GENDER DEVELOPMENT

Judith E. Owen Blakemore • Sheri A. Berenbaum • Lynn S. Liben

Gender Development

Gender Development

Judith E. Owen Blakemore
Indiana University–Purdue University Fort Wayne

Sheri A. Berenbaum
The Pennsylvania State University

Lynn S. Liben
The Pennsylvania State University

Psychology Press
Taylor & Francis Group
New York London

Cover design by Lynn Liben; photographs by JeongMee Yoon, The Pink and Blue Project (www.jeongmeeyoon.com). We express our gratitude to Ms. Yoon for permission to reproduce these photographs.

Psychology Press
Taylor & Francis Group
270 Madison Avenue
New York, NY 10016

Psychology Press
Taylor & Francis Group
27 Church Road
Hove, East Sussex BN3 2FA

Printed in the United States of America on acid-free paper
10 9 8 7 6 5 4 3 2

International Standard Book Number-13: 978-0-8058-4170-1 (Hardcover)

Library of Congress Cataloging-in-Publication Data

Blakemore, Judith E. Owen.
Gender development / Judith E. Owen Blakemore, Sheri A. Berenbaum, Lynn S. Liben.
p. cm.
ISBN 978-0-8058-4170-1
1. Gender identity. 2. Sex differences (Psychology) 3. Parent and child. 4. Identity (Psychology) and mass media. 5. Mass media and sex. 6. Family in mass media. I. Berenbaum, Sheri A. II. Liben, Lynn S. III. Title.

HQ1075.B545 2008
305.3--dc22 2008019279

Visit the Taylor & Francis Web site at
http://www.taylorandfrancis.com

and the Psychology Press Web site at
http://www.psypress.com

Contents

Preface

It is obvious to those of us who do research and teach on the topic of children's gender development that there has long been a need for an advanced textbook and reference work in the area. We hope that this book will fill that need. Our goal was to provide a textbook for advanced undergraduate and graduate courses in gender development, as well as a book that could serve as a resource for scholars in the area.

There are many textbooks devoted to the topics of sex and gender, and in particular, to the psychology of women, but their focus is rarely developmental. As an advanced-level book focused on the gender development of children and adolescents, this text is unique. There have been a few gender development texts in the past (none for more than a decade), but even those few were at an introductory level. Thus we believe this book will fill an important niche for both teachers and scholars. It is our hope that it will also serve as a stimulus to increase the teaching of courses on gender development at both the undergraduate and graduate levels. To make the book accessible to students, a glossary of significant terms, boldfaced when first introduced, is included at the end of the book. Every chapter begins with a quote, often from literature, about a topic related to gender and children. We have also included many lively anecdotes about children's gender-related experiences, ideas, and behaviors, such as Michael Messner's (2000) delightful story about the Barbie Girls and the Sea Monsters.

The book is organized into four parts. The first introductory part contains two chapters. Chapter 1 introduces the field, and chapter 2 outlines its history, beginning before the 20th century and continuing through the time of the publication of Maccoby and Jacklin's *Psychology of Sex Differences* in 1974.

The second part concerns differences between the sexes. This includes the basic biology of sex in chapter 3, and two chapters organizing research on behavioral sex differences. Chapter 4 addresses motor and cognitive behaviors, and chapter 5 addresses personality and social behaviors.

The third part focuses on contemporary theoretical perspectives on gender development. We consider biological approaches in chapter 6, social and environmental approaches in chapter 7, and cognitive approaches in chapter 8.

The fourth part addresses the social agents of gender development, beginning with children themselves as agents of their own gender development in chapter 9, followed by family, peers, the media, and schools as agents of gender development in chapters 10, 11, 12, and 13, respectively. We follow chapter 13 with a brief epilogue.

We have included the most recent research on gender development. For example, in chapter 6 we show how genes and hormones affect the behavioral development of males and females, including the most recent findings about causes of gender identity, and we consider the significance of very recent findings about brain sex differences. In chapter 9 we look at the most recent research on children's cognitions about gender, including new work on the development of gender constancy. In chapter 11 we examine research on sexual minority youth as they negotiate romantic and sexual relationships in adolescence. In chapter 12 we look at the impact of new technologies such as video games and Internet use on the development of boys and girls, and in chapter 13, we look at the impact of single sex schools.

We have taught courses on this topic, both to upper-level undergraduates and to graduate students, and we believe this book has appealing features for both groups of students. This is an inherently interesting subject matter to students. We think all will find that the integration of stories and examples enriches the material and connects it to their lives. The depth and variety of the research and theoretical models presented will provide a foundation for undergraduates and graduate students alike. Graduate students in

particular should be able to use the cited works as a base for further examination of the literature in almost any area of gender development work.

This book is a collaboration among three authors. Although we have each contributed to the whole book through collectively planning the organization, content, and some basic themes, we have each taken responsibility for writing individual chapters. One of us, Elaine Blakemore, wrote the majority of the chapters (1, 2, 4, 5, 7, and 10–13), and as indicated by footnotes in the relevant chapters, the other two of us wrote two chapters each: Sheri Berenbaum chapters 3 and 6 and Lynn Liben chapters 8 and 9. Throughout the writing process, we each commented on one another's chapters and occasionally wrote sections for chapters that were not our primary responsibility. We made an effort to blend our writing styles, but we each have a somewhat different voice and some different perspectives on the field. Our different perspectives enrich our coverage of the material and reflect the diversity in the field. This means, however, that occasionally a perspective or point taken in one chapter may vary somewhat from the perspective found in another chapter. We believe that a book with different voices and perspectives is a better reflection of this rich and diverse (but sometimes controversial) field than a book with a single author would be.

In many places, we draw links among the individual chapters (e.g., referring to later and earlier discussions of similar points and sometimes even descriptions of the same studies for different purposes). Although chapters have been designed to be read sequentially, each chapter covers particular topics and perspectives that are not always related in a linear fashion to topics in the preceding or subsequent chapters. Therefore, we provide full citation authorship the first time a reference is used within an individual chapter rather than only the first time it is used within the entire book. This procedure should make it easier for instructors who wish to assign chapters in a different order than they appear in the book and ensure that individual chapters are useful for advanced scholars who may wish to use only parts of the book to review or learn about a particular content area.

We know that a book gets to print not only through the efforts of its authors, but also through the contributions of many other people behind the scenes; this book is no exception. We begin by acknowledging the contribution of one of our (and we know, others') heroes in this field—Eleanor Maccoby—to whom we have collectively dedicated this book. It is Eleanor more than any other scholar who legitimized the study of sex differences in developmental psychology, in part by the ground-breaking book that she edited in 1966, *The Development of Sex Differences*, and in part by the many related books and articles that she has authored or coauthored since then. She has also trained a steady stream of outstanding graduate students, although sadly none of us is numbered among them. Nevertheless, we have each benefitted from her student progeny, some of whom have become collaborators with one or more of us, and some of whom have provided input and encouragement to us as we wrote this book. And, more directly, Eleanor has also offered us her wisdom and support throughout this project. We are deeply grateful.

We would also like to acknowledge with our sincere thanks to those colleagues who reviewed portions of this book in its varied stages: Rebecca Bigler, Kristina Bryk, Barbara Bulman-Fleming, Jeanette Clausen, Susan Gelman, Carol Lawton, Susan McHale, Carol Lynn Martin, Diane Ruble, Margaret Signorella, and the reviewers engaged by Erlbaum Associates/Psychology Press: Rebecca Bigler, the University of Texas at Austin; Yvonne Caldera, Texas Tech University; Campbell Leaper, University of California–Santa Cruz; and Richard Lippa, California State University–Fullerton. Although they should not be held responsible for the final form of this book, they certainly should be thanked for their help in its reaching a final form. We also acknowledge the students in our classes and in our laboratories at Indiana University–Purdue University Fort Wayne and The Pennsylvania State University who read early versions of some of the chapters and provided helpful comments. So, too, we would like to thank our editors at Taylor & Francis, Debra Riegert and Richard Tressider. Debra supervised this book from the time we first brought the idea to Lawrence Erlbaum Associates to the time it reached print, and Richard handled the production process with efficient expertise. We have appreciated the patience, wisdom, and responsiveness they have shown throughout the process. We also thank Roberta Shadle for her assistance with illustrations and artwork.

Finally, we would each like to add our individual acknowledgments to some important influences from beyond the academy. First, to Tom Blakemore in gratitude for more than 35 years of feminist

partnership, and to Greg and Neil Blakemore, whose childhood experiences provided many examples and stories used throughout this book. Second, to Edith and Charles Berenbaum, for providing the right genes and the nurturing environment for their optimal expression, and for enacting their beliefs that girls can do anything. Third, to the memories of Florence Gettenberg Liben and Jay Liben, who are, respectively, the doctor of the anecdote that opens chapter 9 and the person who—with pride—never tired of correcting those who assumed that he was the one with the medical degree. We will welcome the day that such corrections are unnecessary.

Introduction 1

> Boys ran around in the yard with toy guns going kksshh-kksshh, fighting wars for made-up reasons and arguing about who was dead, while girls stayed inside and played with dolls, creating complex family groups and learning how to solve problems through negotiation and role playing. (Keillor, 1993, p. 12)

Gender is one of the fundamental ways in which the social life of human beings is organized. Indeed, one of the first questions people ask when they hear of a birth is whether the child is a boy or a girl. From infancy onwards, parents often think that boys and girls are very different. For example, a few years ago, a newspaper columnist wrote about his young son (Weasel, 2001). His son is messy, leaves grape juice stains on the counter, and has Oreo rings around his mouth. He doesn't like to take afternoon naps, he plays with "boy stuff," and is obsessed with monster trucks. Weasel noted that his daughters have very different interests and behaviors than his son. More than likely many readers found the column charming, and agreed that boys and girls really do seem like different kinds of beings.

However, we might wonder why parents, or people in general, are inclined to emphasize the differences between boys and girls, rather than the similarities. If you consider the entire context of behavior from the routine (e.g., eating) to the highly complex (e.g., using language and sophisticated cognitive processes), surely human female children are more similar to human male children than they are different. On the other hand, if there are differences between boys and girls, what are they, how large or important are they, and where do they come from? Are such differences inevitable? Do you find them in all situations and cultures, or do they come and go as the situation changes? Is it better to encourage children to adopt gender roles, or better to eliminate them as much as possible?

Worldwide there are few factors that influence the lives people lead from birth to death as much as the person's sex or gender. Gender matters from the trivial to the most profound aspects of a human being's life. Whether a child is born a boy or girl determines the name the child is given, the way the child is talked to, the color of the child's clothing, and the toys and objects that are provided to the child. It influences who their playmates will be and how they will interact with those playmates. In some cultures it influences what or how much education children receive (Schulz & Schulz, 1999). Once children grow up, gender continues to play a major role. Male and female adults have different clothing and hairstyles, occupations, life roles, responsibilities for the upbringing of children, different household and other chores, and different interactions with others every day of their lives.

Yet, in many respects, perhaps gender is becoming less important. Compared to many periods in human history, boys and girls today have many similar experiences and are expected to do many of the same things, especially in modern industrialized societies. They often receive identical or at least similar educations, and many adopt the same occupations. In some instances, males and females care for the children and do domestic tasks equally. So, although there is a long history of gender being extremely significant in human lives, we can also ask whether that significance is now diminishing.

In this book we will examine the role that gender plays in the behavior and experiences of children. In part I we introduce you to the study of gender development and explore its early history. In part II we describe basic biological and behavioral differences between the sexes. In part III, we discuss the major theoretical approaches to the study of gender development. In part IV, we explore agents of gender development—how family, peers, the media, schools, and children themselves influence the process. Finally, we close the book with a short epilogue suggesting how these factors work together in the process of gender development.

As we begin, we urge you to consider gender development as representative of development in general, and not as a unique developmental process. The development of boys and girls is certainly affected by both biological and social processes, and is influenced by interactions with parents, peers, school, and the culture at large. However, the same is true of any aspect of children's development. So, although our focus is gender development, it is important to recognize that the developmental processes that affect gender are by no means unique. The study of gender development therefore has the potential of helping us to understand many aspects of development. Finally, we note that, although gender is studied in many disciplines (e.g., anthropology, sociology), the examination of gender in this book is from the perspective of developmental psychology.

In this chapter we introduce the study of gender development. We begin with several different terms, issues, and controversies associated with the study of sex and gender in psychology in general, and in developmental psychology in particular. An examination of all of these issues at one time may seem a bit overwhelming, but we urge you not to panic. We will return to them throughout the book, and we do not expect you to fully understand them at this point. Rather, we want you to realize that there are many facets of gender development, including some that you may not have ever stopped to think about. Our goal here is to begin with an overview of the field, and we hope that a brief examination of these many terms and issues is a helpful part of that overview. As we reach the end of chapter 1, we move on to a brief introduction to children's gender development and to the theoretical perspectives that organize the field.

THE MANY COMPONENTS OF SEX AND GENDER

Many people seem to think that all aspects of sex and gender are consistent. They may assume that a person is definitely biologically male or female, definitely heterosexual or homosexual, definitely masculine or feminine, and that all of these aspects of sex and gender are likely to be consistent. However, qualities like these are much more complex than they may seem on the surface. Although most children are born unambiguously biologically male or female, some are not. The biological aspects of being male or female (chromosomes, hormones, genital structures, etc.) are sometimes inconsistent within a single person, and they certainly vary from person to person. The cultural aspects vary even more. Not all girls are especially feminine, at least as typically defined by the culture in which they live, and they may be feminine in some ways but not in others. A teenage girl may love sports and may be a fiercely competitive basketball player. She may also love dressing up and wearing makeup and nail polish. When thinking about her future plans, she may waver between being a nursery school teacher or a computer programmer. She is very likely not to question or doubt that she is a girl, or even think about it much. She simply accepts that she is a girl. On the other hand she may certainly question certain aspects of feminine gender roles. Perhaps she is a lesbian, although she may not be sure of that until she is well into adulthood. Sexual orientation is not always easily tied to masculinity and femininity. Although many boys who have exceedingly feminine interests in childhood do grow up to be gay men (Bailey & Zucker, 1995), others do not, and the majority of tomboys are heterosexual as adult women. Issues of sex, gender, gender identity, gender role, and sexual orientation are not simple. To clarify some of these issues, we begin with definitions of some of the terms we will be using in this book.

"Sex" or "Gender": What's the Difference?

Until the 1970s, the term **sex** was the most commonly used term to refer to boys and girls and men and women, and *sex roles* was the most commonly used term to refer to adopting cultural definitions of masculinity and femininity. More recently the term **gender** has often been used to refer to these same things.

We hear about sex differences in behavior, and about gender differences in behavior, about sex roles, and about gender roles (Pryzgoda & Chrisler, 2000). But are these terms appropriately used as synonyms? Do they have different meanings, and if so, what are they?

The use of the term "gender" rather than "sex" to refer to males and females began its modern usage with psychologist John Money's adoption of the term **gender roles** (Money, 1973) to distinguish between "genital sex," and all other aspects of being a male or female person. Money devoted his professional life to the study of sex, gender, and sexual orientation, especially in cases of people who had various anomalies of sex chromosomes and hormones. When he adopted the use of the term "gender," he used it to refer to external components of gender (which later came to be called "gender roles"), and internal components (which are now called **gender identity** and **sexual orientation**).

How are the terms "sex" and "gender" used now? Actually, there is no convention for the use of these terms that is accepted by all scholars of sex and gender, even within a single discipline like psychology. Some scholars rarely use the word "sex" except to refer to sexuality, and others rarely or never use the word "gender." Some call boys and girls the "two sexes," and others call them the "two genders." Some refer to "sex differences" in behavior, others to "sex-related differences," and still others to "gender differences." Some talk of "sex roles" and others talk of "gender roles." It is possible to read a single issue of a journal and find all of these terms used by different authors.

One common scheme used by many psychologists is to use the term "sex" for the biological aspects (e.g., hormones, chromosomes, genitals) of being male or female, and "gender" for the social or cultural aspects (Unger, 1979; Winstead, Derlega, & Unger, 1999). However, it is not always easy to know what is biological and what is learned, and many behaviors may be influenced by several different factors. Another widely used scheme developed by social psychologist Kay Deaux (1984) is to use the term "sex" to refer to the categories of male and female, and "gender" to refer to any judgments about the nature of differences between males and females, about roles, and about masculinity and femininity. Using Deaux's terminology, one would refer to boys and girls as the "two sexes," not the "two genders," whereas terms such as "gender identity," "gender roles," and **gender stereotypes** would be consistent with her scheme.

What terminology can you expect in this book? The use of the term "sex" to refer to sexual behavior and sexuality (e.g., sexual orientation) and clear biological phenomena (e.g., sex hormones, sex chromosomes) is essentially universal. In addition, the use of the terms "gender identity," "gender stereotypes," and "gender roles" has also been very consistent in recent years. We will most certainly use the term "sex" to refer to sexuality and to biological phenomena such as hormones, and we will use the terms "gender roles" and "gender stereotypes" rather than "sex roles" or "sex stereotypes." Following Deaux's convention, we will ordinarily call boys and girls "the sexes." With respect to behavioral differences between boys and girls, we will usually refer to "sex differences," but not necessarily always. Choosing the use of the term "sexes" to refer to boys and girls and talking about "sex differences" does not imply that we believe that social or cultural forces are unimportant. On the contrary, we will take the position that many factors influence gender development: biological, cognitive, social, and cultural. In short, be warned that in this book—as in the literature at large—there is no simple formula for interpreting the words "sex" and "gender," and thus you will need to examine the full context (the sentence, paragraph, or even the entire chapter) to interpret meaning accurately.

The "Sexes" or the "Genders": How Many Are There?

The majority of children are born unambiguously male or female, but a small number of children, probably less than 2% of live births (Fausto Sterling, 2000), are born with **intersex** conditions. This refers to a situation in which a child's sex chromosomes and one or more of their genital structures are not completely consistent. These conditions include those who have both ovaries and testes (or one of each) and some portions of the internal and external genitals of both sexes, and those who have only one type of gonad (either ovaries or testes), but whose external and/or internal genital structures do not fully match their gonads. Biologist Anne Fausto Sterling (1993) once argued that if

one considers people with such conditions, biological sex could be seen as a continuum, and depending on where one divides the continuum into categories, there could be five or more biological sexes. Although she may not have been entirely serious about there being five sexes, she continues to stress that the basic biology of sex can vary a great deal among individuals: "on close inspection, absolute dimorphism disintegrates even at the level of basic biology. Chromosomes, hormones, the internal sex structures, the gonads and the external genitalia all vary more than most people realize" (Fausto Sterling, 2000, p. 19).

