children, and advice and mutual support (McAdoo 1997). This kind of mutual dependence has been known to limit the geographic mobility of family members. Inherent in the exchange is reciprocity, which requires the resources of a family unit to be available for others in the extended family. This can cause tension at times, but the uncertainties of the future keep members involved in these exchanges.

Assimilation into American society has long been considered the norm for many ethnic groups, but persons of color have not been allowed to move out of their caste-like status. In African American communities, the extended family is both an adaptive coping response to the environment (Stack 1974) and a continuation of West African cultures (Martinez 1999; Sudarkasa 1988). Most families live in individual residential units that are involved in patterns of mutual support, frequent visits, and help exchanges (Boyd-Franklin 1989). These patterns are found at almost all socioeconomic levels.

Demographic Relocations of African American Families

There have been many changes in the demographic patterns of African Americans in the United States, but for the most part the patterns are highly re-

African American parents with their children (Elizabeth Crews)

gional. In the 2000 census, Blacks were strongly represented in the South, as well as in selected urban areas of the Northeast and Midwest (Fey 2001).

At one time the majority of African Americans were found in the South in the former areas of enslavement. These areas became known as the Bible Belt, or Black Belt, so called because Blacks and their religious institutions were concentrated there (Pipes 1997). The South became increasingly racially hostile to Blacks with the decline of cotton cultivation and of farming in general. During the 1890s over 90 percent of Blacks were on farms in the South. By the 1990s they had scattered into urban centers in the South, the North, and the West (Billingsley 1992).

Many Blacks moved north to seek a better life and to take advantage of the industrialization in the Northern states. The massive Northern Migration had enormous impact. While in the South, Blacks had lived in large extended families composed of kin and fictive kin (Stack 1974; McAdoo 1992). The move to urban centers fragmented the extended families and made effective social support more difficult to maintain.

The many decades of South-to-North migration changed with the decline and movement offshore of the smokestack industries of the northern states. The Midwest and Northeast regions, especially Chicago, Detroit, and New York, witnessed the largest shift in Black population. Over a quarter-million persons were lost during the period from 1985 to 1890 (Frey 1994).

As Blacks left the North, there were significant increases in Black migration to Los Angeles and San Francisco–Oakland, as well as to southern New Orleans and Shreveport. Families were drawn to areas where job opportunities were expanding, in California, in Texas, and in the Sun Belt in general.

The 1990 Census showed that the migration from the north has continued, but that now it is predominantly a return migration. Instead of California, the state of choice was Georgia. According to William Frey (1994) the four states with the largest increase in Black population (after Georgia) were Maryland, Florida, Virginia, and North Carolina. All of these states were in the growing South Atlantic region. The specific areas with the greatest attraction were the Old-South

metropolitan communities that are the biggest centers of the New South, such as Atlanta, Norfolk, and Raleigh-Durham. The movements are strongly influenced by the existence of new jobs. But even more important, some scholars believe, is the lure of extended family, of the fictive kin and family kinship networks that still exist in these regions.

These larger trends certainly have meaning, but it is important to look more closely as well. And in fact the lack of validity of any monolithic view of the African American family is reinforced when the movements of the past thirty years are examined in more detail. Not all Blacks went to the same states and metropolitan areas (McAdoo 1997). Different segments of the Black populations, especially the rich and the poor, went in separate directions as the two groups became ever more separated and more economically polarized. When the record of Black movements in the Census was disaggregated, so that families with one or two college-educated parents and impoverished families could be considered separately, there were differences in the places where they moved (Frey 1994).

College-educated professionals sought jobs and rising incomes in university towns and in growing manufacturing communities. College graduates were more likely to be drawn to larger cosmopolitan areas, both inside the South (Washington, D.C., Dallas–Ft. Worth, Miami, and Baltimore) and outside the South (Los Angeles, San Francisco–Oakland, and Philadelphia), as well as to recreational centers such as Orlando, Florida (Frey 1994). Middle-class, college-educated Blacks were responding to the economic pulls of certain areas.

Some scholars believe that the evidence shows that impoverished Blacks went wherever lower-paying or blue-collar jobs dominated and where the cost of living was lower. On the other hand, it is true that many poor Blacks were influenced by the pull of their historic roots in their return to their southern origins. They were attracted to smaller southern metropolitan areas (Norfolk, Tallahassee, Richmond, and Greensboro). Often, the extended kinship networks were located in small, nonmetropolitan areas, for instance, in North Carolina, which attracted large members of "return" poverty migrants more so than other South Atlantic states (Frey 1994).

