

 Wharton School Publishing

**TURNING
LEARNING
RIGHT
SIDE
UP**



PUTTING EDUCATION BACK ON TRACK

RUSSELL L. ACKOFF • DANIEL GREENBERG

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Publishing as Wharton School Publishing
Upper Saddle River, New Jersey 07458

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Printed in the United States of America

First Printing June 2008

ISBN-10 0-13-234649-4
ISBN-13 978-0-13-234649-8

Pearson Education LTD.
Pearson Education Australia PTY, Limited.
Pearson Education Singapore, Pte. Ltd.
Pearson Education North Asia, Ltd.
Pearson Education Canada, Ltd.
Pearson Educación de México, S.A. de C.V.
Pearson Education—Japan
Pearson Education Malaysia, Pte. Ltd.

Library of Congress Cataloging-in-Publication Data

Ackoff, Russell Lincoln, 1919-

Turning learning right side up : putting education back on track /
Russell L. Ackoff and Daniel Greenberg.

p. cm.

Includes bibliographical references.

ISBN-13: 978-0-13-234649-8 (hardback : alk. paper)

ISBN-10: 0-13-234649-4 (hardback : alk. paper) 1. Education—Aims and objectives. 2. Education—Philosophy. I. Greenberg, Daniel A. (Daniel Asher), 1934- II. Title.

LB41.A184 2008

370.1—dc22

2007038247

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Preface:

Why, and How, This Book Was Written

When we first met at a conference devoted to learning in the twenty-first century, we were delighted to find ourselves deeply in sympathy with each other's approach to education. We had each spent long years with people of all ages and in a variety of different environments—schools, universities, businesses (large and small), nonprofit organizations—espousing views that were for the most part considered radical and unrealistic. We had each endeavored to turn our dreams into reality, and we had each enjoyed enough support and success to encourage us to carry on.

But we had never crossed paths, either directly or indirectly. We soon discovered our common interests, our shared goals, and the widely divergent paths that our lives had taken. We soon became friends.

One day, we began to discuss a certain subject of mutual interest. Because we lived too far apart to meet regularly face to face, we resorted to writing each other. Because of the ease of e-mail, our exchange became, from the outset, a conversation, a rapid exchange of ideas, albeit in written rather than oral form.

The more we chatted through e-mail, the more we delved into the aspects of education that had engrossed us throughout our lives.

Eventually, this book emerged—a book we believe could be of interest to others who have struggled with the same problems.

We wanted, in the body of this book, to keep our unique voices and approaches distinct and obvious to the reader. What you will see is the actual conversation we had, rather than an amalgamation and homogenization of two separate worldviews. In each chapter, our separate views have been set off by icons to enable readers to distinguish our “voices.” However, in the final section of the book, which is about our vision of ideal education, we found that we could speak with one voice, undifferentiated.

We have derived immense pleasure out of our collaboration in this venture. We hope you, the reader, will enjoy eavesdropping on our conversation.

Introduction: What Education Is About

To me education is a leading out of what is already there in the pupil's soul. . . . [P]utting in of something that is not there . . . is not what I call education, I call it intrusion.

—Muriel Spark



Before beginning a discussion about educational practices, it is necessary to step back and determine the central purpose of the educational enterprise. Without a clear understanding of the goals of education, it is impossible to make sensible suggestions about institutions that implement those goals.

Usually, when this subject is raised, it is dealt with through some general statement such as the following: The purpose for which schools exist is to prepare children for life in the complex world of today. The equation of education with schools, the presumption that education deals primarily with children (or with adults who have inadequate skills, and are “childlike” in this regard), and the tacit assumption that everyone knows what specific knowledge is needed in today’s world—all these are treated as self-evident, and the discussion quickly moves on to details of implementation, covering such matters as curriculum, assessment, pedagogy, and current child and adult development theories.

For example, the *American Heritage Dictionary* defines education as “the act or process of imparting knowledge or skill; systematic instruction; teaching; . . . schooling.” How far this current definition of the term strays from its original meaning can be seen from the shorter *Oxford English Dictionary*, which begins with the definition “the process of nourishing or rearing,” and refers to the Latin verb *educere*, from which the English word is derived, which means “to lead out,” “to bring out,” “to elicit,” “to draw forth.”

