Creative Intelligence in the 21st Century
Grappling with Enormous Problems and Huge Opportunities

Don Ambrose
Rider University, USA

and

Robert J. Sternberg (Eds.)
Cornell University, USA

How can creative individuals and societies adapt to complex 21st-century conditions? Will civilizations thrive or collapse in the decades to come if they are not creative enough, or if they are too creative? Interest in these questions is growing; however, until now there has been inadequate understanding of the socioeconomic and cultural trends and issues that influence creativity. This book provides that understanding while yielding insights from many of the world’s leading creativity researchers and educational experts. The book begins with a big-picture, interdisciplinary overview of the socioeconomic, cultural, and technological pressures emerging from 21st-century globalization and describes some ways in which those pressures simultaneously suppress, distort, and invigorate creativity in general, and creative education in particular. After that, prominent scholars of creativity and education use their impressive knowledge bases to clarify how we can adjust our thoughts and actions in order to give ourselves the best possible chances for success in this complex world.

“The world’s problems are complex, messy, and seemingly intractable, but history tells us that human creativity finds solutions to even the most daunting problems. This book collects perspectives on creative development from many of the most respected scholars and educators working in creativity and innovation today, helping chart a path forward for creativity in the 21st century.” – Jonathan Plucker, Julian C. Stanley Endowed Professor of Talent Development, Johns Hopkins University

“A volume taking on macro-opportunities and macroproblems by editors Ambrose and Sternberg is a treat for readers who want to think ‘big’ and think ‘forward.’ Kick back for an imaginative journey that reaches back to early global insights but propels us solidly into the 21st century and beyond.” – Ann Robinson, Past President, National Association for Gifted Children
Creative Intelligence in the 21st Century
Advances in Creativity and Gifted Education (ADVA) is the first internationally established book series that focuses exclusively on the constructs of creativity and giftedness as pertaining to the psychology, philosophy, pedagogy and ecology of talent development across the milieus of family, school, institutions and society. ADVA strives to synthesize both domain specific and domain general efforts at developing creativity, giftedness and talent. The books in the series are international in scope and include the efforts of researchers, clinicians and practitioners across the globe.

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Creative Intelligence in the 21st Century

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Foreword by Joseph S. Renzulli

Edited by

Don Ambrose
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SENSE PUBLISHERS
ROTTERDAM/BOSTON/TAIPEI
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FOREWORD

Stream of Consciousness on Creativity, Globalization, Technology, and What Is Happening in a Rapidly Changing World

Nothing endures but change.

(Heraclitus)

There I sat. Thirty thousand feet above the North Pole looking at the New York Times, watching the moving map on my personal TV screen, checking my email, and munching on a meal that was actually cooked on the plane. Fourteen hours to Hong Kong just crawled across the bottom of my TV. I wondered how long it took Marco Polo to get to China and what Wilber and Orville would have thought about flying from JFK to Hong Kong in 14 hours, inflight TV and Internet, and the meals cooked and served on planes. Their first flight was 59 seconds, went up about 14 feet, and covered 40 yards. I’m glad Orville lived long enough to see big four engine planes fly across the Atlantic.

We’re flying the same route flown by Korean Airlines 007 when a Russian missile shot it down in 1983 – Missiles! Creativity? Technology? Thank goodness the Cold War is over but an article in today’s Times described some bad news – an alleged H-Bomb and missile test by the North Koreans. More creativity and technology gone astray! I hope my plane is well outside their air space. I wonder what the emperors who built the Great Wall would have thought about their defensive technology.

But another article in today’s Times reported some good news – the FDA just approved a new drug developed by a Chinese/American team of researchers for the treatment of melanoma. Good news for me since my annual PET scan is coming up. Nice example of the best use of creativity and international cooperation. Will technology improve what happens on this ever-shrinking globe or help us destroy it? Almost a third of the Earth’s population is in China. Imagine if the creative potential of this massive country could be unleashed. Maybe they would figure out the definitive cure for melanoma and all other cancers. One thing is for certain – creativity and innovation and technology and globalization touch everyone’s lives every day. Small world! Back to work. I need to finish the chapters that Don and Bob sent me so I can write a preface for their books.

Educational policy makers in China have finally come to the realization that their relentless pressure to produce the highest test scores in the world needs to be balanced
with curricular and instructional strategies that promote creativity. One high ranking official said to me, “We can make anything you Americans invent faster, cheaper, and in many cases better, but we want more inventors and innovators and Nobel Prize winners.” I wondered if those fancy UCONN pens I brought as gifts for my hosts were made in China! The persons who invited me said they wanted to “pick my brain” on better ways of promoting and infusing more teaching for creativity and innovation into the Chinese education system. I sometimes wonder if the more I learn about topics like creativity, globalization, and technology the less certain I am about what can be done to infuse good practices into what happens on a day-to-day basis in classrooms around the world. Glad I’m reviewing chapters that take on the interrelationships between and among these multifarious concepts – some ideas are starting to come together.