Certain aspects of gender also vary along a continuum. Boys, for example, might range from very masculine to very feminine in their interests and personalities. But even if both the biological underpinnings of sex and the social and cultural aspects of gender vary, contemporary Western culture only allows for two categories. Socially and culturally, a child can only be a boy or a girl—there isn't a third or fourth category. Fausto Sterling (1993) points out that since the Middle Ages, people with intersex conditions in Western cultures have been socially and legally required to choose to be either male or female. Children born with intersex conditions are usually assigned to one gender or another, and have often undergone genital surgery to match their genitals to their gender of rearing. For example, this may involve surgery to reduce the size of an enlarged clitoris that resembles a penis (Lightfoot-Klein, Chase, Hammond, & Goldman, 2000). In recent years, advocacy groups such as the Intersex Society of North American (see www.isna.org) have advocated the elimination of reconstructive surgery on infants and young children (unless medically necessary) until they have reached an age when they can decide for themselves, both about their gender category and genital reconstructive surgery. Not surprisingly, this has been a very controversial topic, with strong opinions on both sides of the issue.

Are there always only two gender categories in every culture? Although not usually related to having intersex characteristics, Native American cultures (Fulton & Anderson, 1992) have often been reported to have a **third gender** category of adult roles for both males and females, sometimes called a **berdache**. These were typically men or women who wore the clothing and lived the social roles of the other sex, including having a marriage partner of the same biological sex as they were. In Samoa (Mageo, Fulton, & Anderson, 1992), there is a third gender category consisting of males who dress in women's clothing, and who have different social rules for their behavior than either males or females. In Albanian culture, still continuing today in rural northern Albania, are people called **sworn virgins**—women who live, dress, and work as celibate men (Young, 2000). Thus, it is not always the case that there are only two gender categories. Nonetheless, in most cultures, and certainly in most modern Western cultures, there are two social categories, male and female. When a child is born, (or with the growing use of prenatal testing, even before) we want to know if the child is a boy or a girl.

Having Gender and Doing Gender

Consider the following story told by sociologist Michael Messner (2000), who writes about his 5-year-old son's first season of playing organized soccer. On the first day of soccer season in a middle class Los Angeles suburb, thousands of parents and their 4- to 17-year-old children congregated on the grounds of a high school awaiting the opening ceremonies. A group of 4- and 5-year-old boys, the Sea Monsters, waited to play their very first soccer game. They had chosen their name at a meeting some weeks before, after having been given their uniforms in the team colors of green and blue. As they waited for events to begin, parents were chatting and getting to know one another while watching their children. Beside the Sea Monsters was a team of similar-aged girls, the Barbie Girls. Both teams had banners, but the Barbie Girls had something better: a red wagon with a 3-foot-tall Barbie doll dressed in a cheerleader outfit in their team colors, green and white, rotating on a pedestal. Barbie's hair was streaked with green and she had a green bow in it, as did many of the girls. A boom box played Barbie music and several girls sang along, holding hands, walking around the Barbie float. Soon the Sea Monsters noticed the girls:

> At first, the boys are watching as individuals, seemingly unaware of each other's shared interest.… I notice slight smiles on a couple of their faces, as though they are drawn to the Barbie Girls' celebratory fun. Then, with side-glances, some of the boys begin to notice each other's attention on the Barbie Girls. Their faces begin to show signs of distaste. One of them yells out, "NO BARBIE!" Suddenly, they all begin to move—jumping up and down, nudging and bumping one another—and joining a group chant: "NO BARBIE! NO BARBIE! NO BARBIE!" (Messner, 2000, p. 768)

In his discussion of these events Messner confronts the contrast between "doing gender" versus "having gender." Having gender refers to gender as an inherent characteristic of individuals—children are boys or girls, and their gender affects their behavior—it makes them different. The parents he writes about seem to think that their children have gender. The parents argue that the children are so different; there seems to be something about the nature of being a boy or a girl that produces that difference. Doing gender, on the other hand, refers to choosing to match one's behavior to a set of gender-related ideals. One does a gendered performance to match one's own behavior to those cultural ideals. Messner notes that, although the soccer-playing behavior of the young boys and girls was indeed overwhelmingly similar, he never heard parents point out the similarities, only the differences. This emphasis on difference by the parents is an instance of doing gender.

But the children in this example also do gender. Messner tells of several instances of the children choosing gendered activities and being supported in these choices by their parents and the other adults involved in the league. For example, he classified the children's choices of the names for their teams into four categories: sweet names (e.g., Blue Butterflies, Barbie Girls), neutral names (e.g., Team Flubber), paradoxical names in which there was a mix of power and vulnerability (e.g., Little Tigers), and power names (e.g., Raptor Attack, Sea Monsters). As might be expected, there were notable differences in the names that boys and girls chose for their teams, especially at the youngest ages, with boys being more likely to choose power names and girls being more likely to choose sweet, paradoxical, or neutral names. Indeed, the entire structure of the soccer league (e.g., coaches, girls' and boys' teams, the colors of the uniforms provided to the children) was arranged along gender lines. It is not very difficult to find other examples of people doing gender in ways such as these.

We are so embedded in the social processes of gender that most of these processes are invisible to us. We usually think in terms of having gender; boys are boys and girls are girls. Although we may realize that many factors influence the behaviors and characteristics of boys and girls, we still tend to think of those characteristics as residing in the child. However, it is useful to consider that a person's sex or gender influences many complex processes of daily interaction involving choices that people make for their behavior and actions in the context of social relationships, as well as responses that others have to them. Every day, boys, girls, men, and women choose certain clothing, hairstyles, toys, and behaviors, and people respond to them in predictable ways when they do. The reactions of others further influence a person's behavior and choices. Messner and others argue that gender is best seen in terms of these interactional processes, rather than in terms of stable characteristics, traits, or roles. In other words, having gender puts the emphasis on the characteristics of the individual, whereas doing gender puts the emphasis on ongoing social interaction.

Gender Identity

Gender identity is a term that has been used somewhat differently by different theorists. Later in the book, especially in chapters 8 and 9, we will discuss these uses in more detail, but for now it is fine to think of the term as referring to individuals knowing that they are either a male or female person. In children, this is associated with their being able to reliably answer the question: "Are you a boy or a girl?" The research suggests that most children can do so around 2.5 years of age (Etaugh, Grinnell, & Etaugh, 1989; Fagot & Leinbach, 1989). Some developmental psychologists (Egan & Perry, 2001; Zucker, 2000) have included other aspects of a child's knowledge and feelings as part of gender identity. In addition to knowing whether

one is a boy or a girl, these have included feelings of similarity to others of one's gender, contentedness with being that gender, and a sense of pressure to follow that gender's roles.

One issue related to gender identity concerns one's comfort with the gender category that was assigned at birth. Most people don't even think about or question their sex or gender, but a small number do. The *Diagnostic and Statistical Manual* (DSM-IV, American Psychiatric Association, 1994) includes a category called **gender identity disorder** that is used as a diagnosis for children. Gender identity disorder includes the following elements: "a strong and persistent cross-gender identification (not merely a desire for any perceived cultural advantages of the other sex)"; "a persistent discomfort with his or her sex, or a sense of inappropriateness in the gender role of that sex"; and "clinically significant distress or impairment in social, occupational, or other important areas of functioning" caused by the disorder. Finally, a child must not have an intersex condition to be said to have gender identity disorder (Zucker, 2000, p. 674, from the DSM-IV). Although there is some debate about whether this relatively rare condition should be considered a disorder at all (Bartlett, Vasey, & Bukowski, 2000), there are certainly some children who, from a very young age, show discomfort with their gender category.

Sexual Orientation and Sexual Identity

Sexual orientation refers to feelings of sexual attraction or arousal or to sexual behavior with partners of the same sex, the other sex, or both sexes; and **sexual identity** refers to whether people identify themselves as predominantly heterosexual, homosexual, or bisexual (Ellis & Mitchell, 2000). Same-sex attractions and behavior are believed to have occurred throughout human history. However, lesbian, gay, and bisexual identities were not generally found before the end of the 19th century (Patterson, 1995), and the number of people identifying themselves as lesbian, gay, or bisexual increased substantially during the 20th century.

Certainly sexual orientation and sexual identity are much more central in the lives of adolescents and adults than they are in the lives of children, nonetheless sexual feelings and romantic attraction arise sooner than many people may think. Although sexual feelings are experienced even in early childhood, research suggests that most children have their first erotic attractions and feelings around the age of 10, probably as sex hormones are being produced by the maturing adrenal glands (McClintock & Herdt, 1996), and many individuals recall their first crushes and sexual attractions around this age. Developmental researchers have been interested in studying the childhood and early developmental roots of adult sexual orientation. They have asked questions about biological and childhood influences on sexual orientation, and how these influences are related to other aspects of children's gender-related behavior. Three general issues have been studied: an examination of the genetic and early hormonal influences on sexual orientation; the study of the relationship between family configurations and sexual orientation; and a study of the relationship between childhood gender roles or behaviors and eventual sexual orientation (Bailey & Zucker, 1995; Rieger, Linsenmeier, Gygax, & Bailey, 2008). This is a topic we will return to in later chapters, but for now it seems sufficient to say that the developmental factors that influence male and female sexual orientation may be different (Baumeister, 2000; Diamond, 1998; Veniegas & Conley, 2000).

Sex or Gender Differences

Here we ask to what extent do boys and girls (or men and women) differ in some aspect of physical development or behavior. For example, are boys stronger or taller than girls, and if so, at what ages? Do girls have better fine motor skills than boys, or are they better behaved or more polite? Are boys messier and girls kinder or gentler? If so, to what extent do these differences exist, and is there overlap between the genders. Are some girls messy and some boys gentle? Does the circumstance, situation, or culture matter?

Much of the early research conducted by developmental psychologists on gender development in children was focused on the question of sex differences in behavior (Terman, Johnson, Kuznets, & McNemar, 1946; Terman & Tyler, 1954; Wellman, 1933). There were many thousands of studies on behavioral differences between boys and girls during the 1900s, but until around 1960 much of that research did not have a strong theoretical focus. That is, researchers examined differences between boys and girls but did not systematically address the reasons for these differences. Even if a difference is found consistently, information about its causes must be studied separately. Such causes may include biological factors, childhood experiences and socialization, social roles, status and power, and the expectations of others in social interaction. Just because you may know that boys are consistently more physically aggressive than girls doesn't mean you know why they are.

In the second half of the 20th century, the research on sex differences improved in at least three ways: the methodology was better, the theoretical underpinnings of the research were stronger, and the tools available to analyze findings were better. In particular, research on gender was helped enormously by a statistical procedure called **meta-analysis** (Johnson & Eagly, 2000). Meta-analysis involves quantitatively pooling the results of many studies. For example, studies on sex or gender differences in a particular behavior (e.g., aggression or self-esteem) may be combined to reach a conclusion about whether there is a consistent difference between males and females in that behavior and how large the difference is.

There is now an extensive research literature on sex and gender differences in many characteristics and behaviors, including physical (e.g., height, perceptual speed), cognitive (e.g., math, spatial skills), and social (e.g., aggression, empathy). This research clearly demonstrates that there are some consistent average differences between the sexes in several behaviors, but it also shows that there is a great deal of overlap in the distributions of characteristics, skills, and abilities in boys and girls. There really is not a case of a sex difference in which all girls are better than all boys (or vice versa) in some domain.

There is also an increasing focus on the reasons for as well as the implications of such differences. For example, if on average, girls have better verbal skills than boys, does that mean all of the best poets are women? Or if, on average, boys have better spatial skills than girls do, does that mean more girls get lost finding their way around? Questions of causality and implications are clearly much more important than simply cataloguing such differences. We will return to the study of sex and gender differences in behavior in detail in chapters 4 and 5, and questions about the causes and importance of such differences will be discussed throughout the book.

Gender Stereotypes

The term **stereotype** was originally used by a journalist to refer to learned belief systems that are shared by members of a culture (Lippman, 1922). The term is now widely used in the social sciences to refer to beliefs about members of a particular group simply because they are members of that group (Biernat & Kobrynowicz, 1999). Social psychologists have devoted much effort to the study of stereotyping, finding that it is very common, automatic, and has many potential influences on social interaction (Fiske, 1998). It is also the case that children typically learn **gender stereotypes** before they learn stereotypes about other groups (Fiske, 1998; Zemore, Fiske, & Kim, 2000). Some of the mechanisms for the development of these stereotypes and reasons that gender might be particularly salient are suggested by the developmental intergroup theory (Bigler & Liben, 2006, 2007) discussed in Chapter 8.

Gender stereotypes are beliefs about the characteristics of males and females. There are many components to gender stereotypes, including personality characteristics, physical attributes, roles, occupations, and possibly assumptions about sexual orientation (Biernat & Kobrynowicz, 1999; Deaux & Kite, 1993; Zemore et al., 2000). For example, men are more likely to be seen as strong, rugged, and broad shouldered, whereas women are more likely to be seen as dainty and graceful (Deaux & Kite, 1993). With respect to personality characteristics, men are more likely to be seen as competent, confident, and independent, and women are more likely to be seen as warm, kind, and concerned about others' feelings (Deaux & Kite, 1993; Zemore et al., 2000). The traits associated with male competence have often been

called **agentic** or **instrumental** characteristics, and the traits associated with females' concern for others have been called **communal** or **expressive**. Agentic and communal characteristics are generally positive, but there are also negative attitudes about men and women. On the minus side, men may be seen as aggressive, arrogant, or selfish, and women as overly emotional (Zemore et al., 2000). Nonetheless, some recent research has found that stereotypes about women are generally viewed more positively than those about men (Kite, 2001), at least in terms of being warm, kind, or nice. Men, on the other hand, may not be seen as being as nice as women, but they are seen as being more competent, powerful, and having higher status.

Some recent research (Prentice & Carranza, 2002) has also examined the extent to which these stereotypes are seen as prescriptive or obligatory. That is, should men and women each have certain characteristics, and at the same time, not have others? These researchers reported that college students believed that women ought to have characteristics such as being friendly, cheerful, compassionate, patient, and emotionally expressive, while not being intimidating, arrogant, self-righteous, stubborn, or domineering. According to these same students, men ought to be ambitious, assertive, aggressive, rational, athletic, and leaders with strong personalities, while they ought not to be emotional, naive, gullible, approval seeking, or weak.

In terms of children's knowledge and attitudes about these stereotypes, there is a large amount of research on this topic that we will explore in chapter 9. It is clear that children begin to learn this knowledge at an early age, and that even fairly young children see girls and women as nicer, and boys and men as more competent (Liben & Bigler, 2002; Ruble, Martin, & Berenbaum, 2006).

Gender Roles

Some years ago one of us asked a 3-year-old family friend what she wanted to be when she grew up. She answered that she wanted to grow up to be a princess or a Barbie. Clearly, she had learned something about gender roles. Social psychologist Alice Eagly and her colleagues define gender roles as "shared expectations that apply to individuals on the basis of their socially identified sex" (Eagly, Wood, & Diekman, 2000, p. 127). Gender roles certainly overlap with gender stereotypes, but stereotypes are attitudes about members of a group, and roles are behaviors that people engage in, characteristics or attributes that they possess, or positions they hold in a society.

Among the most basic of gender roles are the roles of homemaker and economic provider. Related to these roles are the communal and agentic personality characteristics discussed above under the topic of stereotypes. Eagly and others have pointed out that communal personality characteristics (e.g., care and concern for others) serve one well in the role of caretaker for children and other family members; whereas agentic personality characteristics, such as independence and competence, are well adapted to the world of work (Eagly, Wood, & Diekman, 2000). Eagly and her colleagues also argue that if women are predominantly occupying the homemaker role, then it would be reasonable that during childhood the experiences and education of girls would prepare them for this role, and if men are the primary economic providers, boys might be expected to learn skills to prepare them for this adult role. It probably does not surprise you to learn that researchers have found that household tasks such as cooking, cleaning, and child-care are more frequently allotted to girls, whereas tasks such as mowing the lawn are more often assigned to boys (Coltrane & Adams, 1997). Cross-cultural research has found that girls are often more likely to be socialized to be nurturant, obedient, and responsible, whereas boys are more likely to be socialized to be self-reliant and achieving (Best & Williams, 1997).

Although homemaker and economic provider are among the most basic of the gender roles, most adult women and many men in modern Western societies do both of these roles, at least to some degree (Barnett & Hyde, 2001; Coltrane, 2000). However, even though both men and women are in the world of paid employment, they nevertheless often work at different occupations or different job assignments (U.S. Department of Labor, 2006). Therefore, occupations can be considered in the category of gender

roles as well. Female-dominated occupations have more extensive nurturing, homemaking, and caretaking components to them, whereas many male-dominated occupations are associated with physical strength, aggressiveness, and agentic personality characteristics (Eagly et al., 2000), although in actuality it is sometimes difficult to disentangle what characteristics are linked to the jobs themselves versus what characteristics are assumed to be linked to jobs as a function of their being held predominately by men versus women (Liben, Bigler, & Krogh, 2001).

Other than the homemaker and provider roles, certain occupations, and the personality characteristics and occupations that are related to those roles, other aspects of gender roles include physical appearance such as clothing, hairstyles, and other items related to dress such as items to place in or on the hair and jewelry. Gender roles also include leisure interests, codes of social etiquette and self-presentation, and rules for sexual behavior (Twenge, 1999). For children we can also include play with certain "gender-appropriate" toys (Liben & Bigler, 2002), as well as various activities, including sports, the arts, and academic domains such as mathematics or literature (Eccles, Freedman-Doan, Frome, Jacobs, & Yoon, 2000).

Social scientists including sociologists, anthropologists, and psychologists have also examined gender roles across cultures (Best, 2001; Best & Williams, 1997; Gibbons, 2000; Williams, Satterwhite, & Best, 1999). Although all cultures make distinctions between male and female roles, the particular content of what is assigned to men and women can vary from culture to culture (Wade & Tavris, 1999). For example, in some cultures women may do the marketing or weaving, whereas men do so in other cultures. Cultures vary in how much emotion men and women are expected to show, whether women in particular are expected to remain sexually chaste before marriage, and how much contact men and women can have on a daily basis. Cultures also vary in the extent to which the genders are expected to be different at all. Wade and Tavris (1999) give the example of Tahiti as one of the least gender-differentiated cultures; there are few differential expectations for the behaviors of men and women. Even their language lacks gender pronouns, and most names are used for either males or females.