Current Demography Trends of African Americans

This country is quickly moving toward a population shift in which African Americans will become an even larger proportion of the population. They have increased by 16 percent between 1990 and 2000, a greater rate of increase than that of the total U.S. population. On the other hand, Hispanics will outnumber them in 2024. The U.S. Black population in 1999 was 34.9 million (13 percent), up from 33.9 million in 1996 (U.S. Bureau of the Census 2000).

In 1999, there were 16.3 million Black males and 18.6 million Black females, creating an imbalance in the sex ratio of men to women that causes great difficulty in maintaining two-parent households. Unsurprisingly, the structure of African American families that include children under age 19 in 1999 differs drastically from others. About 31 percent of Black parents in such families are married and live with their spouses, but 43.6 percent have never married. Only 38.7 percent of Black children under 19 live with both parents; 56.9 percent live with their mothers only. Few fathers live in the same homes as their children. The percentage of African American children who lived with their fathers only (3.9 percent) is similar to the percentage of Whites living with their fathers only (3.4 percent) (U.S. Bureau of the Census 2000).

This major difference between Black fathers and fathers in other groups at the same income level did not exist in 1970; in fact, Black families did not differ significantly from mainstream families until after 1970. Up until that time the majority of families had two parents. Some scholars argue that modifications occurred as the result of a series of recessions in the 1970s, which became depressions within the Black community (Hill 2002). It is also worth noting that similar changes occurred within mainstream families in the late 1980s and accelerated in the 1990s.

Blacks run the gamut from poor to wealthy. Most are not affluent, but nearly one-third (28 percent) reported total incomes of $50,000 or more (U.S. Bureau of the Census 2000). Annual per capita income in 1999 was $12,957 for Blacks and $19,759 for Whites. Poverty is the position of too many. The income of 2.1 million Black families (26 percent) was below the poverty level. That means 42 percent of Black children under age 18, versus 11 percent for Whites, live below the poverty line.

Over the last few years about 41 percent of Black families received food stamps, 31 percent received AFDC/General Assistance, and 10 percent received Social Security benefits. In 1996, the unemployment rate for Blacks was 11.6 percent, compared to 4.6 percent for Whites. Some child support is received by 14.4 percent of the children, usually from the father (Children's Defense Fund 1997; U.S. Bureau of the Census 2000).

The parents of 28.2 percent of Black children under age 18 own a home; 55 percent live in a central city. Overall, homeownership reached 46.3 percent during the first quarter of 1999. At least one parent worked in 64.9 percent of the homes; 80.7 percent had earnings in 1995; and 84.7 percent were covered by health insurance. This latter figure is higher than for other groups of color. In 1999, 84.5 percent of Blacks had finished high school, 32.1 percent had attended college, and 13.7 percent had a college degree (U.S. Bureau of the Census 2000).

In sum, people of color have many challenges in general. African American families continue to suffer from subtle and overt discrimination, in the form of housing discrimination, lowered educational expectations, and biased hiring practices. In addition, families must strive to cope with the stereotypical perceptions of African Americans that are widely held and the racial profiling that is currently widely used against family members.

Harriette Pipes McAdoo

See also: Children of Incarcerated Parents; Grandparents Rearing Grandchildren; Old Age, Social Relationships in; Racial Identity Development among African American Adolescents; Racism and Its Impact on Health

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Advising High School Students

See High School, Advising Students in

Aging and Technology

One common attribute of societies considered modern is the high degree to which they use technology. This statement pertains not only to the domain of industrial manufacturing and the organization of work, the reliance on information, and the rationalization of services and interactions between producers and consumers, but also to the private everyday world in which each member of society lives. The way people lead their daily lives and take part in society is facilitated or complicated by residential infrastructure, public and private means of transportation, communications technologies, rehabilitation aids, and the increasing automation of services, depending on the design, ease of handling, proliferation, and accessibility of all these things. There are few domains of modern life that would be what they are without technology. Communication, mobility, playing sports, keeping house, enjoying leisure time—all these are no longer conceivable in modern industrialized societies without technological support.

Technology can be a supportive tool for persons of all ages, but it is particularly important with respect to old age, for two reasons. First, the phenomena of widespread experience of old age and the concomitant graying of societies are themselves due in large part to technological developments. Medical advances, more balanced work schedules, improved working conditions, healthier diets, and higher standards of hygiene and housing, all made possible by new technologies**,** have contributed much, at least in the West, with its industrialized societies and welfare systems, to the sharp increases in life expectancies since the beginning of the twentieth century. Second, although technical aids have always been utilized where the strength and their skill of unaided human beings did not suffice to deal with environmental demands, the particular weakness of the human condition in old and very old age makes greater demands on the assistance of technology. In the case of the failing strength and loss of bodily functions closely related to old age, technology can have enormous impact in terms of compensating for limitations and enhancing the aging individual's ability to lead as independent and active a life as possible.