In fact, this is the meaning on which ancient Greek philosophers focused. For them, education was a lifelong process of drawing forth from within each person the full potential that lay within them. Where this potential

comes from was a matter of myth, and remains, for us today, a matter of mystery. Nevertheless, the existence of some central purpose to each person's life has been a cornerstone of American thinking from the early days of the Republic. For our Founding Fathers, the notion that every human being had the "unalienable right" to "the pursuit of happiness" lay at the very core of the justification for establishing this country. This "right" meant, for them, the right to find, pursue, and realize the reason for their own existence, which gives their lives meaning, and from which they can extract satisfaction. The declaration of such a right set our fledgling nation apart from all other nations and became one of the key elements of our country's unique form of liberal democracy that has, over the intervening centuries, come to appeal to an ever-increasing number of people around the world.

For us in America, education from the outset meant the process of discovering, in each and every one of us, the meaningful endeavors to which we are willing to devote ourselves with unflagging energy, given the opportunity to do so. For us, the creation of a polity that promotes order, tolerance, peaceful coexistence, and hope for the future depends critically on the establishment of an environment in which each of the individuals who constitute the polity has been given the greatest possible opportunity to "pursue happiness" in his or her personal life. It is essential to understand this, and to keep it in the front of our consciousness when discussing education in America today.

There are several consequences to this understanding. Perhaps the most obvious is that education is, by its very nature, not a process limited to, or even primarily revolving around, childhood. It is a lifelong enterprise, and it is a process enhanced by an environment that supports—or, more precisely, "nourishes"—to the greatest extent possible the attempts of all people to "find themselves" throughout their lives. As discussed throughout this book, the dawning twenty-first century provides, in this respect, avenues that have never been hitherto available to the human race.

Something else to contemplate is the following question: Why have children been separated out as the primary objects of education in our society? Has this always been the case? If not, how has it come about, and what is the outlook for the future? In particular, is this development related to the migration of the term education from "lead forth" to "schooling"?

Actually, we know the answers to these questions. Mass schooling for all children is a recent phenomenon, a little over a century and half old. A million years of human history transpired without sending all children to formal schools—a million years during which all the world’s rich cultures of prehistoric times, the ancient and medieval worlds, the Renaissance, and early “modern” times were formed, developed, and passed on. A million years during which the overwhelming majority of people lived in small, rural or tribal settings, where children from a very tender age indeed became an integral part of the larger community.¹

Schools for children became an important feature of societies where the Industrial Revolution took hold, together with a comprehension of the challenge that industrialization might pose to the social fabric. In our modern world of computers and robotics, we tend to forget that during the first two centuries of industrialization, machines designed to produce goods at a staggering rate never before achievable through manual efforts were actually rather stupid: Their successful operation depended on the intimate conjoining of human effort to machine power. People had to perform as parts of machines—with precise, repetitive, mind-numbing action.

For societies accustomed by long tradition to having a large downtrodden underclass—such as those of Western Europe—it was not much of a challenge to transform traditional forms of servitude to the newer servitude to the machine and the company owner. For the United States, the situation was touchier. Here, a culture declaring itself to be the protector of individual liberty, and affording seemingly boundless opportunities for the expression of personal freedom, the challenge of creating a large, docile population that would accept the dominance of the factory system in their lives was enormous.² In the first decades of the nineteenth century, it became clear that the only way to succeed with industrializing (and hence modernizing) this country was to find a way to break the inherently free human spirit during childhood.

This was no secret, sinister conspiracy against humanity. On the contrary, it was a project discussed openly and candidly by the leading American thinkers of the day, who set out to create an environment for children in which they could be forcibly trained to be obedient, to follow orders, and to perform highly monotonous tasks without rebelling. What amounted to incarceration of children during a period of indoctrination and training was explained as a necessity for their own future good—for their

own prosperity, for the prosperity of the country, and for the benefit of a glowing destiny for their progeny.

The founders of modern mass schooling decided, in addition, to use the time children spent in school to impart to them, through endless drill, some skills that were deemed useful in a thriving industrial environment. The three Rs—reading, writing, arithmetic—were seen to provide a work force that could understand basic instructions, engage in rudimentary written communication, and perform simple office functions, thus creating the most skilled mass workforce in the world.

The success of mass schooling in this country was dramatic, by industrial standards. From a provincial backwater, America rapidly marched to the forefront of industrial powers, reaching unheard-of levels of production and wealth. The mass schooling methods of child education thus appeared to be vindicated and became models for the developed world.

When we are discussing the creation of an ideal educational environment, the fundamental question before us is this: Can the root meaning of education, as a lifelong process of self-discovery, be restored in a liberal democracy such as ours in the twenty-first century? If it can, what transformations does that demand in our present culture?