Although certain aspects of gender roles vary greatly from culture to culture, other aspects are often similar. Williams and Best and their colleagues (Williams & Best, 1990; Williams et al., 1999) have studied university students' attitudes about gender-related personality traits in 25 countries from all over the world. They have found a remarkable degree of consistency in the traits assigned to males and females in these 25 countries, like the instrumental and expressive characteristics already discussed. For example, in these various countries, males were consistently seen as active, adventurous, aggressive, independent, strong, logical, and unemotional. Women, on the other hand, were consistently seen as affectionate, emotional, fearful, submissive, talkative, timid, weak, and whiny.

There is also cross-cultural similarity among the genders in aspects of production tasks. In many societies men are more likely to hunt large animals, do metalworking, and do lumbering, whereas women are more often found carrying water, cooking, laundering, and gathering vegetables (Eagly et al., 2000; Wood & Eagly, 2002). These differences seem to arise, in part, from women's reproductive roles and men's greater physical strength. Of course, one of the most consistent differences between males and females cross-culturally is that women participate in more childcare (Geary, 2000; Kenrick & Luce, 2000).

There are also cross-cultural similarities in gender roles related to dating and mating, with men choosing younger women, less powerful partners, and more partners than women (Buss, 2000; Kenrick & Luce, 2000); and in interpersonal violence in that men engage in more violence against other males than females do against other females, and partner violence is typically related to males' attempts to control their female partners (Smuts, 1995; Wilson & Daly, 1996).

In childhood, there is a great deal of cross-cultural consistency in rough and tumble play, with boys doing more, and in the phenomenon of gender segregation in which children play predominantly with children of their own sex (Best & Williams, 1997; Geary & Bjorklund, 2000). In these groups, boys are more concerned with dominance and social status, whereas girls are more intimate and communal. In addition, across many cultures, but not all, boys are also more aggressive than girls, and girls are more

likely to care for younger children (Best, 2001; Edwards, 2000; Munroe, Hulefeld, Rodgers, Tomeo, & Yamazaki, 2000).

Gender and Status

No discussion of gender roles would be complete without a discussion of the differential power and status of males and females. As adults, men in general have more legal, economic, and political power and higher social status than women in general, although there are some obvious exceptions. The economic provider role has more power and status than the homemaker role, and female-dominated occupations are generally lower in status, power, and pay than male-dominated occupations (Eagly et al., 2000). Men control more economic resources worldwide, and are found in far more positions at the highest levels of authority in government, business, and the professions. Women, on the other hand are found more often among the poor in almost all countries across the world (Goodwin & Fiske, 2001). Children are aware of men's higher status around the age of 10, and probably before (Levy, Sadovsky, & Troseth, 2000; Liben et al., 2001).

An important question for us is whether this kind of power or status differential is relevant to children. Do boys have higher status than girls? In some cultures there are dramatic differences in status, as in the extreme example of the Taliban rule in Afghanistan, where girls were not permitted to go out in public, be educated, or even to learn to read (Schulz & Schulz, 1999). As one indicator of status, in many developing nations worldwide parents show a preference for having male children (Ataca & Sunar, 1999; Haughton & Haughton, 1996; Hortacsu, Bastug, & Muhammetberdiev, 2001; Khanna, 1997; Wen, 1993; Winkvist & Akhtar, 2000). In China and India in particular, parents are more likely to abort female fetuses and give up female babies for international adoptions in their quest to have sons (Bandyopadhyay, 2003; Evans, 2001; Van Balen, 2005). Ironically, these practices eventually lead to a shortage of women for their sons to marry.

What about in contemporary Western societies? If girls and boys were equal in status or value, there would be no reason for parents or potential parents to prefer to have a son or a daughter. Research through the 1970s (see Williamson, 1976) found that both men and women preferred boy children if they could have only one sex, or boys as firstborns, and that families would keep trying to have another child if they had not yet had a boy. This is clearly less the case today. Recent research with American, Canadian, and Australian parents suggest that a very common preference is to have one child of each sex or to have no preference one way or the other. There is still some tendency for people to prefer sons as firstborns, with a substantial number of men still preferring sons, but women are much less likely to express a preference for either, or to prefer daughters (Marleau & Saucier, 2002; McDougall, DeWit, & Ebanks, 1999; Pollard & Morgan, 2002; Swetkis, Gilroy, & Steinbacher, 2002). These findings suggest that in societies such as these, there is now much less of a tendency for parents to value male children over female children, although some preference remains, especially for men.

In terms of their interactions with each other, children also appear to act as though boys have higher status. Even as preschoolers, girls are less able to influence boys to respond to their requests than boys are to influence either boys or girls (Jacklin & Maccoby, 1978; Serbin, Sprafkin, Elman, & Doyle, 1984). In elementary school boys are much less willing to allow girls into their peer groups than girls are to allow boys into their peer groups (Maccoby, 1998), and boys are very avoidant of appearing feminine. It is not entirely clear why boys are less able to be influenced, are more exclusive, and are so unwilling to appear feminine, but all of these phenomena are consistent with boys having a higher status than girls, even as children. Campbell Leaper, a researcher who has studied boys' and girls' peer groups in childhood, has argued persuasively that boys' childhood peer groups show evidence of being higher status groups than girls' (Leaper, 2000 , 1994b) in that boys are more likely to maintain their groups' boundaries, and they are more likely to behave punitively towards other boys who initiate contact with girls or who behave in a feminine way. Girls, on the other hand, are more likely to cross gender barriers and to adopt masculine roles or behaviors, and are more willing to permit boys to play in their groups. Leaper argues that these patterns are consistent with the general finding that members of a lower status group are willing to adopt

the characteristics of a higher status group, whereas the higher status group members are not willing to adopt those of the lower status group.

Changing Gender Roles

It is clear that adult gender roles have undergone great change in the last several decades, especially in the developed world (Barnett & Hyde, 2001; Cole, Zucker, & Duncan, 2001; Diekman & Eagly, 2000). One of the major sets of changes has to do with increasing education for women, and concomitant increases in the number of women in the paid labor force. For example, in the United States about 34% of women (compared with 86% of men) older than 16 were in the paid labor force in 1950, whereas in 1998 the comparable figures were 60% of women and 75% of men. Comparable changes have taken place in many other countries. The United Nations (2000) reports that women now constitute more than one third of the paid labor force in all areas of the world except in northern Africa and western Asia, and that many women in the world work while they have young children. However, although more women work, they make less money than men, and often work in occupations that are dominated by women (U.S. Department of Labor, 2006; United Nations, 2000). Nonetheless, an increase of women in the labor force is clearly a major change of the last half century.

Changes in work force roles also impact family roles, leading to a reduction in men's decision-making power in the family and an increase in their participation in childcare and other household tasks (Barnett & Hyde, 2001; Coltrane, 2000; Hoffman & Youngblade, 1999; Zuo & Tang, 2000). There are positive benefits of these changes, for both men and women, but especially for women (Barnett & Hyde, 2001; Coltrane, 2000; Gutierrez-Lobos, Woelfl, Scherer, Anderer, & Schmidl Mohl, 2000). Both men and women who have multiple roles (i.e., labor force participant, spouse, parent) have fewer mental and physical health problems and greater life satisfaction. Women in particular have fewer mental health problems when they are involved in the labor force and are more satisfied with their marriages when they and their husbands share more of the household tasks.

Women's employment is also linked to their attitudes about gender roles, with employed women, and typically their husbands and children as well, having more nontraditional attitudes about gender roles (Hoffman & Youngblade, 1999; Zuo & Tang, 2000). In general, more egalitarian attitudes about gender roles and norms is another consistent change in the second half of the 20th century (Eagly et al., 2000; Twenge, 1997a, 1997b), although egalitarian attitudes are stronger in women than in men. There is also research showing that women have become more likely to adopt male personality traits and to become more assertive as their status and roles have changed (Twenge, 1997b, 2001); however, men have not generally shown analogous changes.

There is very little research examining these kinds of historical changes in children's gender role behaviors or attitudes. In one study in Africa (Munroe & Munroe, 1997), the researchers observed that in the period between 1967 and 1978 there was a notable decrease in girls' responsibility for the care of younger children because they were more likely to be in school. Boys were also more likely to be in school, although the increase was not as great as for girls because more boys were in school in the 1967 observation. However, boys showed a small increase in responsibility for younger siblings during the same period. On the other hand, cross-cultural studies have reported that as societies have become more modernized, and role expectations have changed, there has been little change in children's learning of gender norms (Best & Williams, 1993). Interestingly, as is the case among adult women, in many contemporary cultures girls have more egalitarian attitudes about gender roles than boys do, even among preschoolers (Best & Williams, 1993; Signorella, Bigler, & Liben, 1993).

Are Gender Roles Desirable for Children?

One obvious change with respect to the study of children's gender roles is the position that developmental researchers have taken about their desirability. Science, especially when it takes human behavior as its focus of study, is rarely value-neutral. It is difficult, perhaps impossible, for scientists to remove themselves from the values that shape the culture in which they live and work, and issues of sex and gender

are among the most contentious and value-laden of any topic we study. Attitudes about gender roles changed in Western cultures during the second half of the 20th century, and researchers' perspectives were affected by that change. Up until the 1970s the developmental psychologists who studied children's gender development usually expressed the idea that raising boys to be masculine and girls to be feminine was a desirable outcome that was necessary for normal development (e.g., Kagan, 1964). Now it is much more common, although certainly not universal, for researchers, teachers, and others to see gender roles as limiting and restricting, perhaps even harmful (Bailey, 1993; Bem, 1983; Bigler, 1999; Katz, 1996), and to advocate raising children to be less gender differentiated. When we discuss the influence of parents, teachers, and the media on children's gender development, we will return to a consideration of those factors that promote less stereotyping and greater gender flexibility in children's development, as well as some of the advantages of these kinds of experiences for children.

What changed this situation? Why did a substantial number of people change from seeing gender roles as normal and desirable to seeing them as limiting and restrictive? There are obviously many factors involved, but one of the major factors was the women's movement and the resulting influence of feminism in both society and academia.

FEMINISM AND FEMINIST CRITIQUES OF SCIENCE

Feminism is a word that carries much emotional meaning beyond the actual definition of the word itself, so much so that even people who hold generally feminist views are reluctant to call themselves feminists (Liss, O'Connor, Morosky, & Crawford, 2001; Twenge & Zucker, 1999). What is feminism? A feminist perspective has at its core two issues (Unger, 1998). First, feminists believe that males and females are and ought to be equally valuable. There is recognition that in many cultures in the world females and the feminine have been valued less than males and the masculine. Feminists take the position that the devaluation of girls and women is wrong and should be opposed. Part of this perspective is a commitment to equal opportunities for boys and girls, and hence the elimination of restrictions that gender roles and stereotypes pose for both, but especially for girls. The second key aspect of feminism is a commitment to social activism towards the goal of full equality of males and females.

However, there is a difference between feminism as a philosophy of life and feminism as a theoretical basis for scholarship. There are many psychologists who study issues of sex and gender who would call themselves feminists, but who are not feminist scholars (e.g., see Smuts, 1995). Although feminism influenced the shift in how gender roles are viewed, and that many people who do research on children's development would say they are feminists, explicitly feminist scholarship has not been very common in the study of children's gender development (Leaper, 2000).

There are many different forms of feminist scholarship (Rosser & Miller, 2000). In spite of the differences among them, one of the key influences of feminism has been to call into question that the scientific process is value-neutral. Feminist scholars have pointed out that values shape the research process at many levels, and that values have led to certain kinds of biases. For example, scientists' values have shaped the kinds of research questions that have been asked (e.g., asking how children have been harmed by their mothers' employment as opposed to how they have benefited from it or been harmed by their fathers' employment). Gender-based bias has existed in the design of the research when researchers did not think they needed to examine a group of males when studying the impact of hormonal cycles or fluctuations on behavior, or when only males were tested in a study, and yet the findings were generalized to both males and females. Values have also affected researchers' interpretations of research findings (Wilkinson, 2001). When we study the history of the research on children's gender development in the next chapter, the values that shaped this research will be very evident.

Feminist critiques of science in general, and of psychology in particular, have usually been of three different types (Riger, 1992; Wilkinson, 2001). The first type of feminist critique is often called **feminist**

empiricism (Riger, 1992; Wilkinson, 2001) or liberal feminism (Rosser & Miller, 2000). Proponents of this view argue for elimination of gender bias in the research process at all levels from the questions asked through the interpretations of the results. It is this kind of feminist scholarship that can be found most frequently in psychology in general, and in the study of children's gender development in particular. It is this kind of research that has shown that traditional gender roles are often harmful to adults' mental and physical health, life satisfaction, marital satisfaction, and economic well being, for either men or women or both (Barnett & Hyde, 2001). Researchers thought it was important that they ask these questions to find the answers.

The second feminist approach that can be found among psychologists, but is not as common as the first, is **feminist standpoint epistemology** (Riger, 1992; Wilkinson, 2001). In this view, knowledge, including scientific knowledge, is influenced by the perspective of the person producing the knowledge, particularly by their position in the social hierarchy. An example of this approach in psychology that is that of Carol Gilligan's study of moral development in girls and women (Gilligan, 1982; Gilligan, Lyons, & Hanmer, 1990). Gilligan reported that girls and women were more likely to emphasize caring about the impact on other people in their lives when faced with moral dilemmas, whereas boys and men were more likely to emphasize abstract principles of justice. Feminist standpoint critics would argue that these ways of viewing the world arise out of males' and females' status or position in the social world—their standpoints. They would also argue that science is not complete without knowledge generated from many standpoints.

The third type of feminist critique of scientific research in psychology, also less common than feminist empiricism, is **feminist postmodernism** (Riger, 1992; Rosser & Miller, 2000; Wilkinson, 2001). Riger (1992) points out that this approach is often very difficult for traditional psychologists to understand, because the perspective is so different from the typical scientific view. Psychologists, like other scientists, have traditionally accepted without question that there is a factual world to discover. Postmodern views, which are quite prevalent in the humanities and some of the other social sciences, argue that science does not really discover the world, but that it creates it, and there are multiple versions of reality. In psychology, postmodernist views are often called social constructionism (K. J. Gergen, 2001; M. Gergen, 2001), also having the perspective that knowledge is not discovered, but is socially constructed. We will discuss postmodernism and social constructionism further in chapter 7 when we address social and cultural theories of gender development.

Where do we—the three authors of this book—fit within the types of academic feminism? We do consider ourselves to be feminists, and we are committed to the ideal that boys and girls and men and women are of equal value. We recognize that scientists have not always been committed to that ideal. Nonetheless, we are equally committed to the ideals of science and to the belief that we must be willing to be open to letting the data be examined, regardless of what they show. We do not think that research findings should be judged by any political standards, but instead by the rigor of the data gathering, analysis, and interpretation. At the same time, we recognize that theoretical positions or world views (Overton, 2006; Pepper, 1942) affect the ways that questions are asked, the kinds of data that are judged to be relevant, and the ways that data are interpreted. We find it difficult to state a label that neatly applies to us, but if any one of the labels described above would fit us, it would be that of feminist empiricists.

CHILDREN'S GENDER DEVELOPMENT

In this book we will consider gender from a developmental perspective. Two-year-olds do not have the same gender knowledge, roles, or behaviors that 15-year-olds do. Most of the issues introduced earlier in the chapter undergo developmental change, often under different conditions and with different timetables. It is also the case that gender development is complex—it has many different components, and there is

often a lack of simple relationships among these various components (Antill, Cotton, Russell, & Goodnow, 1996; Ruble et al., 2006; Serbin, Powlishta, & Gulko, 1993; Spence & Hall, 1996). What follows is a brief set of highlights of some of the things we can consider about children's gender development.

Certainly one of the central questions of research on sex and gender is that of sex or gender differences. How are boys and men different from girls and women? What are the differences, when do we see them, and what influences them? We will certainly devote considerable attention to sex differences in chapters 4 and 5 of this book, and to the questions of cause and influence throughout the book. But these are not the only questions of gender development.

One way that gender development has been conceptualized is through the process of **sex typing**. Sex typing (sometimes also called **gender typing**) has been defined as "the mapping of objects, activities, roles, and traits onto biological sex such that they follow prescriptive cultural stereotypes of gender" (Liben & Bigler, 2002, p. 5). These terms (sex typing or gender typing) have been used in two broad ways. First, they have been used to refer to the process by which this mapping occurs, and second, to the extent that children show the results of this mapping (e.g., Maccoby, 1988). Thus, one might say that various processes occur to sex or gender type children, who then may be described as sex (or gender) typed, and that much of gender development can be seen in these terms.

In terms of their own understanding of gender, children begin the process of gender development with the ability to identify males and females, including eventually, themselves. Somewhere in the first year of life children are able to respond differently to pictures of males and females, and to male and female voices (Leinbach & Fagot, 1993; Miller, 1983). This is the very beginning of children's understanding of gender. However, they do not usually identify boys and girls using gender labels until a little after age 2 (Etaugh et al., 1989).

By the middle of the preschool years, children acquire knowledge of some basic gender stereotypes, especially for familiar objects like toys (Blakemore, LaRue, & Olejnik, 1979; Martin, Wood, & Little, 1990; Perry, White, & Perry, 1984; Weinraub et al., 1984). In time they also come to identify the gender-related aspects of certain activities (e.g., sports, household tasks) as well as adult occupations and the gender-related aspects of personality characteristics. Such knowledge increases during the preschool and elementary years (Carter & Patterson, 1982; Etaugh & Liss, 1992; Levy et al., 2000). In chapter 9, we will look at the research on children's cognitions about gender in much more detail.

Children also come to prefer the toys, activities, and objects associated with their gender (Lobel & Menashri, 1993; Moller & Serbin, 1996), sometimes even before they know that the toys are gender stereotyped (Aubry, Ruble, & Silverman, 1999; Blakemore et al., 1979; Perry et al., 1984). Indeed, this is one of the most reliable aspects of gender development from early childhood through adulthood—males and females often have quite different interests, and those interests are often linked to gender roles.