Since the beginning of the 1990s, a new scientific discipline called gerontechnology (e.g. Charness et al. 2001) has been established to address the broad scope of issues related to technology and aging. Among the major features of this scientific approach is its focus on all day-to-day life domains of older people, not exclusively on illness and chronic conditions, as was the case with more traditional rehabilitation and assistive technology approaches.

Technology and Everyday Life in Old Age: Where Does It Matter?

In the *domestic environment,* the application of technology reduces physical hardship and thus makes dealing with tiresome everyday tasks easier. Assistance with everyday tasks for persons with failing strength is provided above all by the appropriate household technology. An increasing number of products are being developed with a focus on optimal user-friendliness and barrier-free design. Although these products are interesting to users from all age groups, they are particularly significant to older people with sensory or motor limitations, due to the high degree of operational comfort and safety they offer (Czaja 1997). The enormous potential of new technologies developed recently, such as "intelligent," or "smart," homes, could also prove particularly useful in this regard. Homes of this kind afford nearly unlimited possibilities of assisting older people by the integration of systems and the process of automation . They also pose new ethical dilemmas. For example, surveillance systems that can provide useful information about the physical and mental well-being of the elderly by tracking their everyday behavioral patterns may at the same time involve infringement on the individual's right to privacy.

The *mobility* of elderly people is supported by various transportation technologies, such as private cars, and buses and trains from the regional mass transport authorities. The private car plays an ever greater role in maintaining mobility; the proportion of older car drivers will clearly rise in the future, and the need for a private car, especially among older adults whose physical strength is waning, will not be supplanted by public transportation—at least not until mass transit systems begin to approach the flexibility and convenience of driving one's own car (Mollenkopf et al. 1999). Thanks to new intelligent systems, it will become

even easier to traverse both small and great distances quickly and efficiently (Schaie and Pietrucha 2000), changing the very definition of what is "near" or "far." For dealing with various limitations to mobility, which range from the vague insecurity some elders feel when walking to total immobility, a multitude of appropriate technical aids, such as different types of rollers, stair lifts, elevators, and wheelchairs for every type of function losses, have been developed, which can improve or at least facilitate mobility inside and outside one's place of residence.

