

GERONTECHNOLOGY

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Growing Old in a Technological Society

Edited by

GARI LESNOFF-CARAVAGLIA, PH.D.



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PREFACE

Awareness of the potential role of technology to extend the independence of older adults has grown significantly in the past decades. As two critical trends converge—the global aging of the older population and the rapid acceleration of technological development—they will have a marked effect upon all spheres of human experiencing. The presence of an increasingly older population calls for a reevaluation of the meaning of life, death, and the quality and nature of human experience. Aging does not occur in isolation but is a reflection of societal attitudes and resulting practical outcomes. Such practical responses are principally the purview of engineering, technology, and the biomedical sciences. The societal attitudes represent the ethical, philosophical, and social bases of the culture. Together they provide the inevitable link between the fields of gerontology and technology: Gerontechnology.

Gerontechnology, as an expression of the practical and the theoretical, forces an examination of the contemporary world, its immediate needs, and future trends. For gerontologists this has meant a conscious assessment of the role of technology in the ameliorating, prolonging, and concluding of human life. For engineers and developers of technologies, the presence of increasing numbers of persons over the age of 65 has forged a new vision of the role of technology in the practical pursuit of healthy and rewarding long life.

The six sections of the book detail this relationship. The first two chapters of Part I describe the multifaceted convergence of technology and aging, as well as the problems and challenges it presents. Part II serves as an introduction to both gerontologists and engineers to the nature of the aging process and potential areas of technological intervention. These four chapters cover the age-related changes due to disease or senescence inherent in human aging and outline specific health issues. The effects of lifestyle and the environment upon gerontechnology are given particular attention.

Part III addresses the problems and processes of invention, particularly ergonomics, which lead to the development of technologies specifically designed for the enhancement of the lives of the older population. The chapter on interventions and modifications of the environment has particular significance for the altering of the human environment in ways that can complement and enrich the experience of growing older.

Major factors in successful aging are the special senses, specifically vision and hearing. Part IV explores the range of sensory interventions currently available, as well as describing those that hold promise for future older populations. Chapters in Part IV explore problematic issues and innovative methods for their resolution.

Part V focuses on automation through the employment of robots and advanced forms of transportation. The utilization of robots to increase the independence of older persons is the subject of Chapter 11; while in Chapter 12, personal mobility, as well as technological assistive mobility devices are given attention. Issues of transportation are discussed from the perspectives of their effects upon lifestyle and well-being. Both chapters delineate areas of future research efforts.

In the closing section, Part VI, Chapter 13 is devoted to discussion of information processing communication, an essential ingredient in the growth and direction of Gerontechnology. The final chapter examines the effects of the constant and continuing interplay between technology and aging. It also analyzes human experience from the perspective of the extraordinary framework for living provided by the growth of an aging population and the advanced technologies which have led to the conceptualization of *Gerontechnology*.

The prevalent belief is that all aspects of human life should be open to their potential realization by all persons, regardless of age. Consequently, age, in and of itself, is not a condition for determining the breadth or scope of life experience. Thus, Gerontechnology may be viewed as directly providing new life and new opportunities to those reaching advanced ages—the herald of a new age for all men and women.

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Gari Lesnoff-Caravaglia, Ph.D.

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GERONTECHNOLOGY

PART I

Chapter 1

GERONTECHNOLOGY: THE LINKING OF GERONTOLOGY AND TECHNOLOGY

GARI LESNOFF-CARAVAGLIA

INTRODUCTION

The application of technology to gerontology is not simply the enlisting of current methods to alleviate existing problems. The response must be a revolutionary conceptual view that takes into account the fact that the coupling of an aging population with the advances of science and technology herald a new frontier.

The designing and marketing of new technologies and assistive devices to enhance the independence of the elderly is, in itself, a radical departure from the long-held position of regarding the elderly as a group that would not be the major target for expensive medical, engineering, environmental, or lifestyle interventions. The old were to continue to grow old and to gradually die. Intervention was not regarded as critical. The illnesses of old age were of natural causation and were to take their course. This stance is well illustrated by the overworked statement: What do you expect at your age? To decline was natural, to experience sensory loss was unavoidable, and to become increasingly dependent upon family and society was an unfortunate inevitability.

The view that older persons could and preferred to remain active and productive, and would actively seek health counsel and aid in order to become advocates on their own behalf, has caught the world by surprise. It appears that a futuristic prediction has come true. Many such futuristic predictions, however, did not take into account an increasingly older and healthier population that would alter the nature of aging.