Boys' and girls' social relationships also differ. There is a notable tendency for boys and girls to play in same gender groups in childhood (Leaper, 1994b). Indeed, by school age children are spending about 60–70% of their free time with playmates of the same sex, and most of the rest of the time in mixed sex groups (Maccoby, 1998), spending very little time in the exclusive company of the other sex.

Boys and girls play quite differently in their same-sex peer groups, so much so that some have said that they grow up in different peer cultures (Leaper, 1994a; Thorne & Luria, 1986). For example, in their peer groups, girls' communication styles are more collaborative, cooperative, and reciprocal, whereas boys' are more individualistic and focus on dominance. These differences are believed to foster interpersonal closeness and social sensitivity in girls, and independence, shared action, and dominance in boys (Kyratzis, 2001; Leaper, 1994a; Maccoby, 1998).

These styles also change developmentally. Although 3-year-old girls may be more reciprocal than 3-year-old boys in their social interactions, it is probably obvious that 15-year-olds of both sexes can have much more sophisticated social interactions than 3-year-olds. Another important developmental change in social interactions and relationships comes when, in adolescence, young people begin to spend much more time with friends of the other sex, eventually moving into heterosexual dating. We will cover more about peer relationships in chapter 11.

This very brief overview of some of the features of gender development is, of course, incomplete. We will be examining all of these issues in much more detail as we progress through the book. We will also examine biological, cultural, social, and cognitive influences on the gender developmental process.

Influences on Gender Development: Theoretical Perspectives

There are several major theories that organize the study of gender development, and to those theories we now turn. To begin, it is valuable to understand what a scientific **theory** is, as well as its purpose. Sometimes people think that a theory is the opposite of fact. The implication is that theory is simply conjecture, or a hypothesis that hasn't been confirmed. Such a view is incorrect. Scientific theories incorporate factual information as well as an interpretation of those facts. A scientist is not content to simply collect more and more data; scientists want to decide in some structured way what kinds of data they collect as well as how to interpret those data once they are collected (Anastasi, 1992).

In a description of the nature of the process of building knowledge about human development, Willis Overton (1998) uses an analogy of building a house: the house is like the knowledge we gain about human development. In Overton's analogy the empirical investigators—the researchers who collect and analyze data, and who publish their research—are like the building contractors. Their skills are necessary to build the house, but they wouldn't think of building it without a plan. The theorists, on the other hand, are like the architects who design the plans that direct the building process. Having a theory gives organization and meaning to the knowledge construction process.

Thus, the purpose of theories is twofold: to organize knowledge that already exists, and to direct researchers as they seek additional knowledge (Leahey, 1994). The first purpose of scientific theories is to organize the data collected by researchers using some general principles, and the simpler and more straightforward the principles are, the better. The second purpose of scientific theories is to generate further research about a topic. Having a theoretical model to generate research produces a more organized scientific process. As the theory guides the new research, one critical feature is that it be falsifiable—that the new research has the potential to demonstrate if the theory is in error. If that happens, the theory needs to be modified, or perhaps eventually abandoned. But even if it is abandoned, it served its functions. It organized the information that was known at the time, and it generated further research. A particular theory may be an excellent way to organize the information at a particular point in history, but eventually it may outlive its usefulness.

Using Overton's analogy should also help clarify that one theory is not necessarily the only way to organize knowledge, nor is one always better than another. There are many viable theories that guide the research on children's gender development. Some theories organize certain areas of research better than others, and some have more to say about certain aspects of the process, but it is not necessary to reject one to accept that another has value. Like the plans of various architects, theories have strengths and weaknesses, but each may have something important to say about the process, and knowing about several theoretical views is enormously helpful in coming to understand all of the factors that impinge on children's gender development.

Theories of Gender Development

One of the key questions for developmental psychology in general is the "nature-nurture" question. That is, to what extent is behavioral development influenced or controlled by biological factors such as genes or hormones; to what extent is it influenced or controlled by experiential factors, such as the way parents may praise some behaviors and criticize others; and how do these factors interact with each other? In the area of children's gender development the nature-nurture question has been very evident, although there is also a third general view. The approaches to gender development can be summarized as the biological (nature), socialization (nurture), and cognitive views (Ruble et al., 2006).

The **biological view of gender development**, which we will discuss in detail in chapter 6, examines the influence of genes and chromosomes, sex hormones, and brain organization on sex differences in physical functioning and behavior (Hoyenga & Hoyenga, 1993). For example, during prenatal development male and female children are exposed to a different hormonal environment over several months of their development. Researchers ask how these hormones impact physical development, both of the genitals and in the brain, and how the resulting differences in the brain affect later behavior (Collaer & Hines, 1995). Of particular interest are children who have been exposed to atypical levels of prenatal hormones for their sex, such as girls with **congenital adrenal hyperplasia** (CAH). In this rare genetic condition, girls with CAH are exposed to high levels of masculinizing hormones (androgens) produced by their own adrenal glands during prenatal development. As children, they have been found to show some behaviors that are more typical of boys, such as greater interest in boys' toys, higher activity levels, greater aggression, and less interest in interacting with infants (Berenbaum, 1999; Berenbaum & Hines, 1992; Berenbaum & Resnick, 1997; Berenbaum & Snyder, 1995; Leveroni & Berenbaum, 1998).

Also included in the biological view is **evolutionary theory** , which examines the influence of human beings' evolutionary history on sex differences in behavior (Buss & Kenrick, 1998; Kenrick & Luce, 2000). The evolutionary view is especially interested in sex differences that are very consistent across cultures such as behaviors involved in childcare and mating, and less interested in differences that are limited to particular cultures or historical periods.

The **socialization approach** emphasizes the differential treatment of children by parents, other family members such as grandparents or siblings, peers, as well as treatment by teachers in school and by other adults outside of the family (Fagot, Rodgers, & Leinbach, 2000; Ruble et al., 2006). The socialization approach is rooted in the tradition of **learning theory**, which examines the influence of reinforcements, punishments, and observational learning on behavior (Bandura, 1977). An example of how learning mechanisms might be powerful comes from a recent study (Mondschein, Adolph, & Tamis-LeMonda, 2000) in which mothers of 11-month-old infants estimated their babies' abilities to crawl down an inclined ramp. The crawling abilities of the boy and girl babies were measured, and, on average, were no different; boys and girls were equally good crawlers and attempted to crawl down ramps of equivalent slope. However, mothers of sons estimated that their babies could crawl steeper slopes, and would be more willing to attempt to crawl down more difficult slopes than did mothers of daughters. This is likely to have significant consequences if parents are substantially more likely to underestimate the capabilities of girls and to overestimate the capabilities of boys.

The socialization perspective also includes the investigation of gender-related influences of the media, including books, television, movies, and now video games (Huston & Wright, 1996; Kinder, 1999). There are two general issues with respect to the media and gender role socialization (Ruble et al., 2006). The first is that males are portrayed in the media much more frequently than females, and the second is that the roles and behaviors that are displayed in television, movies, and books are often gender stereotyped.

A new theoretical approach in the environmental tradition, but more common in sociology and the humanities than in developmental psychology, focuses on the social construction of gender (Leaper, 2000; Messner, 2000). **Social construction theory** is a postmodern theory of gender that proposes that knowledge can never be removed from social time and place; that gender norms, roles, and behaviors are constructed; and that these constructions affect behavior, cognitions, and social interactions. There are now some developmental psychologists who are beginning to study how children, their parents, and others construct gender, and we will cover more about this approach in chapter 7.

The third theoretical perspective that guides the research on the origins of gender development is the cognitive approach. **Cognitive theories** focus on children's knowledge about gender, gender stereotypes, and norms and how this kind of knowledge influences children's thinking about gender as well as their gender-related behavior.

There are two general types of cognitive theories of gender development. The first, **social cognitive theory** (Bussey & Bandura, 1999), can be seen as a transition between the environmental and cognitive approaches. It comes from the tradition of social learning theory but has shifted away from traditional

learning theory's sole emphasis on the environment to an equivalent focus on how children's knowledge and thinking influences their behavior.

The other cognitive theories can be grouped under the term **developmental constructivist theories**. The most important constructivist theory in developmental psychology's history is Piaget's (Piaget, 1970). Piaget believed that children create or construct their own knowledge through their interactions with the physical and social world, and that these constructions serve as the foundation for developmental change.

The first constructivist approach to gender development was Kohlberg's **cognitive developmental theory** (Kohlberg, 1966). Kohlberg emphasized that children's knowledge about gender progresses through three stages, and that children come to guide their own gender development because of valuing things in the environment that they perceive to be for them (e.g., a boy comes to like playing with trucks because he comes to think that trucks are for someone like him—a boy).

Today, **gender constructivism** theorists in developmental psychology are concerned with the way in which children's cognitions about gender change as they develop (Liben & Bigler, 2002). One constructivist theory is developmental **gender schema theory** (Martin, 2000; Martin & Halverson, 1981; Martin, Ruble, & Szkrybalo, 2002). This theory emphasizes children's increasing knowledge of gender stereotypes and values, known as **gender schemas**. Gender schema theorists ask how and when children learn gender schemas, what kind of information they learn, and how their knowledge influences their behavior. A later variant of gender schema theory, the dual-pathway gender schema theory (Liben & Bigler, 2002), also addresses the way that children's idiosyncratic interests and experiences may in turn influence children's more general gender schemas.

The last group of constructivist approaches we cover stems from intergroup theories that originated in social psychology (Tajfel & Turner, 1986). At the core of intergroup theory is the belief that people's need for positive self-regard leads them to feel that the groups to which they belong (in-groups) are superior to other groups (out-groups). Developmental psychologists have addressed how intergroup processes might lead children to develop and maintain group stereotypes and prejudices (Levy & Killen, 2008; Rutland, Cameron, Milne, & McGeorge, 2005). Later in the book we describe in detail the way that **developmental intergroup theory** has been applied to gender in particular (Bigler & Liben, 2006, 2007).

As we will see, all of these theoretical approaches have an important role to play in understanding the roots of children's gender development. We should not regard one as right, or better than the others, nor should they be seen as necessarily in conflict with one another (Maccoby, 2000). It may be the case that some aspects of gender development have their roots in evolutionary processes, some in the effect of hormones on the developing brain, some in the reinforcement provided by parents and others, some in the interaction of children's peer groups, some in the observation and imitation of gendered behavior and roles in the child's experience and the media, some in cognitive constructions, and some because of social interaction with others. There is no reason to think that biological, social, and cognitive factors are not all involved in the process of children's gender development.

CHAPTER SUMMARY

In this chapter, we introduced the study of children's gender development. Several terms were defined, including the very basic terms "sex" and "gender." "Sex" often is used to refer to the biological aspects of being male or female, whereas "gender" is used to refer to the social and cultural aspects of being male or female. We also discussed gender identity, sexual orientation, sexual identity, gender stereotypes, gender roles, and feminism, as well as several other terms. We emphasized that gender development is very complex, and there are often no simple relationships among its various components. Finally, we highlighted several theoretical perspectives that emphasize different parts of the process of gender development and that we will discuss later in the book.

History of the Study of Gender Development

2

> It is utterly impossible without injury to hold girls to the same standards of conduct, regularity, severe moral accountability, and strenuous mental work that boys need. (Hall, 1906, p. 291)

> There is perhaps no field aspiring to be scientific where flagrant personal bias, logic in the cause of supporting a prejudice, unfounded assertions, and even sentimental rot and drivel, have run riot to such an extent as here. (Woolley, 1910, p. 340)

In this chapter we will examine the scientific study of children's gender development from the late 1800s through the mid 1970s. There are three reasons why we have included this chapter in the book. First, it is sometimes difficult to realize that the science of psychology is more than a century old, and that many questions that people are still researching today have a long history. The writings of philosophers served as the foundation for the science of psychology, and philosophers concerned themselves with the issues of sex and gender since the time of Plato and Aristotle (Salkever, 1990; Saunders, 1995). Sex differences have been studied scientifically since the 1600s (Graunt, 1662), and were examined by several scientists during the 1800s (Galton, 1883, 1894; Geddes & Thomson, 1897; Quetelet, 1830/1969). Many of these early philosophers and scientists saw males and females as opposites, and often found girls and women to be inferior to boys and men.

The second reason that we would like to include a brief coverage of the history of the field is to demonstrate that issues and problems may be studied for a period, then abandoned, and then later returned to but studied in a new way. Crutchfield and Krech (1962) refer to this as the "spiral of history." It is not necessarily the case that scientific study in some domain is steady and progressive, always building on old knowledge and becoming closer to the "truth." Rather, people may return to study problems that were examined and abandoned decades earlier, and may not even be aware that the older research exists. Scientific study is affected by many factors, including the ideological climate at any given time, the social needs of the culture that a scientist is in, new technological advances that permit the advanced study of an issue, as well as by coincidence and accident (Crutchfield & Krech, 1962). For example, as we have already pointed out, the study of issues related to sex and gender increased enormously once the feminist movement arose in the 1970s. What may not be nearly as obvious now is that feminist scientists were studying sex and gender as early as 1900.

The third reason that we want to include a history of the field is to explore the role that theory plays in guiding research. Much of the early scientific study of sex and gender was atheoretical—it lacked the guidance of well-constructed theories. That leads to a situation in which researchers simply collect more and more data, but are not able to organize and understand the findings very efficiently. They also duplicate efforts—people may collect the same data as others have previously, but the field advances little. An examination of the early history of the field can show us how the field changed when it began to be organized by theory.

THE EARLY STUDY OF SEX DIFFERENCES

Wilhelm Wundt in Germany and William James in the United States are generally credited with being the fathers or founders of modern psychology (Hothersall, 1995). Both of them established their laboratories

in 1875 and did most of their work between that time and the early part of the 20th century. The work of these early psychologists was generally focused on the behavior of adults or animals and was not usually concerned with either child development or issues of sex or gender. However, in the early part of the 20th century several psychologists in both Germany and the United States did devote study to differences between the sexes, although little of this work focused on child development. Among the topics that these psychologists discussed were differences in male and female brains, the "maternal instinct" and the concept of **variability**. For a fascinating discussion of the way that values permeated this work, see Shields (1975). Probably not surprisingly, much of it concluded that females were deficient in both intellectual and moral capabilities.

G. Stanley Hall: The Founder of Developmental Psychology

The founder of the scientific study of children's development is usually said to be G. Stanley Hall (Strickland & Burgess, 1965), who began his work on child development with the publication of a report about children's knowledge before they entered school (Hall, 1883). Hall made many contributions to developmental psychology as well as to education. In 1887 he founded the *American Journal of Psychology*, the first psychology journal published in the United States, and was instrumental in founding the American Psychological Association (Hothersall, 1995; Ross, 1972), becoming its first president in 1892. In 1891 he founded *The Pedagogical Seminary*, a journal devoted to child study, which later became the *Journal of Genetic Psychology* (Strickland & Burgess, 1965; White, 1992), which is still published today.

Hall developed the use of questionnaires so that others, primarily teachers and mothers, could collect data from the children, and completed several studies of children during the 1880s and 1890s (Strickland & Burgess, 1965; White, 1992). He also supervised the majority of the doctoral degrees granted to American psychologists prior to 1900 (Hothersall, 1995). After 1890 he and his students (Hall's students included John Dewey, Joseph Jastrow, James McKeen Cattell, Lewis Terman, and Arnold Gesell, among many others) produced a huge amount of scholarship on the emotional, physical, and intellectual development of children (White, 1992). Hall also first used the term "adolescence" (Leahey, 1994), and developed the concept of adolescence as a developmental period (Hothersall, 1995; Ross, 1972).

In some of his writings and work, Hall dealt with differences in the behavior and development of boys and girls (Diehl, 1986; Minton, 2000). One of Hall's most influential books is his two-volume work *Adolescence* (Hall, 1905), which was followed by a shorter book titled *Youth* (Hall, 1906) that covered the same material for a lay audience. Both books contain a chapter on the education of adolescent girls, and the more scholarly *Adolescence* also contains chapters on sexual development (especially in boys) and adolescent love. By today's standards, many of the views that Hall expressed on these topics would be considered at least mildly humorous, if not downright ludicrous. For example, he considered masturbation to be a dangerous practice, the effects of which could include exhaustion, epilepsy, heart murmurs, and lying.

Hall's chapter on the education of adolescent girls is one of the first writings in developmental psychology about the nature of sex differences. Hall claimed girls were more suited to having children than to being educated, therefore their education should prepare them for motherhood. Boys' education and experiences, on the other hand, should allow them the opportunity to express aggression and savage impulses so they could develop masculine strength (Minton, 2000). Girls were more feeling than thinking, more concrete, had slower logical thought, had less patience for science or invention, were more conservative, had a more excitable vasomotor system, were more emotional, more fearful, suggestible, faithful, dependent, reverent, and devoted. Hall said women dress more for adornment than for protection or practical uses; they have long hair, they wear ornaments, they like feathers and flowing garments, as well as pins, powders, and perfumes. He said women go in flocks and are less likely to stand out as individuals. They are best suited for ordinary matters whereas men are best suited for the extraordinary.

Hall took the position, accepted by other influential scholars of the time such as sociologist Herbert Spencer and Harvard Medical School professor Edward Clarke (Rosenberg, 1982), that the more civilized or highly evolved the "races" were, the more the men and women of that race were divergent (Hall, 1905).

He argued that it would be contrary to evolution for women of the most "civilized races" to adopt the characteristics and educational attainments of the men of those races because evolution acted to make men and women more different.

Hall was a vehement opponent of coeducation during high school and college, believing that boys and girls should be educated separately during adolescence for three reasons: so that girls' reproductive organs could develop in adolescence free from the exhaustion of demanding schooling, so that boys could be free to express their more savage adolescent impulses without the presence of girls, and because of his concern that if young men and women interacted with each other in school they would later not be attracted to each other enough to marry (Diehl, 1986). He also had the opinion that higher education could potentially harm women's health (Diehl, 1986; Hall, 1965), a view also common among other scholars of the time (Rosenberg, 1982). Several sections of his chapter on the education of adolescent girls (Hall, 1905) discuss the harm of a college education to the menstrual cycles, reproductive organs, and general health of young women, as well as the greatly reduced potential of college-educated women to marry and have children. Ironically, while Hall was the president of Clark University between 1892 and 1920, about 150 women pursued graduate degrees in several fields there, including several who were his own students (Diehl, 1986). Hall also encouraged African Americans and Asians to pursue doctoral study in psychology at Clark University although he viewed other races as inferior to Whites. The first African American to receive a Ph.D. in psychology, Francis Sumner, was Hall's student (Schultz & Schultz, 1992).