Education, as currently provided, has many objectives, some conscious and some not. One objective seldom raised to consciousness is to ensure maintenance and preservation of the status quo—to produce members of society who will not challenge any fundamental aspects of the way things are. Students and teachers may be aware of the possibility of—and even favor—certain improvements, but these tend to be ones that are small and incremental, not fundamental. Some well-known aphorisms reflect this: Let well enough alone, don't rock the boat, and let nature take its course. When action is required, people tend to look for the least that needs to be done to take care of the problem.

Education has the objective of giving meaning to the lives of the students. This requires making them aware of the value they can create for others, how they can be useful to and be valued by others. This objective is enclosed in what I believe should be the primary objective of education:

to enable students to develop and be able to contribute to the development of the society of which they are part.

Unfortunately, development and growth are commonly treated as synonyms. They are not the same thing. Either can take place without the other. Rubbish heaps grow but do not develop, and Einstein continued to develop long after he stopped growing.

Growth is an increase in size or number. The amount of resources one has available can grow and is reflected in standard of living. Development is not a matter of how much one has but of how much one can do with whatever one has. This is reflected in quality of life. Robinson Crusoe is a better model of development than J. Pierpont Morgan.

To develop is to increase one's desire and ability to satisfy one's own needs and legitimate desires and those of others. A legitimate desire is one the satisfaction of which does not reduce the desire and ability of others to develop.

Development is a matter of learning, increasing one's competence. Therefore, because one cannot learn for another, the only kind of development that is possible is self-development. Others, like the educational system, can and should encourage and facilitate the self-development of students.

Development has four aspects: scientific, economic, ethical, and esthetic. Science consists of the pursuit of understanding of natural phenomena. Technology is the application of the products of science, and education is the principal means by which the outputs of science and technology are disseminated. The economy is concerned with the pursuit of plenty, making available the resources that enable people to use the outputs of science and technology. Ethics is concerned with the pursuit of the good, peace on Earth and peace of mind. This implies doing nothing to obstruct the development of others (to the contrary, promoting it). Esthetics is concerned with the pursuit of beauty and fun—the products of creative and recreative activities. Together, these four aspects make possible the continual pursuit of development, which strives toward a goal, “omni-competence,” that can never be attained. However, one can always come closer to it.

Put another way, education has both extrinsic and intrinsic functions. Its extrinsic or instrumental function is to encourage and facilitate the development of students and help make them helpful to others and self-supporting members of society. It should enable them to learn what they

need to know and understand to make a living and contribute to the survival of the communities of which they are part. Education's intrinsic function is to enable its subjects to derive satisfaction from activities that have no instrumental value—cultural and recreational activities such as enjoying music, art, and literature and engaging in recreational games.

Industrialization and urbanization in the United States were brought about primarily by scientific, technological, and economic advances early in the nineteenth century. Because of this, education has focused on these aspects of growth and development and given little attention to ethics and esthetics. As a result, the Industrial Revolution did a great deal of harm and created a great deal of ugliness, both of which we tend to overlook or underestimate.

In the early part of the nineteenth century, the United States was a nation of widely dispersed farms and small villages; it did not have markets large enough to support industrialization. Unlike Europe, which already had population concentrations in close geographic proximity, industrialization in the United States required two technological developments before it could take place: first, transportation that aggregated small towns and villages into larger markets, which occurred with the development of railroads; second, the ability to communicate among markets rapidly and effectively. This was accomplished by the invention of the telegraph, followed by the telephone and wireless devices.

Machines that replaced man as a source of energy, replaced his muscle, became the idols worshiped at the time. This was set forth graphically in the work of Frederick W. Taylor,³ who by analysis reduced manual labor to simple elementary tasks that required repetitive machine-like behavior from unskilled laborers.

As industrialization progressed, work and the mechanization associated with it became more complex. More skill and knowledge were required from workers. Schools extended their offerings into the challenge. Technical and professional schools emerged and flourished. Also, as industrialization expanded, and particularly with the demand for labor during the world wars, women were drawn into the workplace. They were liberated; children were left in the care of others and the educational system. This imposed on schools a new function: "baby (and older child) sitting."

The economic success of mechanized production raised the concept of the factory to an elevated position in society. It suggested to educators

that they design and operate schools as much like factories as possible. Students came to be thought of as raw material to be processed mechanically into “salable” finished products.

Our society has now entered another era called, among other things, the post-industrial era. The educational system has yet to catch up with this transformation. Perhaps the essence of this transformation was best capsulized by Einstein when he wrote, “One should guard against preaching to young people success in the customary form as the main aim in life. The most important motive for work in school and in life is pleasure in work, pleasure in its result, and the knowledge of the value of the result to the community.” Such a universal statement could only have been made in a post-industrial world.

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