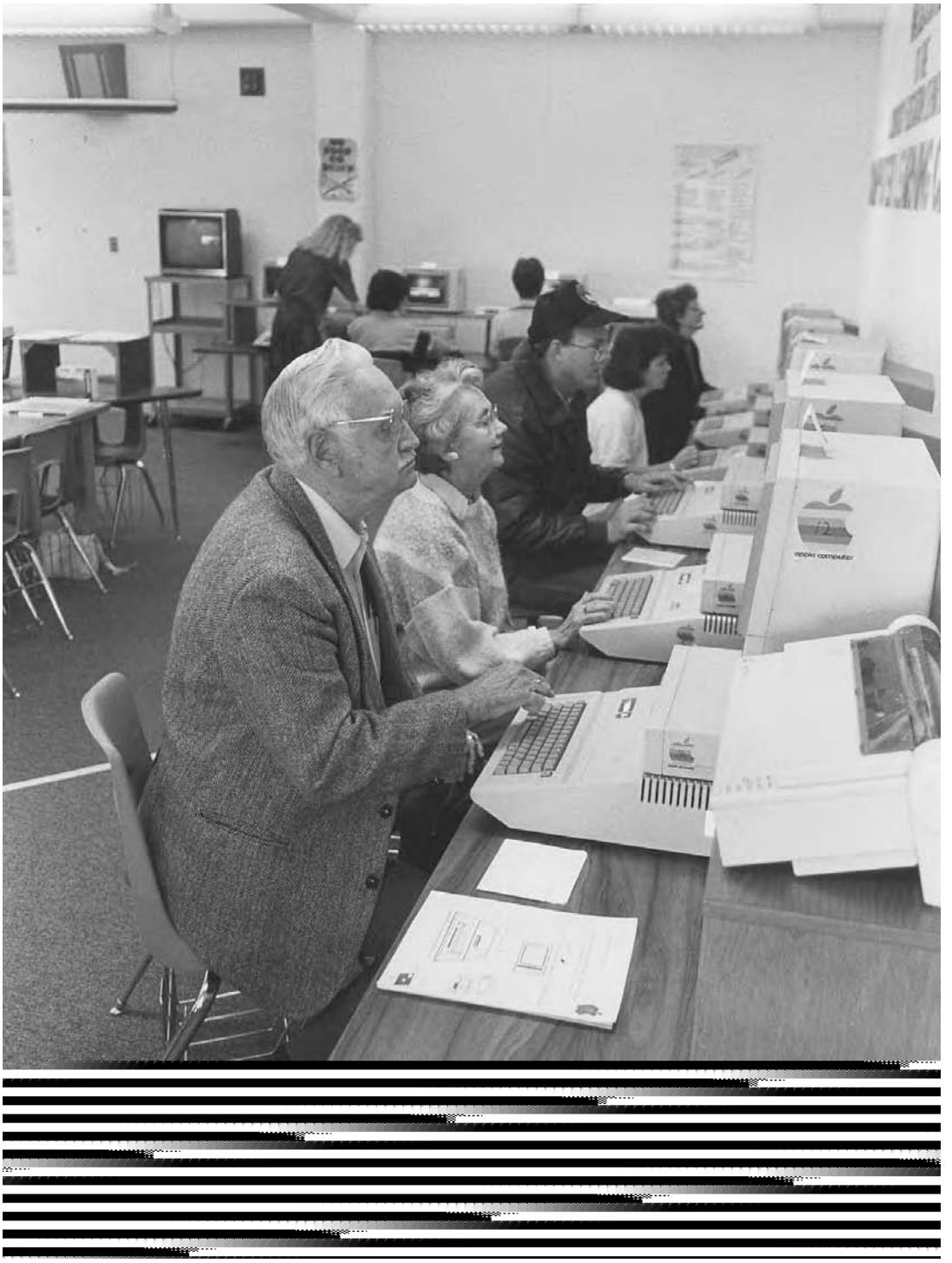
The connection between aging and technology is perhaps most evident with regards to the increase in *communication.* Traditional technical communications equipment such as the telephone or the cell phone ensures that a connection to the important people in one's life can be established at all times, over long distances and despite limited physical mobility. New information and communication technology (ICT), including devices and systems such as interactive modes of video communication and e-mail, internet access, multimedia, and information services, which are just beginning to show their potential, can help to strengthen the social contacts one already has, create new ones without having to overcome spatial barriers, and protect in particular elders who live alone from severe isolation, even when their senses and mobility are impaired. Safety-alarm systems give the assurance that help can be obtained quickly in an emergency, and in case of special impairments, speech computers and electronic reading aids serve to compensate for seeing and hearing handicaps (Charness 2001).

With regards to *health, prevention,* and *care,* a great variety of assistive devices have been developed to address the impairments faced by handicapped persons and frail elders. Medical technologies and auxiliary devices such as special bathroom technology, nursing beds, and lifters help provide care for those with health impairments (Bühler and Knops 1999). Providing assistive technology and environmental modifications can improve functional performance in older persons with physical and sensory impairment, slow down the rate of decline, and reduce the costs of institution-based health care (Mann et al. 1999). Medical screening and routine check-ups can increasingly become automatic, allowing the medical practitioner to make an early diagnosis without a personal consultation. But despite the general assumption that older people benefit from whatever type of assistive device is made available to them, and despite the obvious changes that the availability and use of technology can bring to their everyday lives, surprisingly little systematic research has been done on the effectiveness and impact of those technologies (McWilliam et al. 2000).

Prerequisites and Problems of Technology Use In Old Age

Even in the early twenty-first century, older persons' access to domestic appliances and modern information and communication technologies (ICT) still depends strongly on aspects of *social structure* as well as on *individual attitudes* and *lifelong habits.* This has been confirmed, for example, through a study conducted in Germany, with a sample of 1,417 persons aged 55 years or older. Among sociostructural variables, age was most important (negative impact), followed by household composition, income, and parenthood. Negative attitudes toward technology, domain-specific as well as general ones, were significant (negative) predictors, too: for example, persons who have always preferred to minimize the use of household technologies or ICT during their life course, or those who think that it is not worth buying new products anymore are more likely to be sparsely equipped in old age than those who express more positive attitudes. In the domain of ICT, a high level of education and experience with technology ("I always had a lot to do with technology in my life") turned out to be significant positive predictors. Surprisingly, gender has no impact on the use of this type of appliance, although it is a strong predictor with respect to household technology.

Another hindrance to the provision with appropriate technical aids is that older people often have *no information* on the availability of many types of assistive devices or on the necessary procedures to take advantage of their rights. However, information about how to acquire such devices is the most important prerequisite for the use of technical aids, especially if one's own funds do not suffice for the purchase of the device one needs. Whether or not elders are able to obtain appropriate technical aids depends heavily on the knowledge and interest of the people who, private or professionally, are concerned with the well-being of the elderly.



Retirees using computers and the Internet (Michael Siluk)