Although Hall played a critical role in the foundation of developmental psychology, he was not known as a careful or meticulous researcher. In fact, the limitations of his positions on sex differences in behavior and coeducation were even recognized by some of his contemporaries. For example, Hall's biographer Dorothy Ross noted in reference to *Adolescence* that "large parts of it were filled with unctuous comments about sexuality" (Ross, 1972, p. 326), a characterization she attributed to the influential psychologist Edward Thorndike, who reviewed it at the time.

The First Scientific Research on Sex Differences

Helen Thompson Woolley and Leta Stetter Hollingworth

As we said earlier in the chapter, scientific study is affected by events in the culture. Between 1880 and 1910 many new opportunities opened up for women in the sciences (Rossiter, 1982), and these women were highly motivated to show that prevalent ideas about the limitations of women were in error. During this period, Helen Thompson (later Helen Woolley) was pursuing her graduate work at the University of Chicago, in a psychology department that was exceptionally supportive of its women graduate students, and one of the few places where one could objectively study the nature of sex differences (Rosenberg, 1982). Although her dissertation (Thompson, 1903) did not involve the study of children, it is often credited as one of the first well-controlled scientific studies of behavioral differences between men and women (Rosenberg, 1982). She studied sensory, motor, and intellectual behaviors, and made every attempt to control variables and match her male and female participants. She devised many of the tests she used herself and was committed to careful and rigorous study of the issue. Today, we would consider such controls to be an essential part of the research process, but they were much less common in the early 1900s. Unlike previous researchers who had simply provided average differences between the sexes, Thompson showed the distributions of males and females and the overlap between them. On some tasks (e.g., mechanical puzzles) she found men did better, whereas on others (e.g., memory) women did better, but the average differences were generally very small. Although there were large differences between individual men and women, on average the men and women she studied were very similar.

After a year of postdoctoral study in Europe, Thompson began her academic career on the faculty of Mount Holyoke College in 1901 (Rosenberg, 1982; Rossiter, 1982). She resigned in 1905 to marry Paul Woolley (a physician who later became a medical school professor), with whom she had two daughters. At that time it was generally impossible for a married woman, especially one with children, to have an

academic career; universities would not hire them. The Woolleys lived in Cincinnati for several years where she was active as a child development specialist, suffrage leader, and community activist. During her early years in Cincinnati, Woolley conducted and published research on child development, including some on the topic of sex differences in children and adolescents (Woolley, 1915; Woolley & Fisher, 1914).

Woolley also published two review articles summarizing research on the topic of sex differences (Woolley, 1910, 1914), noting that this field increased dramatically between the two reviews. These reviews considered research on sensory, motor, intellectual, and social behaviors, as well as the topic of variability. In both reviews she despaired over researchers' tendencies to be led by their prejudices rather than by good science. The widely cited quotation at the beginning of this chapter is from the 1910 article. When summarizing the research in 1914, in an attempt to deal with all of the contradictory findings and conclusions, Woolley stated "The general discussions of the psychology of sex … show such a wide diversity of points of view that one feels that the truest thing to be said at present is that scientific evidence plays very little part in producing convictions" (Woolley, 1914, p. 372). Woolley concluded that most differences between males and females were more than likely of social rather than biological origin.

Later Woolley worked at the Merrill Palmer School in Detroit (later to become the Merrill Palmer Institute, home of the *Merrill Palmer Quarterly*), establishing one of the first experimental nursery schools in the United States to study child development and early childhood education. She left the Merrill Palmer School to take a position at Columbia University Teacher's College in New York, where she also established two experimental nursery schools. Unfortunately, around this time her husband divorced her and she faced both medical and psychological problems. Eventually, Columbia dismissed her, and she was never able to find professional work again. Woolley's granddaughter recently published a poignant biography of the difficulties Woolley faced (Morse, 2002).

Another psychologist who examined issues of sex and gender in the early part of the 20th century was Leta Stetter Hollingworth (Benjamin, 1975; Hollingworth, 1943; Rosenberg, 1982). Hollingworth began her graduate work at Columbia University after her husband, Harry Hollingworth, completed his doctoral degree there and was able to finance her study because scholarships to finance graduate education were not typically given to women. When assisting her husband in a study of the effect of caffeine on behavior, she noted that there was no effect of the women's menstrual cycle on their performance. This finding intrigued her because at this time it was commonly held that women suffered incapacity at certain points in their cycle. She went on to study the impact of the menstrual cycle on behavior for her doctoral dissertation (Hollingworth, 1914a). She did not inform her 23 female and 2 male participants about the purpose of her study, but had the women report information about their cycles, and had both sexes report unusual events and physical symptoms on a daily basis. Most of the participants were given several mental and motor tests every third day for 1 month, whereas eight of them were given the tests every day for 3 months. Two of her participants who experienced pain at the beginning of menstruation performed somewhat less well on one test (the naming of opposites) during those days, but there was no other evidence of the impact of the menstrual cycle on the behaviors she measured.

While a graduate student at Columbia, Hollingworth obtained a position as a mental tester for the city of New York testing children's intelligence primarily for the courts, charitable agencies, and the schools (Hollingworth, 1943). The major purpose of this testing was to diagnose mental retardation. One of the important scientific hypotheses of the time was the variability hypothesis (Benjamin, 1975; Shields, 1975). Essentially the argument was that women and girls were more concentrated around average, and that men and boys were more likely to be found at the extremes on any characteristic. For example, although many men and women would be found with average intelligence, more men than women were believed to be at the extremes of intelligence, both geniuses and mentally retarded. As Hollingworth herself most aptly pointed out, the most important implication of this hypothesis is that females are not likely to be ever found among the gifted (Hollingworth, 1914b). It was also believed that this reflected greater evolutionary progress made by males, as we saw earlier in Hall's position, a view that can be traced back to Darwin (Shields, 1975).

To further examine the variability hypothesis, Hollingworth and Helen Montague (1914) examined 1,000 infants of each sex at birth on ten measures (weight, length, shoulder circumference, and seven cranial measurements), using several different statistical measures of variability and found that the males were slightly larger, but that there were no consistent differences in variability on any of the ten measures. From the vantage point of the 21st century, one is absolutely struck by the thorough and careful research methods used by these psychologists almost a century ago. Hollingworth also published a review of published research on the question of variability (Hollingworth, 1914b) and came to a very strongly worded set of conclusions about the relationship between variability and women not achieving at high levels:

> Surely we should consider *first* the established, obvious, inescapable, physical fact that women bear and rear the children, and that this has always meant and still means that *nearly 100 percent of their energy is expended in the performance and supervision of domestic and allied tasks, a field where eminence is impossible*. Only when we had exhausted this fact as an explanation should we pass on to the question of comparative variability, or of differences in intellect or instinct. Men of science who discuss at all the matter of woman's failure should seek the cause of failure in the most obvious facts, and announce the conclusion consequent upon such search. Otherwise their discussion is futile scientifically. (Hollingworth, 1914b, p. 528, italics original)

Hollingworth also wrote on the topic of sex differences in behavior, publishing three review articles in *Psychological Bulletin* in the years following Woolley's two reviews (Hollingworth, 1916, 1918, 1919). In these reviews Hollingworth dealt with research that was published on the topic of sex differences in "mental traits," which consisted predominantly of measures of intelligence, memory, achievement, and occupational interests. Hollingworth was quite critical of investigators comparing their particular groups of male and female subjects as though they were representative of males and females in general, and of not recognizing differences in opportunities and experiences of the two sexes. She also emphasized the great amount of overlap and similarity between males and females found in many studies.

After the 1920s, Hollingworth's work moved into the arena of giftedness in children as she became a professor of educational psychology at Teacher's College at Columbia University. She later wrote a very influential adolescence textbook that came to replace Hall's as the leading textbook of the time on adolescence (Hollingworth, 1928).

Edward Lincoln: An Early Review of the Research on Children's Sex Differences

One of the first publications to thoroughly examine the issue of sex differences in children's behavior and development was Edward Lincoln's doctoral dissertation in educational psychology at Harvard University, published as a book in 1927 (Lincoln, 1927). In the introduction to the book Lincoln makes the following observation:

> It will be apparent to the reader as he proceeds through the chapters that no comprehensive scientific study of sex differences has ever been made. Various aspects of the problem have been carefully and extensively treated, but few investigators have dealt with more than one or two traits. For the most part, studies of differences between the sexes have been reported incidentally in connection with other problems. I have tried to find the results of the most important of the previous investigations, and to assemble them, together with several contributions of my own, in such a way as to show in the clearest manner possible what sex differences exist, and how significant they may be. (Lincoln, 1927, p. viii)

As an educational psychologist, Lincoln was primarily concerned with the implications of any sex differences to children's performance in school. Although he discussed research on adults to some degree, his summary of the research was focused squarely on children's capabilities and behaviors at various ages. Lincoln summarized sex differences in physical growth and development, sex differences in mental development, sex differences in variability, and the educational significance of these differences. It is clear

from his writing that Lincoln was very concerned about the need for objectivity and statistical sophistication and was a believer in equal educational opportunities for all children.

Lincoln first addressed the research on sex differences in physical growth. He reported that boys weighed slightly more and were slightly taller than girls, except for the period between 11 and 14, when girls were slightly taller and heavier because they reached puberty and completed their development sooner. On all other measures of anatomical and physiological development, girls were more mature than same-aged boys. Lincoln concluded: "In general, it seems that the girls are at a stage of development which is from 12 to 18 months in advance of the boys" (Lincoln, 1927, p. 29).

The next issue that Lincoln examined was sex differences in mental development. He reported on several tests of cognitive ability, including measures of general ability such as the **Stanford-Binet intelligence tests**, as well as many measures of individual cognitive skills. Lincoln concluded that there was no evidence of sex differences in general intelligence, but that there were differences in certain individual skills. Girls often performed better on tests measuring verbal or linguistic skills and fine motor performance, whereas boys did better on tests measuring mathematics and visual or spatial skills, although not labeled as such by Lincoln.

Lincoln also examined children's performance in several academic areas in elementary and high school. He concluded that girls are generally better than boys in the "fundamental operations of arithmetic," but boys show better mathematical reasoning and problem solving, although he thought that the differences were not large, but may increase in the later grades. With respect to reading, he concluded that girls were probably better in oral reading and the speed of silent reading, and possibly in comprehension, but the data he cited were somewhat inconsistent, and the differences were small. He concluded that girls had better handwriting, spelling, and composition, but that boys did better in history, especially in the upper grades. Lincoln also examined grades and school progress and concluded that girls get better grades and are less likely to be retained in a grade or to drop out of school. His final conclusion was "a definite superiority on the part of girls in school achievement" (Lincoln, 1927, p. 104).

Lincoln next tackled the issue of variability and concluded that, on some measures and tasks or at some ages boys were more variable, whereas on other tasks or ages girls were, and on still other tasks there was no difference in variability. He stated "It appears, then, that neither sex can be called more variable on the basis of data at present available" (Lincoln, 1927, p. 164).

Lincoln's final chapter dealt with the implications of any differences between boys and girls for educators. He considered it desirable that boys and girls interact with each other and be educated together because they need to learn to live and work together. He argued that women had been entering fields that had previously been reserved for men, and he expected that they would do so increasingly in the future, hence the need for coeducation would be even greater as time went on. However, his most important arguments focused on the amount of overlap between boys and girls on measures of physical development, intellectual capacity, and school performance. He stated that, even if there is a sex difference in some trait, that difference is small in comparison to the range in either sex. He concluded that the most important issue for educators was the existence of large differences in abilities within both sexes, not the small average difference between them. He stated "Boys and girls will then go forward in various phases of school work at various rates of progress, not because they are one sex or the other, but because each is an individual who differs from other individuals in many ways" (Lincoln, 1927, p. 181).

Both before and after his dissertation was published, Lincoln published several papers on intelligence testing and statistics (e.g., Lincoln, 1931, 1934, 1936; Lincoln & Workman, 1935); however, he did not appear to tackle the issue of sex differences again. Although psychologists of the time were definitely interested in methodological rigor, many male psychologists were not as committed to the equality of the sexes as was Lincoln, nor is there much information about why he was. Lincoln's work on sex differences does not appear to have made much impact on the field, although virtually all of his conclusions would still be considered reasonable in light of the data that have been collected in the 75 years since the book was written. Perhaps the time just was not right.

The Middle of the 20th Century: The Handbooks and Manuals of Child Psychology

The handbooks and manuals of child psychology contain chapters that summarize and organize the research on various topics in developmental psychology. They are often considered the definitive work on the status of any particular field in the discipline, and hence are very influential. An examination of the first three handbook chapters on the question of children's gender development allows us to see what issues were considered important to these early investigators and what was known about the field at the time.

The 1930s: The Murchison Handbooks

The first handbook, Carl Murchison's *Handbook of Child Psychology*, (Murchison, 1931), did not contain a chapter directly related to sex differences or gender development. When the second edition of Murchison's handbook was published in 1933, there was a chapter titled "Sex Differences" written by Beth Wellman (Wellman, 1933). Wellman is most known for her work on the environmental effects of deprivation and enrichment on young, orphaned children's intelligence test scores (e.g., Skeels, Updegraff, Wellman, & Williams, 1938; Wellman & Skeels, 1938). As a result of this work, she became one of developmental psychology's early champions of the effects of the environment on behavior.

Wellman pointed out that in the past men were considered to be superior to women in almost every area of achievement, and only occasionally a woman excelled in some arena. However, it had become apparent that achievement was only partly determined by ability, and boys and girls were similar in most kinds of ability. She also stated that males were previously considered more variable, and hence more likely to be found among the gifted, but that belief also had to be abandoned.

Wellman also addressed several weaknesses in the research comparing the two sexes, including samples of participants that were too small or not representative, and inadequacy or bias in testing materials. She also criticized investigators for not distinguishing between the existence of sex differences and the causes of those differences, with many apparently assuming such differences were innate. She said that although there were, at that time, hundreds of studies on sex differences, there was virtually no well-controlled research on why and under what conditions such differences come about.

Wellman's chapter was organized into the following topics: intelligence, specific mental abilities, language development, motor development, personality, and education. She emphasized that sex differences were small, that there was much overlap between the two sexes, and that findings were sometimes inconsistent. With respect to general intelligence, there was possibly a small advantage for girls, but it was not usually statistically significant. More boys were found among the gifted and among the retarded, but the reasons were not clear. She named several specific tests on which boys perform better such as form boards, puzzles, and mazes. She stated that girls were better at memory, color discrimination, and language skills. Girls' motor development was said to be advanced, whereas boys had better mechanical skills.

Wellman reported that boys had more problem behaviors in childhood and girls were more industrious at school, self-controlled, inhibited, persistent, jealous, and possibly had more nervous habits. Boys were said to be more extroverted, and girls more "motherly," and girls scored higher on tests of morality. Boys and girls were interested in different occupations and activities and showed a strong tendency to play with others of their own sex.

Wellman reported that girls got better grades in school, sometimes even in areas in which boys did better on the achievement tests in those subjects. In terms of specific academic subjects, girls did better in language, art, spelling, and handwriting, whereas boys did better in science, history, and mathematics in the later grades. Boys often did better in achievement tests, and there seemed to be more of a discrepancy between achievement test performance and grades for girls.

The 1940s and 1950s: Terman and the Carmichael Manuals

The next editor of the manuals of child development was Leonard Carmichael, and he remained the editor through the 1970s; these important books were referred to as the "Carmichael manuals" for almost half a century. In the 1940s and 1950s, Lewis Terman and his colleagues wrote the chapters on sex differences. The 1946 chapter was written with the assistance of several colleagues (Terman, Johnson, Kuznets, & McNemar, 1946), and the 1954 chapter was coauthored with Leona Tyler (Terman & Tyler, 1954). Terman, a doctoral student of G. Stanley Hall, had a long and prolific career and was especially known for bringing the Binet intelligence tests to the United States (and naming them the Stanford-Binet, after Stanford University, where he spent most of his professional life), as well as for his studies of gifted children, who were sometimes known as "Terman's Termites." With his graduate student and later colleague, Catherine Cox Miles, Terman also developed the first tests of masculinity and femininity (Lewin, 1984; Terman & Miles, 1936).

As had previous summarizers of the sex differences' literature, Terman and his colleagues (Terman et al., 1946; Terman & Tyler, 1954) discussed physical differences between males and females that might have an impact on behavior. They pointed to data showing the differences in height, weight, and rate of maturation. They discussed the differences in the sex ratios at birth, with 103–107 males born for every 100 females, and many more males than females conceived and later miscarried or stillborn. They suggested that homoeostatic mechanisms (e.g., body temperature, blood sugar) fluctuate less and operate in a more narrow range in males. They stated that boys showed more neuromuscular reactivity and motor tension, and also that boys showed several conditions more frequently, including left handedness, stuttering, epilepsy, color blindness, reading deficiencies, and mental retardation, concluding in the 1954 chapter that such findings might indicate "a general biological superiority of the female" (Terman & Tyler, 1954, p. 1066).

With respect to intellectual and cognitive ability differences between males and females, both chapters covered a very detailed set of findings. Terman and Tyler (1954) provided the following set of generalizations, which are certainly similar to some of the earlier reports and, we will find, are predictive of almost all of the subsequent reports on sex differences in cognitive skills and abilities.

1. If there is a difference between the sexes in general intelligence, it cannot be identified by means of our present tests, since some types of problems favor males, others favor females, and there is no satisfactory way to decide which ones constitute more valid indicators of general mental ability.
2. Girls tend to excel on verbal types of problems; boys, on quantitative or spatial.
3. School marks almost universally indicate superior achievement for girls, whereas achievement tests show girls superior in all kinds of language material, boys in science and mathematics.
4. Vocational aptitude tests show boys higher in mechanical aptitudes and girls higher in clerical aptitudes.
5. Ability differences are most apparent at the older age levels in children. Most of them do not show up at the preschool period. (Terman & Tyler, 1954, p. 1068)

Terman and Tyler's 1954 chapter was the first time that a handbook chapter pointed to the male advantage on tests of spatial ability. Although Lincoln (1927) and Wellman (1933) as well as earlier investigators such as Woolley (Thompson, 1903) had mentioned males' better performance on tasks like block design and mazes that clearly measure spatial skills, they did not categorize those skills as spatial. Terman and Tyler also pointed to the work of several investigators who had been studying sex differences in spatial skills in the late 1940s and early 1950s (e.g., Emmett, 1949; Smith, 1948; Witkin, 1949).

