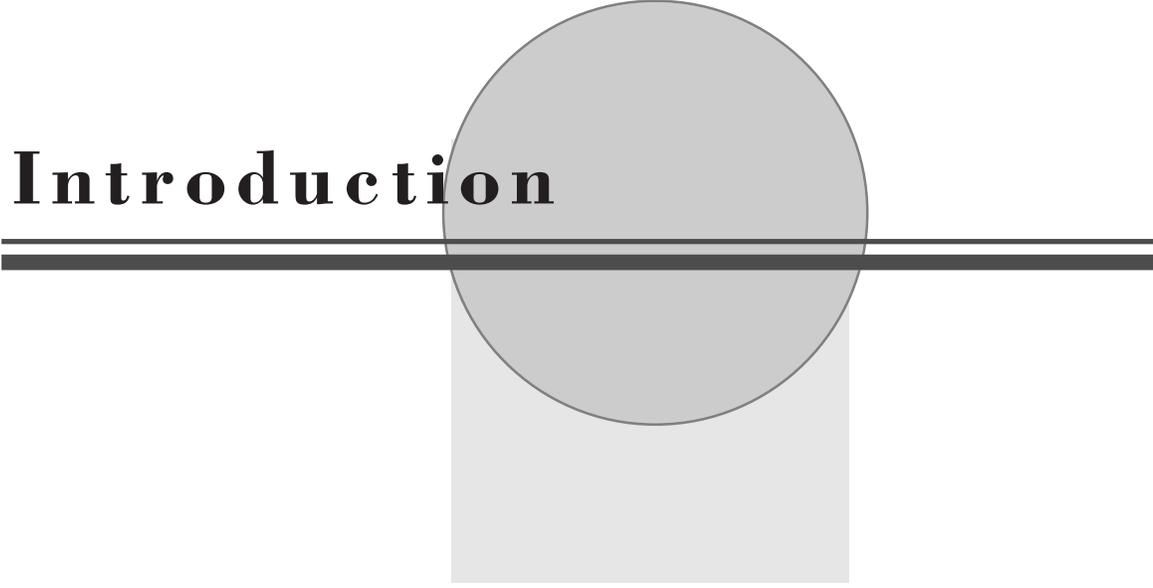# Introduction

Introduction

The designed world doesn't suit anyone perfectly. At times, we all have problems with the spaces we live in and the products we use. Designers are trained to design for a mythical "average" group of people, but in fact this group does not exist. Every individual is unique and as a group, the human species is quite diverse.

It is possible to design a product or an environment to suit a broad range of users, including children, older adults, people with disabilities, people of atypical size or shape, people who are ill or injured, and people inconvenienced by circumstance. This approach is known as universal design. Universal design can be defined as *the design of products and environments to be usable to the greatest extent possible by people of all ages and abilities*. Universal design respects human diversity and promotes inclusion of all people in all activities of life.

It is unlikely that any product or environment could ever be used by everyone under all conditions. Because of this, it may be more appropriate to consider universal design a process, rather than an achievement.

Disability is a common condition, and more pervasive than many people realize. Most likely, everyone will experience disability in his or her lifetime, even if only temporarily. According to 1994-95 data from the US Census Bureau's *Survey of Income and Program Participation* (SIPP), 1.8 million people ages 6 and over used a wheelchair that year, and 5.2 million people used a cane, crutches, or a walker for six months or more. 8.8 million people had difficulty seeing the words and letters in ordinary newsprint even when wearing corrective lenses, and 1.6 million could not see such words and letters at all. 10.1 million people ages 6 and over had

difficulty hearing what was said in a normal conversation with another person, and 1.0 million were unable to hear at all (McNeil, 1997).

Cognitive impairments are not visible but affect many people. It is estimated that at the end of 1994, among the population aged 21 to 64 years, 6.0 million people in the United States had a mental disability. Of the 35.0 million children aged 6 to 14 years, 2.2 million had difficulty doing regular homework, 1.5 million had a learning disability, and .5 million had a developmental disability (McNeil, 1997).

Disability increases with age for natural reasons and as a result of external causes. Many people, especially older adults, deny having a disability because of the perceived social stigma identified with being disabled. Disability, however, is a common and normal part of life.

While some individuals have chronic conditions, anyone may be temporarily disabled. For example, a broken leg, a sprained wrist, the flu, pupils dilated for an eye exam, or the lasting effects of a loud concert are temporarily disabling conditions. Also, circumstances such as poor lighting, high noise levels, adverse weather conditions, carrying packages, wearing bad shoes, or visiting a country where natives speak a different language affect people's physical, sensory, and cognitive abilities. In addition, nearly everyone knows someone with a disability, and as a result, our lives are affected indirectly, as well, by products and environments that fail to accommodate limitations.

Concern for usability may be the next frontier in design, one that will set apart competitors in upcoming decades. Longer lifespans and higher survival rates for people with severe injuries and illnesses mean more people are living with disabilities now than at any time in history, and the number is increasing. Universal design will become even more important as these trends persist and the average age of the world's population continues to climb after the turn of the century. Fortunately, the practice of universal design is

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becoming more sophisticated each year as understanding, guidelines, examples, teaching strategies, design experience, and marketing skills evolve.

This book presents an in-depth introduction to the concept of universal design and serves as a guide for persons studying the field and for individuals evaluating current designs or creating new ones. Chapter 1 offers a brief history of universal design and Chapter 2, an overview of the diversity in human abilities. Chapter 3 introduces The Principles of Universal Design (The Center for Universal Design, 1997) and offers examples of each Principle in practice. Chapter 4 presents case studies of successful universal design application.

The information contained in this book was gathered as part of a research and demonstration project titled "Studies to Further the Development of Universal Design." The project, funded by the National Institute on Disability and Rehabilitation Research of the U.S. Department of Education, evaluated consumer products, architectural spaces, and building elements to identify performance characteristics and features that make products and environments usable by the greatest variety of people. The project also developed a series of case studies that document the process by which selected products and environments were created, from preliminary design to execution.

The challenge inherent in the universal design approach should be taken as an inspiration for good design and not an obstacle. The examples and case studies included in this book serve as proof that designing universally can be an achievable, worthwhile, and rewarding enterprise.

References

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McNeil, J.M. (1997). Americans with disabilities: 1994-95. US Bureau of the Census *Current Population Reports*, P70-61. Washington, DC: US Government Printing Office.