In both chapters Terman and his colleagues (Terman et al., 1946; Terman & Tyler, 1954) discussed the sex difference in variability, which they referred to as "dispersion." The research they cited tended to show somewhat greater male variability, although many studies showed no difference and some showed greater female variability. In both chapters they concluded that the fact that men had excelled in so many domains over the years of history was more likely due to differences in motivation and opportunity.

Terman and his colleagues (Terman et al., 1946; Terman & Tyler, 1954) also discussed research on children's interest in various activities such as sports and games. They reported that boys had greater involvement in sports like football and baseball, and that there was a notable decline in girls' interest in any sports in adolescence. They listed numerous activities and games that were more popular with boys (e.g., marbles, wrestling, hunting, fishing, rowing) or girls (e.g., dolls, dressing up, playing house, dancing, sewing, cooking), or equally popular with both (e.g., Red Rover, follow-the-leader, dominoes, cards). They pointed to findings showing that girls had more restricted activities, being more likely to play at home, and that boys had more vigorous and active play, more organized play, and a greater variety of different kinds of play activities.

They discussed children's differential interest in types of reading materials, and in movies and radio programs. They noted that girls read more than boys, and generally preferred novels, milder adventure, and romance, as well as magazines and poetry. Boys were more likely to prefer active and violent adventures and more likely to read about science and sports. The research on radio programs, which was a precursor of today's research on children's television watching, found boys to prefer adventures, war stories, and westerns, and girls to prefer romances and tragedies. The reports of favorite movies showed a similar pattern.

They also examined children's preferences for school subjects, finding that boys were more likely to prefer science, mathematics, and history, whereas girls were more likely to prefer English, languages, art, and music. They noted that such preferences were more common in high school than in elementary school. Studies of occupational interests also showed large differences between boys and girls, in predictable directions for the times. Girls had fewer occupations to choose from and typically indicated interest in teaching, social work, art, journalism, and entertaining. Boys, on the other hand, showed greater interest than girls in science, engineering, farming, operating engines, construction work, and the like.

Terman and his colleagues also examined sex differences in social behaviors. Boys were found to be more aggressive, dominant, and more likely to engage in problem or delinquent behavior, including in the classroom. Girls, on the other hand, were reported to be more able to inhibit impulses, more fearful at all ages, and more emotionally unstable or neurotic, but only after ages 12–14. They also found that, at all ages, girls had lower aspirations for themselves than boys did. They concluded that girls are more interested in people and social relationships. They found girls to be more interested in social than nonsocial games, more concerned about their appearance, more concerned about getting along with others, more angry about being socially slighted, and that they were more likely to show concern for others (Terman et al., 1946; Terman & Tyler, 1954).

They also examined the nature of children's peer groups and reported that boys have more friends, but that girls were more likely to have cliques and to make unfavorable remarks about others not in their group, and that different characteristics were related to popularity for boys (e.g., leader, good at games, takes chances) and girls (e.g., quiet, not a show-off, not quarrelsome; Terman & Tyler, 1954).

In both chapters (Terman et al., 1946; Terman & Tyler, 1954) Terman and his colleagues discussed, for the first time in any of the major reviews that we have examined so far, research findings related to possible cultural and familial influences on sex differences in children's behavior and concluded that there were very many differences in the experiences of boys and girls. They cited such things as clothing, toys and activities, play experiences, restrictions on mobility, and discipline at home and at school.

Finally, Terman and Tyler (1954) discussed the topic of sex roles and some early research on children's knowledge about sex roles, as well as some that compared the sex role behaviors of boys whose fathers were or were not present in the home. Their final conclusion was that it was an important task for future researchers to further investigate children's sex role behaviors and the environmental factors that influence them.

Although this summary has covered the major topics discussed by Terman and his colleagues, it is by no means complete. Many other topics that had demonstrated sex differences (e.g., the subject matter of boys' and girls' drawings, differences in thumb sucking and bed wetting, and responses to the Rorschach) were covered in their review. However, as we will see as we move on to contemporary research on children's gender development, the reports of Terman and his colleagues of half a century ago foreshadow many of the findings of contemporary researchers.

PSYCHOANALYTIC THEORY

At the same time that early developmental psychologists were doing scientific work on sex differences, Sigmund Freud was writing about the psychological development of boys and girls. However these were parallel activities that did not have much influence on each other (Hornstein, 1992; Hothersall, 1995). In the early years of the 20th century experimental psychologists essentially ignored Freud and his theories. By the 1930s to1940s psychoanalytic theory had become so popular that experimentally trained psychologists began to submit the theory to empirical tests (Hornstein, 1992; Sears, 1985), and one can see the impact of Freud's theory on the study of children's gender development by the 1950s.

Sigmund Freud lived and worked in Vienna in the late 1800s and early 1900s. He was trained as a medical doctor, receiving his medical degree in 1881. He developed a form of therapy for neurosis, **psychoanalysis**, and a theory of the causes of human behavior. Freud's primary study was of people who had psychological problems; however he saw his approach as a scientific theory of all human behavior, normal and abnormal.

Psychoanalytic theory focused on the unconscious and its effect on behavior. Freud thought that the unconscious personality was much larger than the conscious personality, rather like an iceberg under the surface (Hall, Lindzey, & Campbell, 1998; Schultz & Schultz, 1992). To examine the unconscious, Freud used psychoanalysis to explore the lives and experiences of his patients, who were people who came to him for help with their psychological problems. These explorations served as the data from which he constructed his theory of personality and behavior. Freud concluded that the human personality consisted of three parts: the **id**, the **ego**, and the **superego** (Waters & Cheek, 1999; Westen, 1990). The id is entirely unconscious and consists of basic instincts such as hunger, aggression, and sex. Early in development, the infant is 100% id. During infancy the ego begins to form; it is partly conscious and partly unconscious. The ego functions in reality and tries to bring satisfaction to the desires of the id while meeting the demands of the superego. The superego, or conscience, is also largely unconscious and consists of moral values and prohibitions, often in contrast to the impulses of the id. The superego develops during the phallic stage, a very important time for the development of gender identity. Eventually, the personality functions as a whole, with three component parts. The id is the biological part of the personality; the ego, the psychological; and the superego, the social (Hall et al., 1998).

Psychoanalytic Theory: Developmental Implications

The Developmental Stages

Freud proposed a series of stages during which the personality was thought to develop. In Freud's view, personality develops as the result of experiences that a person has in the first five years of life, especially experiences in the family. Freud also believed that people's psychological problems originated during these early years, generally as a result of interactions with parents. In each of these stages the child's libido is focused on a particular erogenous zone, and the child's psychological growth depends on whether the child's needs are met or thwarted during each stage (Hall et al., 1998; Schultz & Schultz, 1992; Waters & Cheek, 1999).

The first of Freud's stages is the **oral stage**, which takes place from birth to about the age of a year and a half, and where the center of gratification or source of pleasure is the mouth. In the next stage, the **anal stage**, which lasts until about the age of 3, the center of pleasure is the anus. A critical developmental task for a child of this age is toilet training, and the child needs to begin to control some of his id impulses and meet the demands of society. The third of the early developmental stages is the **phallic stage**, where the child's focus of pleasure is now the genitals: the penis for boys and the clitoris for girls. According to Freud, the child now develops feelings of sexual attraction. By about the age of 5 or 6 the child has

completed the period of early development when the personality forms and enters the **latency stage**, which lasts until adolescence. In adolescence the child enters the **genital stage** in preparation for adult life and relationships (Waters & Cheek, 1999; Westen, 1990).

Identification and Its Implications for Gender Development

The concept of **identification** was a critical concept for psychoanalytic theory. Identification is based on attachment with a parent, and through this attachment the child eventually becomes like the parent by internalizing the parent's characteristics. During the oral and anal periods both boys and girls are said to identify with their mothers through a process called **developmental or anaclitic identification**. This is said to happen because their mother is their caretaker, and when they become attached to her they come to fear the loss of her love. By identifying with her they can reduce their fear of losing her love (Bronfenbrenner, 1960; Tyson & Tyson, 1990). Freud (1927) also believed that children have affectionate feelings for their fathers during this period, although those feelings were thought to be less intense.

The phallic period was said to bring a new developmental challenge, the **Oedipus complex**. This term came from the classic Greek myth of a son who grew up to kill his father and marry his mother, although without knowing their identities. To consider the Oedipus complex, we need to look at the development of boys and girls separately. In Freud's view, during the phallic period, a boy's erotic impulses focus on his penis, and he begins to feel sexual attraction. Because of his mother's centrality in his life, this sexual attraction focuses on her, and the boy comes to see his father as a rival for his mother's affections. To complicate matters the boy also feels affection for his father. However, his father is bigger and stronger than he is, and is therefore a potentially dangerous rival (Tyson & Tyson, 1990).

During the phallic period the boy comes to realize that his sisters and other little girls have different genital organs that he does and comes to the conclusion that girls' genital organs have been removed. In other words, the little boy concludes that girls have been castrated, and he believes that the same thing could happen to him. If his rival father discovers that the son is sexually attracted to his mother, perhaps his father will castrate him. This fear is called **castration anxiety**. How does the little boy handle his castration anxiety? The primary mechanism is through a second kind of identification, **defensive identification**, or **identification with the aggressor**. This kind of identification is based on fear, in this case fear of punishment or castration (Bronfenbrenner, 1960). By identifying with his father he identifies both with what he would like to be (his father) and what he would like to have (his mother). Gradually his sexual attraction to his mother, and the anxiety it creates, will recede further into his unconscious and eventually diminish, and his identification with his father will become more important.

In addition to reducing his castration anxiety, this new identification with his father will accomplish at least two other goals. By taking on his father's characteristics as internal to himself the little boy will develop his superego; his father's moral standards will become his own. Secondly, he will develop his masculine gender role. This is why the concept of identification is so important to the psychoanalytic view of gender development. In Freud's view, boys become masculine by identifying with their fathers in order to resolve the Oedipus complex.

The situation for girls during the phallic period is different from that of boys. Girls' erotic feelings now come to center on the clitoris. When they discover the anatomical differences between boys and girls, they are immediately horrified and angry. They believe they have been castrated, and they resent it, leading to a condition Freud called **penis envy**. In Freud's own words "They notice the penis of a brother or playmate, strikingly visible and of large proportions, at once recognize it as the superior counterpart of their own small and inconspicuous organ, and from that time forward fall a victim to penis-envy" (Freud, 1927, p. 136).

Freud thought that there were at least three consequences to penis envy. The first was a **masculinity complex**: a girl's refusal to believe that she has been castrated, resulting in her acting as if she were a man. The second possible consequence of penis envy was an inherent sense of inferiority, and the third was a weakening of the attachment that girls felt to their mothers, because they would typically blame their mothers for their having been castrated.

So, how does a girl resolve her situation and leave the phallic period with a superego and a feminine gender role? Recall that a feminine gender role comes through identification with her mother, whereas a superego results from internalizing the moral standards of whichever parent she identifies with. The situation is complicated because girls enter the phallic period already identifying with their mothers and cannot make the switch to identifying with their fathers, at least not if they are going to be normal girls. Also, because they are already "castrated," they cannot be driven by a motive to avoid it. The development of a girl's superego and femininity cannot be as neatly resolved as they are for boys, and Freud concluded that resolution of these issues was difficult for girls. Some, perhaps many, girls continue to have a lingering masculinity complex.

Freud came to the conclusion that the major way in which girls came to resolve their dilemma was to substitute the wish for a penis with a wish to have a child. A girl then comes to develop an attraction to her father, who could provide this child for her to compensate for her lack of a penis. Her mother now becomes a rival for her father's affections. A girl's attraction to her father and rivalry with her mother has sometimes been called the **Electra complex**, the female analogue to the Oedipus complex, although it certainly is not directly analogous. Perhaps the best thing a girl can hope for if she does resolve her Electra complex is to leave the phallic period with a wish to become a mother. Because the resolution was difficult, in Freud's view one certainty was that the superego in girls would never develop to the same degree that it would in boys (Freud, 1927); therefore girls' sense of morality would inevitably be weaker.

Early Disagreements Among Psychoanalytic Theorists

Even in Freud's own time there were many disagreements between him and his many students and followers (who are often called **neo-Freudians**). If students and followers disagreed too much with Freud's views, they were expelled from the inner circle. Eventually Freud disagreed with almost all of his major followers and ceased to interact with them. Often, when a follower left the fold, a new psychoanalytic camp was established, and even these groups sometimes broke apart (Leahey, 1994). The result was that the psychoanalytic "school" of psychology became fragmented into many different camps.

One of the followers of Freud who broke away was Carl Jung. Jung developed a neo-Freudian theory with particular relevance for gender development (Keehn, 1996; Westen, 1990). Jung broke with Freud in 1913 because he had a very different view of the unconscious, and because he objected to Freud's heavy emphasis on sexuality. In Jung's view the three parts of personality consisted of the **persona**, which was the conscious part, as well as two unconscious parts: the **personal unconscious** and the **collective unconscious** (Keehn, 1996). The personal unconscious consists of elements of the unconscious that are personal to that individual, such as painful, repressed memories. The collective unconscious consists of images or archetypes that are part of the humanity of every person. Jung believed that everyone, male or female, had an unconscious feminine archetype, the **anima**, and an unconscious masculine archetype, the **animus**. Thus he thought that everyone had a masculine and feminine aspect to his or her unconscious personalities.

Some of the neo-Freudians' objections specifically concerned Freud's views on the psychological development of girls and women. During the 1930s and 1940s, two psychoanalytic theorists, Karen Horney and Clara Thompson, particularly objected to Freud's ideas about penis envy (Horney, 1935, 2000; Thompson, 1942, 1943, 1953, 1971). Both Horney and Thompson believed that cultural influences were far more important than biological anatomy in creating envy of men or a sense of inferiority in girls and women. In particular, they emphasized women's subordinate position in society as a critical factor in creating such feelings. They also thought that social and cultural experiences were the major influences on psychopathology in both sexes, and they preferred to emphasize childhood experiences less than Freud did. Horney developed the concept of **womb envy**, stating that men were likely to envy women's ability to have children. Thompson was particularly critical of Freud's belief that girls came to wish for a baby to compensate for not having a penis. As she said, "Childbearing is a sufficiently important biological function to have value for its own sake" (Thompson, 1942, p. 333).

The Impact of Psychoanalytic Theory on the Study of Gender Development

One can certainly find scholarly articles written during the early part of the 20th century examining Freudian views about gender development in children (e.g., Freud, 1927; Jones, 1910, 1933; Klein, 1928; Pearson, 1931; Pfister, 1918; Searl, 1938). However, the majority of such writings were either clinical case histories or theoretical arguments, and not the kind of empirical studies that are the foundation of developmental psychology. By the 1930s or 1940s there were some reports of empirical studies on Freudian topics (e.g., Isaacs, 1933), especially on the topic of identification with same sex parents (e.g., Bach, 1946; England, 1947; Robinson, 1946). However, one is hard pressed to find much evidence that Freudian theory played a major role in guiding the research done by developmental psychologists on the topic of children's gender development until the work of Robert Sears (Grusec, 1992; Sears, 1950, 1985; Sears, Maccoby, & Levin, 1957).

The Learning Theorists and Empirical Tests of Psychoanalytic Theory

Learning theory influenced psychologists who wanted to experimentally test psychoanalytic notions. The major goal of these psychologists was to translate Freudian concepts into learning terms and then to study them experimentally. Sears and his colleagues were interested in studying the effects of child rearing on personality development (Sears, 1950, 1985; Sears et al., 1957), and they used psychoanalytic theory, translated into learning terms, to guide that research. This was the first time in the study of gender development when theory was systematically guiding research.

Identification

For the study of children's gender development, the most important theoretical concept was identification (Sears, 1957, 1985). When a boy comes to identify with his father, he is said to internalize his father's masculine role, as well as his father's moral values and other aspects of his father's personality. When the boy identifies with his father he becomes like him. A comparable process was proposed for girls and their mothers (Bronfenbrenner, 1960; Kagan, 1964; Mussen & Distler, 1959). Most psychologists at the time thought that identification with one's same sex parent and the adoption of sex roles was desirable, healthy, and a primary goal of socialization (e.g., see Parsons, 1958; Parsons & Bales, 1955). Parents were to follow sex roles so that their children could develop normally. Consider the following statements:

> If the dominant parent is the opposite sex of the child this should strengthen cross-sex identification, and may retard the development of normal sex role preferences. This disruption in identification and sex role preferences should be particularly marked in boys from mother-dominant homes since the acquiescing father supplies a socially inappropriate model for the son. (Hetherington, 1965, p. 189)

> Boys who have a stronger identification with mother than with father tend to be more dependent and prone to anxiety in threatening situations. Moreover, the occurrence of maternal dominance over a passive father, together with maternal rejection of the child, is frequent in the histories of schizophrenic males. (Kagan, 1964, p. 148)

During the period from about 1950 until the early 1970s there were many studies examining children's identification with their parents (e.g., Baxter, Horton, & Wiley, 1964; Block & Turula, 1963; Emmerich, 1959; Hartley, Lynn, Sutton-Smith, & Lansky, 1964; Heilbrun, 1965a, 1965b, 1965c; Hetherington, 1965; Johnson, 1963; Levin & Sears, 1956; Mussen & Distler, 1959; Sears, Rau, & Alpert, 1965). This work examined parental qualities (e.g., whether they were cold, distant, aggressive, and punitive, or warm, accepting and nurturant), and hypothesized relationships between these parental qualities and behavior in the children. In gender research the focus was on the degree of similarity between children and their parents of the same sex, and the extent to which parents followed and children adopted their appropriate sex roles.

One topic of particular interest was whether children would be differentially likely to identify with or be similar to a nurturant mother or father, or to a powerful, harsh, or non-nurturant mother or father, and if such processes would be different for boys and girls. Did children of both sexes identify with the nurturant parent, or the powerful one, or both? Or did boys do one thing and girls another? As it turned out, there were few simple answers to these questions. Another question that researchers examined in identification research concerned the effects of father absence (e.g., Barclay & Cusumano, 1967; Leichty, 1960; McCord, McCord, & Thurber, 1962). Naturally, if a child was expected to learn sex roles from a father and mother, and if boys especially needed a father with whom to identify, researchers wondered what happened to sex roles when the parents had divorced or the father had died.

As researchers studied these issues, failures of the hypotheses generated by identification theory became very common. Researchers frequently were unable to find that children were like their same-sex parent, or that sex role behaviors were influenced predominantly by identification with parents (e.g., Mussen & Rutherford, 1963; Rosenberg & Sutton-Smith, 1968). Sometimes hypotheses would be confirmed for one sex but not the other (e.g., Emmerich, 1959; Hetherington, 1965). In a major study on identification, Sears and his colleagues (Sears et al., 1965) concluded that it was difficult to find much support for the predictions of identification theory in their data on sex typing and gender roles. It became obvious that several gender-related behaviors in children (e.g., toy and game preferences) had little or nothing to do with parents' characteristics and behaviors, and that siblings and other children played a major role in the process of sex typing (Brim, 1958; Mischel, 1970; Rosenberg & Sutton-Smith, 1968).

Sex role identification

At the same time that researchers were examining children's identification with their parents, the concept of **sex role identification** was proposed (e.g., Lynn, 1962). In addition to identifying with their parents, children were also thought to identify with and internalize their sex role. In this way they were said to come to adopt the general cultural aspects of male and female characteristics and roles, above and beyond the specifics of identifying with their own parents. A common measure of sex role identification used at this time was the **IT scale** (Brown, 1956, 1957). Like other measures developed from the psychoanalytic framework, the IT scale was a projective test. Children were thought to project their unconscious personalities onto "IT," who was a stick figure not identified as a boy or girl. The test asked the children for IT's preferences for several sex-linked toys, objects, and activities. Several studies using the IT scale found boys to have stronger masculine preferences than girls had feminine ones (Brown, 1956, 1957; Hall & Keith, 1964), until it was discovered that young children thought IT was male (Brown, 1962; Dickstein & Seymour, 1977; Endsley, 1967; Sher & Lansky, 1968). The children, especially girls, apparently were not projecting their own preferences onto IT at all. Gradually, the IT scale was abandoned and other measures and conceptions of gender development came to be used (e.g., Brinn, Kraemer, Warm, & Paludi, 1984; Edelbrock & Sugawara, 1978; Slaby & Frey, 1975).

As researchers had increasing difficulty with the concept of identification (e.g., Bronfenbrenner, 1960; Kagan, 1958; Lynn, 1962; Sanford, 1955; Sears et al., 1965), there were several attempts to change the concept, define it better, or to study the conditions under which it might operate. Soon, however, there were calls from the learning theorists to abandon the concept of identification entirely. In a particularly important article, Hill (1960) argued that the terminology of learning theory was sufficient to explain the processes of personality development, and that the concept of identification and similar terms derived from psychoanalytic theory, such as **internalization** and **introjection**, were unnecessary and confusing. Very shortly thereafter, social learning theory (Bandura, 1969; Bandura & Huston, 1961; Bandura & Walters, 1963; Mischel, 1966, 1970) became the major theoretical model guiding research on social development and socialization. The perspective of social learning theory was that the processes of learning (reinforcement, punishment, and especially observation and imitation) played the major roles in the acquisition of social behavior and personality characteristics, and that sex typing was no different in that regard from any other form of social learning.

Eventually, the research on identification as a critical aspect of children's development in the family, gender-related or otherwise, faded away. The major reason for this was the repeated failures of the

research to find that children were necessarily more like their same-sex parents, or that the idea of identification added much to our understanding of how gender development takes place. Most researchers came to agree with writers like Hill, Bandura, and Mischel (Bandura, 1969; Bandura & Huston, 1961; Hill, 1960; Mischel, 1966) that the psychoanalytic concepts were unnecessary, and that the learning concepts did a better job of explaining the pattern of results found in the research.

Of course, one remaining question is why psychoanalytic views of identification persisted as long as they did. Again, we can return to the influence of values. Psychoanalytic theory was very influential in the culture, much more so than the research done by empirically oriented developmental psychologists. When a view holds so much sway, it takes a great deal of research to move it from center stage.

TRANSITION TO THE CURRENT RESEARCH: CHANGES DURING THE 1960s AND 1970s

By the 1960s to 1970s, psychological research had become increasingly methodologically sophisticated, theoretical models were more prevalent, and the second wave of the feminist movement arose on the scene (Marecek, Kimmel, Crawford, & Hare-Mustin, 2003). All of these influences can be seen in the work we are about to consider.

Three major works were published on children's gender development in the 1960s and 1970s, and it is useful to examine them as we end our discussion of historical influences on the research of children's gender development. They are Eleanor Maccoby's edited book, *The Development of Sex Differences*, published in 1966; Money and Ehrhardt's 1972 book, *Man and Woman, Boy and Girl*, on the development of gender identity, especially in children with intersex conditions; and Maccoby and Jacklin's 1974 book, *The Psychology of Sex Differences*.

Eleanor Maccoby: The Development of Sex Differences

Eleanor Maccoby, who collaborated in some of her earlier work with Robert Sears (e.g., Sears et al., 1957), has been one of the 20th century's most influential developmental psychologists. She has studied several topics in developmental psychology including parental socialization, the impact of television, perceptual development, the effects of divorce, and of course, gender development (American Psychological Association, 1996; Maccoby, 1989; O'Connell, 1990). The publication of her book *The Development of Sex Differences* in 1966 (Maccoby, 1966a) marked a major turning point in the study of children's gender development. In the early part of the 20th century much of the research on children's gender development did not have a clear theoretical foundation but was focused on the study of sex differences with little systematic examination of the roots of such differences. By mid-century, learning theorists' translations of psychoanalytic theory generated much research, but the predictions of the theory did not find consistent support. The time was right for new theoretical models.

Maccoby's 1966 book was the result of a 3-year faculty seminar at Stanford University devoted to understanding the nature of the development of sex differences. It consisted of six chapters written by various authors, as well as an annotated bibliography of research on the topic (Oetzel, 1966). The chapters included Maccoby's own chapter on sex differences in intellectual skills (Maccoby, 1966b), an anthropologist's contribution focusing on the impact of cultural institutions on sex differences in behavior (D'Andrade, 1966), and a summary chapter written by a sociologist (Dornbusch, 1966). The key aspect of this book is its focus on possible reasons for sex differences, rather than on the differences themselves. From the perspective of the future theoretical work on children's gender development, three chapters were fundamental: a chapter on hormonal influences on sex differences in behavior (Hamburg & Lunde, 1966); one on **social learning theory** (Mischel, 1966); and one on an entirely new theoretical view,

cognitive developmental theory (Kohlberg, 1966). To this day, these remain among the major theoretical models that guide the research on children's gender development.

Hamburg and Lunde (1966) reviewed the research on possible biological, especially hormonal, influences on sex differences in behavior. They discussed the timing of puberty and possible effects on behavior of sex hormones in infancy and childhood, but especially after puberty. They also discussed some of the work on children with endocrine abnormalities and concluded that, if there was a discrepancy, sex of assignment and rearing was more important in establishing gender role than was chromosomal sex.

Mischel's chapter on social learning theory began with a definition of sex-typed behaviors as those that "elicit different rewards for one sex than the other" (Mischel, 1966, p. 56), and sex typing as "the process by which the individual acquires sex typed behavior patterns" (Mischel, 1966, p. 57). Mischel then discussed the use of the Freudian construct of identification, noting that what psychoanalytic theorists called identification, experimental psychologists called imitation. He concluded that the time had come to stop using the Freudian terms altogether. The bulk of Mischel's chapter dealt with research findings related to sex-typed behavior in which the learning principles of reinforcement and punishment (including reinforcement delivered by the self), as well as imitation and observational learning could account for those differences.

Lawrence Kohlberg had already formulated his well-known theory of moral development when he wrote the chapter on a cognitive approach to sex role development in Maccoby's book (Kohlberg, 1966). Moral development continued to be the major focus of Kohlberg's work until his death in 1987 (Hayes, 1994; Oser, 1990). In his work in both moral and gender development, Kohlberg was influenced by Piaget, and by the idea that children's thinking about some aspects of their social life was a critical factor in their behavioral development.

Kohlberg argued that children's understanding of their social world changed as their cognitive capabilities became increasingly sophisticated. With respect to issues of sex and gender, he said there would be universal changes in children's understanding of sex role concepts because of universal developmental changes in cognitive skills. He proposed three stages of children's understanding of gender, concluding that understanding of gender concepts would precede children's gender stereotyped behavior.

In his chapter, Kohlberg argued against a social learning or reinforcement view of gender development, concluding that these factors were less important than children's own cognitive understanding of gender. Beginning with their hearing of the labels "boy" and "girl," children eventually come to know their own gender. Then they come to associate various items with their gender, and to value those items and choose to adopt them. In time, Kohlberg's view came to be called a self-socialization view of gender development. In his chapter, he reviewed the research available at the time demonstrating children's increasing knowledge of gender-related concepts, and evidence that direct reinforcement was not necessary to produce this understanding. Of course, culture and learning were certainly involved because they provided the content of the knowledge that children came to adopt.

Kohlberg took issue with both social learning and psychoanalytic theorists' emphasis on the centrality of parents. He said that there are too many cultural forces that influence gender concepts to believe that this kind of development depended solely or primarily on parental identification or imitation. In later chapters we will learn more about Kohlberg's theory and the huge impact that the cognitive approach has had on the contemporary study of children's gender development.

Money and Ehrhardt: Man and Woman, Boy and Girl

Another influential work published around this time was John Money and Anke Ehrhardt's *Man and Woman, Boy and Girl* (1972). Money's life work was devoted to the study of the interaction of biological and environmental factors in the development of people's gender identity and the implications for many other gender-related issues, particularly sexual orientation. Ehrhardt was Money's colleague and research associate at Johns Hopkins University in Baltimore between 1966 and 1973 while the work for this book was completed. Money and Ehrhardt's book was focused primarily on individuals with

endocrine disorders, intersex conditions, and individuals who had extremely small or absent genitalia. The book was devoted to the topic of the formation of gender identity and gender role. To them, gender identity was defined as personal, private, and internal—one's experienced sense of gender role. Gender role was defined as the public manifestation of gender: everything that a person says or does to indicate that one is male or female, including sexual behavior.

Money and Ehrhardt argued that it was outmoded to ask questions about biological versus environmental influences on gender identity and gender role. Instead, its development unfolded with a series of interacting influences. Particularly important among these influences was prenatal development, especially differences in gonadal hormones during prenatal life, which affected both the genitals and the brain. Once a child was born, the child's behavior and experiences, including treatment by important others such as parents, played critical roles in the development of gender identity and role. Another crucial time was puberty, with the influx of pubertal hormones. Money has been criticized for being too biological in his views about gender (Rogers & Walsh, 1982), and for not being biological enough (Diamond & Sigmundson, 1997), but it is very clear that he and Ehrhardt emphasized both factors. The study of the gender development of individuals with various biological disorders could shed light on the role played by both factors and their interaction.

Maccoby and Jacklin: The Psychology of Sex Differences

The final work we will consider in the history of the study of children's gender development is Maccoby and Jacklin's 1974 book, *The Psychology of Sex Differences*. Maccoby and Jacklin reviewed the results of more than 1,600 studies that compared males and females on some behavior or psychological characteristic. They did not deal with biological differences such as size, strength, or developmental timetable, but rather focused predominantly on behavior. The book cannot be said to be focused on sex differences, because Maccoby and Jacklin were as interested in similarities as differences, and that is perhaps the most critical difference between their work and many of the previous reviews of the material.

Maccoby and Jacklin pointed out that one of most the serious problems with the research on sex differences was that when sex differences were not found, the information about the lack of difference was usually not published. Therefore, if a handful of studies on some topic found a difference between males and females, and published such a difference, the finding would be repeated in textbooks and other sources for years, yet there might be many more studies that did not find such a difference that did not enter published scholarship.

Therefore, Maccoby and Jacklin undertook the incredibly time-consuming task of finding all of the recent published scholarship they could locate that measured some behavior that had both male and female subjects taking part. They focused more on research involving children and adolescents, but included work on adults as well. The book contained 86 summary tables comparing the results of these studies on some behavior or characteristic. Each study cited in one of these tables was put into one of three categories as demonstrating: a statistically significant difference ($p < .05$) indicating that one sex or the other scored higher on that measure, or showed more of that behavior; a trend towards such a difference ($.05 < p < .10$); or no difference between the sexes. Recognizing that some studies are more powerful than others, they also reported sample sizes, as well as ages of the subjects in each study in the table. They also pointed out that any conclusion they would make about there being no difference between the sexes on some behavior was really a conclusion that a difference had not been clearly or consistently demonstrated at that time, because future research might find a difference.

The book was organized into three sections: (a) intellect and achievement, (b) social behavior, and (c) origins of sex differences. In the section on intellect and achievement, Maccoby and Jacklin discussed research on perception, learning, memory, achievement and ability testing, and achievement motivation. They concluded that the basic processes of perception, learning, and memory were very similar in males and females. With respect to specific skills, they concluded that girls had better verbal skills and boys had better spatial and mathematical skills, but differences were not consistently found in these domains until

adolescence. They tackled the variability issue and concluded that there may be greater male variability in spatial or mathematical skills, but not verbal skills. As others had reported for decades, they found that girls got better grades, but female achievement is much less than that of males after the years of schooling are over. As far as motivation to achieve, after an examination of a variety of issues that might be linked to these findings, their only strong conclusions were that girls have less confidence in their ability to do a variety of tasks, less confidence in their ability to control events that affect them, and are more likely to invest themselves in social relationships.

In their examination of social behavior, Maccoby and Jacklin pointed out that it was much more difficult to examine these kinds of behaviors than the cognitive domain, especially in terms of issues such as motives and feelings. Nonetheless, they examined a very large number of such behaviors. They reported that boys were more likely to be found to have a higher activity level, although not under all conditions. Group play with other boys was especially likely to stimulate high activity levels. After the toddler period, boys displayed more anger. Girls might be more anxious, although observational studies had not found it to be the case, and the finding might be due to girls' greater willingness to report anxiety on self-report measures.

They noted that the quality of social relationships with peers was somewhat different, with more rough and tumble play and fighting among boys and smaller, more intense or intimate friendships among girls, but that overall social relationships and interactions were very similar. Males of all ages and in similar species were consistently more aggressive, especially in terms of direct, physical aggression. Girls might be more likely to direct their aggression by being "catty." Boys were more competitive in athletics, but not necessarily in other domains. Girls were more likely than boys to comply with the requests of adults, but there was little evidence of a sex difference in compliance in other situations, and little consistency in the findings on dominance.

Maccoby and Jacklin also examined many possible reasons for the sex differences they discussed. Throughout each of the chapters they looked at research on sex differences in other species and across cultures, when available or relevant. They also discussed studies that suggested biological or social influences on the differences. The last section of their book was devoted to findings about sex-typed behavior and to research on the role of imitation, modeling, and parental socialization in creating any of the differences between the sexes. They concluded that there was little evidence that children were more likely to imitate their same-sex parent, or same-sex models in general. Children were exposed to and could imitate all kinds of behavior, gender-appropriate or not. An important factor was what they chose to imitate. That is, Maccoby and Jacklin pointed to the idea of self-socialization: children have a role in the adoption of their own gender-related behavior.

They reported that in the family, boys' motor behavior was accepted and stimulated more than girls', and that some evidence suggested that parents might enforce demands that they make on preschool boys more strongly, or that they might restrict them more, but the evidence was mixed. Boys were consistently more likely to be physically punished and there was some evidence that indicated they might receive more praise. They concluded that parents, especially fathers, were more likely to accept cross-sex behavior in girls than in boys. Otherwise, parents treated boys and girls very similarly.

They also examined parents' beliefs about sex differences in their children. Although they treated them similarly, and that there were few consistent differences in the capacities of boys and girls, parents clearly thought they were different (e.g., boys were thought louder and messier, and girls were thought more likely to cry or be frightened), but the qualities desired by parents differed little for boys and girls.

When it was first published, the book had a huge impact on people's thinking about sex differences and socialization, and it is fair to say that the book shaped the research on gender development for the next generation. One way in which the impact of a publication is measured is to determine how many other researchers cite it in their own writings. In a recent search of the Social Science Citation Index, Maccoby and Jacklin's book was reported to have been cited in more than 3,500 other works since it was published, and the rate of citations has not changed much since its publication; researchers are still actively citing it more than 30 years since it was published.

Despite its impact, not everyone accepted Maccoby and Jacklin's (1974) perspectives without question. The conclusions about sex differences and about parental socialization were challenged immediately (O'Connell, 1990), especially by Jeanne Block (1976; 1983), who had studied children's gender development for some years. Block particularly disagreed about Maccoby and Jacklin's conclusions that there were few differences in parental socialization of boys and girls, believing that there was evidence for several important differences in how girls and boys were treated by their parents.

CHAPTER SUMMARY

This chapter has been a survey of the study of children's gender development by developmental psychologists, almost exclusively American, from the early 20th century until the early 1970s. We began with three reasons for including this chapter in the book. First, we included this historical chapter to demonstrate that many questions about sex differences and gender development have a long history and do not always show a simple progression in which new research builds on prior research and in which recent work is necessarily more sophisticated than earlier work. Although one would hope to see these progressions, the path is not always a smooth one. For example, this historical review shows that researchers examined the question of more variability among males than among females for more than a century, making various pronouncements over the years but never really developing a clear set of conclusions. Indeed, it will become clear as we move into later chapters that this topic is still with us.

Related to this particular question about variability is the second reason for including this chapter: what Crutchfield and Krech (1962) have referred to as the "spiral of history." Scientific study is not necessarily steady and progressive, but waxes and wanes as a function of various factors such as the ideological climate of the time, increasing methodological sophistication, as well as coincidence or accident. We can certainly see how factors related to the values of the time influenced the study of gender development over the years of the 20th century.

Our third reason concerns the role that theory plays in guiding research. Few theoretical models existed in the early part of the 20th century. By mid-century, much research on children's gender development was guided by psychoanalytic theory as interpreted by learning theorists. Once the failure of the research to support the predictions of the theory became more evident, the theory was supplanted by several other theoretical models that remain with us today: biological theories, social learning theory, and cognitive developmental theory. In the chapters that follow, we will be reviewing contemporary theories as well as the empirical research that has been conducted to evaluate and extend them.

Biological Foundations of Sex and Gender[1]

3

> I never felt out of place being a girl. I still don't feel entirely at home among men. Desire made me cross over to the other side, desire and the facticity of my body. . . .Biology gives you a brain. Life turns it into a mind. (Eugenides, 2002, p. 479)

Many of us spend a lot of time thinking about the ways in which boys and girls and men and women are different (and some of us write books about it). But, few of us spend time wondering how we got to be men or women in the first place. As we show in this chapter, sex is not simply defined by any single criterion, and there is not a straightforward link between sex and gender.

WHAT MAKES SOMEONE A BOY OR GIRL, MAN OR WOMAN?

Think for a minute about two questions: What makes someone a boy or girl? How do you know that you are a woman or a man? You may be thinking these questions are strange or perhaps that the answers are self-evident. But as will become evident in this chapter (and later ones), the answers to these questions are complex and critically involve understanding biological foundations of sex and gender.

Now consider some possible answers. As you will see, most answers are inaccurate or incomplete, and we will explain the reasons for this later in the chapter.

- "A penis makes someone a boy and a vagina makes someone a girl." So, is a person without a penis always a girl? It turns out that there are some boys who do not have a penis.
- "A Y chromosome makes someone a boy and two X chromosomes make someone a girl." So, is a person with a Y chromosome always a boy? It turns out that there are some people who have a Y chromosome and who look like (and feel just as feminine as) people with two X chromosomes.
- "Testosterone makes someone a man and estrogen makes someone a woman." So, is a person with high testosterone (or low estrogen) always a man? Is a person with low testosterone never a man? It turns out that there are some women who have high levels of testosterone and some men who have low levels.

The question gets even trickier when you ask what makes someone masculine or feminine. Do the same factors that contribute to categorizing a person as girl or boy, woman or man, contribute to variations in physical or psychological characteristics that are related to sex? If you are a (heterosexual) man, how do you decide if a prospective partner is "feminine" enough for you? Certainly you do not look at someone's chromosomes or hormones. Do you look at physical appearance? Do you look at how she behaves? If you do, what characteristics do you examine? And what causes those variations?

The question we asked—"What makes someone a boy or girl, man or woman?"—and the potential answers to it are our way of introducing you to the fact that there are many levels of sex and gender (see Table 3.1), in essence constituting many steps in what are called the processes of **sex determination**

[1] Sheri Berenbaum was the primary author of chapter 3.

TABLE 3.1 Levels of Sex

Chromosomal (genetic) sex
Gonadal sex
Hormonal sex
Internal reproductive organs
External genital appearance
Assigned sex/sex of rearing
Gender identity

Source: Adapted from Money, J. & Ehrhardt, A.A., *Man and woman, boy and girl,* Baltimore: Johns Hopkins, 1972; and Grumbach et al., in *Williams textbook of endocrinology* (pp. 842–1002), Philadelphia: W.B. Saunders, 2003.

and **sex differentiation** (Grumbach, Hughes, & Conte, 2003). And it should now be clear to you that there is not a single criterion that might be used to decide whether someone is a boy or girl, man or woman—something that was not well understood until about 50 years ago (Money & Ehrhardt, 1972) and that continues to be the subject of much research (e.g., Berenbaum, 2006; Hughes, Houk, Ahmed, Lee, & LWPES/ESPE Consensus Group, 2006; Meyer-Bahlburg, 2005b). Sex determination and differentiation involve many steps, from chromosomes and genes to gonads, to reproductive structures and external genitals, to physical appearance at birth, which determines social sex ("It's a boy!" "It's a girl!")—and then to psychological aspects of sex and gender. These steps are regulated by at least 50 different genes that work in several different ways, including the formation of specific organs in the body (including the brain), hormones that control bodily functions, and receptors that allow those hormones to affect organs. For most of us, all of the steps work together to produce consistency among the components of sexual differentiation, so it is easy to say "I am a woman" or "I am a man." But for some of us (maybe 1 in 4,500), there is a mismatch (discordance) among the levels, and these people are considered to have **disorders of sexual development (DSDs)**. As discussed later in the chapter and in chapter 6, people with these conditions tell us a lot about the ways in which biology affects gender development.

The goal of this chapter is to introduce you to the biological foundations of sex, that is, the processes of sex determination and sexual differentiation. This information will be revisited in chapter 6 when we consider ways in which these biological processes also play a role in gender development. The chapter is divided into five sections. The first and longest section concerns the ways in which physical appearance is shaped by chromosomes, by genes on those chromosomes, and by hormones before birth; it also includes discussion of the ways in which these processes can go awry. The second section includes information about changes in physical appearance at adolescence that are under the control of hormones at puberty. The third section is about sex differences in physical growth that are particularly relevant to gender development. The fourth section is a brief description of brain structure and how the brain underlies behavior. The final section addresses the evolutionary processes thought to underlie the physical and psychological differences between the sexes.

EARLY BIOLOGICAL PROCESSES OF SEX DETERMINATION AND DIFFERENTIATION

We start with very early development, what happens well before birth. As you will see, all bodies are wired with the same basic plan, and the path to becoming a boy or a girl is initiated by a gene on one of

the chromosomes. But—and this is something that you will hear again in this book—there is not always a perfect correspondence between a person's genes and the consequences of those genes. This is what is known as the relation between **genotype** (genetic make-up, the specific genes a person has) and **phenotype** (measurable characteristics). Phenotypes can be physical (e.g., height, blood pressure, brain size) or psychological (e.g., spatial ability, sociability). There is not always an absolute association between genotype and phenotype, because genes may be modified by other genes or by the environment. This applies to both physical and psychological phenotypes.

Genes and Chromosomes

Before we discuss the genetics of sexual differentiation, we digress for a brief primer on basic genetics for those of you who need a refresher. If you already have a good understanding of genetics, you might want to skip ahead to the next section.

Some Basic Genetics

All of our genetic material is contained on 23 pairs of chromosomes. One chromosome in a pair comes from the mother and the other from the father. Chromosomes contain many different genes, in physical locations called loci (the singular is **locus**). An important feature of chromosome pairing is that the genes at a given locus are also paired, so that individuals inherit one gene from the mother and the other gene from the father. The gene may have different forms called **alleles**. If the allele is the same on each chromosome pair (the same form of the gene is inherited from both parents), the individual is called **homozygous** for that gene (or at that locus). If the alleles are different at a given locus, because different forms of the gene were inherited from the mother and the father, the individual is called **heterozygous** for that gene (or at that locus).

Genes produce proteins, and the product of the gene at a given locus depends on the alleles that are present. In some cases, the alleles have additive effects, so the product is simply the sum of the products of the two alleles. In other cases, the alleles have unequal effects, with one allele **dominant** over the other allele; the nondominant allele is called **recessive**. In those cases, individuals who inherit one dominant and one recessive allele will have the same phenotype as individuals who inherit two dominant alleles, and both will have a different phenotype from individuals with two recessive alleles.

The overwhelming majority of genetic material—the 22 autosomes and their associated genes—is the same in males and females. But one of the 23 pairs of chromosomes—the sex chromosomes—differs in males and females, with females having two X chromosomes and males having one X and one Y.

Chromosomal and Genetic Sex

Genetic sex is determined at conception. The mother donates an egg, which contains 22 autosomes and one sex chromosome, in this case an X chromosome. The egg is fertilized by sperm from the father, which also contains 22 autosomes and one sex chromosome, which can either be an X chromosome or a Y chromosome. The **zygote** resulting from the fertilization of the egg by sperm carries 23 pairs of chromosomes, 22 pairs of autosomes (numbered 1–22) and one pair of sex chromosomes, either XX or XY, the 23rd pair. The specific profile of the chromosomes is called a **karyotype** and standard notation is to indicate the total number of chromosomes, normally 46, followed by the two sex chromosomes. If the sperm carries an X chromosome, the karyotype of the resulting zygote will be 46,XX, a chromosomal female; if the sperm carries a Y chromosome, the karyotype will be 46,XY, a chromosomal male.

The X chromosome is substantially larger and contains many more genes than the Y chromosome, and these genes, like those on the autosomes, are involved in many biological functions. But the Y chromosome contains a specific and unique gene, called ***SRY*** (for sex-determining region of the Y chromosome) that starts the program for "maleness." People who have *SRY* proceed down the pathway to be a boy, and people who do not have *SRY* proceed down the pathway to be a girl. In many ways, it seems amazing

that the switch to determine whether someone is male or female is a single small piece of genetic material residing on the smallest chromosome. But maybe it is less shocking when we consider that human beings and chimpanzees share 98% of their genetic material.

Consequences of Sex Differences in Karyotype

There are other consequences of the sex difference in sex chromosome complement (composition), particularly of the fact that females have two X chromosomes and males have one X and one Y.

Effects of genes on the Y chromosome

Only males have a Y chromosome; therefore, genes on the Y chromosome are expressed only in males. Because many of these genes have no counterpart on the X chromosome (or autosomes), expression of these genes is limited to males. For a long time, it was thought that the main genes on the Y chromosome were *SRY* and a few others with little importance (e.g., "hairy ears"). But recent studies show that the Y chromosome carries genes involved in basic biological functions and that defects in these genes may lead to infertility in men (Lahn & Page, 1997).

X-linked inheritance

The sex difference in the number of X chromosomes means that there is a change in the typical pairing of the chromosomes and a corresponding change in the genes possessed by males and females. Females have a matched pair of (X) chromosomes and thus matched pairs of genes at each locus (with each gene having a counterpart on the other chromosome). Males have only one X chromosome and most genes on that chromosome do not have matches on the Y chromosome, so males have only one gene at each locus. This means that females have twice as many X-chromosome genes as do males, and this results in sex differences in traits coded by those genes. This is called **X-linked inheritance** and the traits affected by these genes are called **X-linked traits**. Recessive genes on the autosomes are expressed equally often in males and females, but recessive genes on the X chromosome are expressed much more often in males than in females. This is because females need two recessive genes to express the trait (one on each X chromosome i.e., one from each parent). In contrast, in males a recessive gene on the X chromosome will lead to the expression of that trait because (in most cases) there is no corresponding gene on the Y chromosome. This means that there is no second gene that can potentially dominate (obscure) the one on the X chromosome. Color blindness is an example of an X-linked trait, because it is caused by a recessive gene on the X chromosome. For girls, there is likely to be a normal gene on the second X chromosome that prevents the expression of the recessive trait of color blindness. For boys, there is no matched gene on the Y chromosome, and hence color blindness is expressed. This results in a sex difference in the incidence of color blindness: approximately 10% of males are color blind, whereas very few females are.

X-inactivation

There are some mechanisms to compensate for the fact that females have twice as much X-chromosome material as do males, to prevent females from producing twice as much as males of whatever information is coded by genes on the X chromosome. (This does not happen for the autosomes, because both males and females have two chromosomes.) Through a process called **X-inactivation**, one of the two X chromosomes in each cell is randomly turned off during a girl's early embryonic development. But this does not happen until after at least some of the genes have been expressed because, as we will see below, two X chromosomes are necessary for complete female development. Interestingly, however, about 10–15% of genes on the X chromosome appear to "escape" X-inactivation, and the resulting differences in gene product have been hypothesized to be responsible for some of the differences between males and females (Willard, 2000).

Imprinting

An exciting discovery concerns the fact that the expression (manifestation) of a gene depends on whether it is inherited from the mother or from the father, a process called genomic imprinting, or simply **imprinting**

(Tilghman, 1999). Imprinting on autosomal genes is not likely to have different effects on male versus female offspring, because autosomes are transmitted equally to the two sexes. But imprinting of genes on the X chromosome may result in phenotypic sex differences. Boys necessarily inherit the X chromosome from the mother, which is all she has; they necessarily inherit the Y chromosome from the father. (If the father had contributed his X chromosome, he would have had a daughter, not a son.) Thus, girls inherit one X chromosome from the mother and one from the father. X-linked genes from the father thus have the potential to affect traits in daughters but not in sons. This means that if a gene on the X chromosome is imprinted, it matters for girls which parent transmits the gene, but it does not matter for boys ("matters" in the sense that the trait influenced by that gene will differ). We will provide some examples of this in chapter 6.

Sex-Limited Inheritance

Sex differences in a trait may result from differential expression of genes in males and females, due to sex differences in other aspects of physiology, such as sex hormones; this is called **sex-limited inheritance**. The genes involved in baldness, for example, are on the autosomes, but their expression requires the presence of high levels of testosterone. Many people think that baldness comes through mothers and is transmitted only to sons (i.e., X-linked), but it turns out that baldness is likely due to many genes, including ones that come equally from the mother and the father and are passed on equally to sons and daughters. Then why are men much more likely than women to be bald? It's because of **gene expression**, which in this case means that the expression (or display) of the gene (being bald) happens only when the person also has high levels of testosterone (Otberg, Finner, & Shapiro, 2007). This happens much more often in men than in women. This is an example of some other aspect of a person's biology affecting whether a gene is expressed. So, you can see that sex differences in some aspects of biology might change the expression of genes that are found equally in males and females.

Sex differences in environmental exposure might also affect gene expression (Wizemann & Pardue, 2001). For example, sex differences in rates of skin cancer might be due to modification of gene expression by sex differences in sun exposure; for example, men likely to be exposed to the sun by working outside, or women revealing their bodies while sunbathing. It is easy to think of examples in which sex differences in hormones or environmental exposure might modify the expression of genes that do not differ in frequency in males and females, but it is more difficult to demonstrate when and how these effects actually occur. Furthermore, gene expression is not just restricted to physical traits, but also applies to psychological traits.

Gonads and Genitalia: The Crucial Role of Hormones

The two sexes start out with the same sets of structures that differentiate into male or female gonads, internal reproductive organs, and genitals (for detailed review, see Grumbach et al., 2003). Because development can go either way, the initial structures are called indifferent. The path that is taken depends on which substances are present at specific points in development. This means that we all start out able to become a male or a female (called **bipotentiality**). As we discuss in detail below, there are three parts to this development. First, males and females start out with the same basic structures, the indifferent **gonads** (there are two of them, one on each side of the body) that become either testes or ovaries, which produce sperm and eggs, respectively. Second, there are two sets of **genital ducts**, with only one developing and the other disappearing [**Müllerian ducts** can become the uterus and fallopian tubes, whereas **Wolffian ducts** can become the epididymis, vas deferens (ejaculatory ducts), and seminal vesicles]. Third, the **external genitalia** (or genitals) are initially identical in males and females and have the capacity to develop into a penis and scrotum or into a clitoris, labia, and lower part of the vagina. The physical process of masculinization is formally called **virilization**. Before we describe the three main steps in normal sexual differentiation, we need to talk about hormones, particularly **sex hormones**.

Sex Hormones

A hormone is a chemical substance that is produced by an organ of the body or cells in an organ and is transported through the blood to have an effect on (regulate the function of) another organ or parts of that organ. Hormones vary in amount (level) or concentration across people and even within a person across time of the day, month, year, or lifetime. Sex hormones are those that differ in concentration between males and females and are involved in the differentiation of the body into male and female and in completely normal reproductive function (i.e., the ability to engage in sexual activity and produce offspring). Sex hormones are produced mainly by the gonads, but other organs also produce hormones with similar effect.

The main sex hormones are **androgens** and **estrogens**. Androgens are produced by the testes (the male gonads), by the ovaries (the female gonads), and by the **adrenal glands** in both males and females. Estrogens are produced directly by the ovaries in females and by the placenta during gestation of both males and females and are produced indirectly by being converted from androgens in both males and females. This means that both males and females produce and respond to both androgens and estrogens, but they do so at different concentrations at many, but not all, stages of the lifespan. Both androgens and estrogens come in several forms. The forms of androgens that have the most effect on the body and behavior are **testosterone**, **dihydrotestosterone**, and **androstenedione**. The form of estrogen that has the largest effect is called **estradiol**. There is another hormone, **progesterone**, which is produced in the ovaries, and it plays a large role in reproduction, but a small role in behavior, so we will not discuss it much in this book.

Three Main Steps in Sexual Differentiation

We now return to the three main events in sexual differentiation: development of the gonads, development of the genital ducts into the internal reproductive system, and development of the external genitalia.

Development of the gonads

The first event is the development of the testes or ovaries. The initiator of the move from our bipotential or indifferent state to differentiation resides on the Y chromosome. The *SRY* gene is the main determinant of sex, and it is responsible for the development of the indifferent gonads into testes at about weeks 6–7 of gestation, although several other autosomal and X-linked genes are necessary for complete testes development. In the absence of *SRY*, and with the involvement of other genes, the indifferent gonad develops into an ovary at about 3 months of gestation. Female-typical development is generally considered to be the "default" process (or a passive process), that is, it occurs when *SRY* is not present, but it is important to note that completely normal female development does require other genes. If the indifferent gonads have not become testes by a specific time in prenatal development, around 8 weeks of gestation, the default mechanism operates, and the gonads become ovaries *if* all other aspects of development are proceeding normally. If testes develop, they produce two substances important for further development of the male body, androgens and **Müllerian inhibiting substance** (MIS, also called anti-Müllerian hormone).

Development of the internal reproductive system

The second event in the differentiation of a male or a female is the development of the internal organs involved in reproduction from what are called the genital ducts. There are two sets of genital ducts, with only one developing and the other disappearing. In typical development, the sexes develop a different set of genital ducts, with the amount of androgens and MIS present during the third month of fetal life determining which set of genital ducts develops and which set disappears, as shown in Figure 3.1. Specifically, high levels of androgens stimulate the development of the Wolffian ducts into the male genital system, and high levels of MIS destroy the Müllerian ducts so that a female genital system cannot develop. When testes are present and functioning (and therefore there are high levels of androgens and MIS), the result is the degeneration of the Müllerian structures and the stimulation of the Wolffian ducts into the epididymis, vas deferens (ejaculatory ducts), and seminal vesicles. When testes are absent, there is insufficient androgen to stimulate the development of the Wolffian ducts, so they degenerate, and there is no MIS to destroy the