These random thoughts plowed through my brain as I turned off my in-flight TV and started to read another chapter from the books that Don and Bob asked me to review. This pioneering two-book series wraps its arms around all of the big ideas and issues that define the study of creativity, globalization, and a modern world that is changing at warp speed. As most of the chapter authors in the book point out, creativity, globalization, and technology have brought into perspective the numerous political, social, economic, and human relations issues that define the 21st Century. And undoubtedly, what was most important to me is that educators at all levels, from policy makers, researchers, and school administrators to curriculum developers, counselors, psychologists, and classroom teachers, will find ideas and issues in these books that pertain to the research, theory, and practice that guide educators in making schools more effective places for young people.

The editors of this series have brought together a diverse group of the most prominent contributors to the literature in creativity, giftedness, curriculum development, the arts, talent development, and literacy. The books integrate the complex and diverse elements of these topics with the overriding themes of creativity and globalization. The sheer scope and detail of information about issues in each author’s respective area of specialization is almost overwhelming and it made me both think about my own work and things that need to be reexamined in view of the “macroproblems” that we face in a rapidly changing world and the need for interdisciplinary work in fields that have for too long have been studied in isolation. It certainly made the many disparate ideas in my brain, ideas that have appeared, disappeared, and reappeared in the literature over the decades, crash through my mind and I wondered what would be the best things to say in this preface.

No one sits down and reads books like this from cover to cover, but there is something in these two volumes for everyone. I suggest that readers begin with the introductory chapters of both books. These “big picture” focus chapters synthesize insights from over thirty academic disciplines. The overviews will help you understand the impact of globalization on the life prospects of today’s young people and will also help you make decisions about which chapters are most relevant to your own work. The interdisciplinary nature of macroproblems such as climate
change, economic inequality, and political turmoil set the stage for addressing macro-opportunities, which are unprecedented circumstances that can lead to significant advances in well-being for billions of people around the world. A focus chapter includes a 3-D model portraying globalization as an enormous wave with macro-opportunities on top and macroproblems on the underside of the wave. If we develop the knowledge, skills, and dispositions required for dealing with the complexities of 21st-century trends and issues, we may be able to leap to the crest of the wave and capitalize on the macro-opportunities. If not, we may be crushed underneath the wave by a combination of macroproblems. A part of the analysis highlights arguments about societal collapse generated by scholars in 15 different disciplines. Each of these prominent scholars argue that current conditions could lead to the collapse of societal institutions some time in the 21st century.

The stream of consciousness prompted by reviewing chapters in these two volumes made me realize that today’s world is a much different place than it was when most of the theories that guide today’s education system were developed. The only thing that has remained constant is change, and the focus of these two unique volumes will help you, as it has helped me, see that to move forward with new ideas we must consider change within the larger context of creativity, globalization, technology, and the interdisciplinary nature of knowledge. The stream of consciousness also reminded me that creativity, globalization, technology, and what takes place in the larger world affects every one of us every day and that is a good thing. We all live on the same planet and we all have a responsibility to contribute our gifts and talents to making this small planet a better place.

Joseph S. Renzulli
The University of Connecticut
SECTION I
RECOGNIZING POWERFUL CONTEXTUAL INFLUENCES ON CREATIVE INTELLIGENCE
1. PREVIEWING A COLLABORATIVE EXPLORATION OF CREATIVE INTELLIGENCE IN THE 21ST CENTURY

It’s possible that the remainder of the 21st century will clarify the extent to which physicist and public intellectual Michio Kaku (2011) was correct when he posited the *caveman principle*:

Genetic and fossil evidence indicates that modern humans, who looked just like us, emerged from Africa more than 100,000 years ago, but we see no evidence that our brains and personalities have changed much since then. If you took someone from that period, he would be anatomically identical to us: if you gave him a bath and a shave, put him in a three-piece suit, and then placed him on Wall Street, he would be physically indistinguishable from everyone else. So our wants, dreams, personalities, and desires have probably not changed much in 100,000 years. We probably still think like our caveman ancestors. (p. 13)

The caveman principle raises questions about the extent to which violence and dominance have plagued humanity from prehistoric times up to the present. There have been some arguments in archaeological circles about this. The emerging consensus is that, in terms of collective behavior, we’ve always had mixed inclinations ranging from violent, hierarchical dominance all the way through collaborative, ethical caring (see Knüsel & Smith, 2014). So Kaku’s Cro-Magnons likely would have been just as plagued by periodic eruptions of destructive behavior as modern population groups. A crucial difference is that their destructive behaviors would have generated negligible impact on the world whereas the technological power we have amassed in just the last few decades magnifies our harmful impact to the point where we might destroy the biosphere itself.

If we manage to think creatively and critically enough to master the enormous problems we face today (e.g., climate change, the erosion of democracy, resource shortages) while simultaneously capitalizing on today’s exciting opportunities (e.g., international scientific networking, the growing power of technology), humanity can claim to have refuted the caveman principle by the dawning of the 22nd century. If instead our globalized socioeconomic and cultural systems deteriorate or even collapse, it will look like the caveman principle was at least a somewhat credible
construct. Or, possibly we will manage to muddle through and end up with some mixture of successes and failures by the time the year 2100 rolls around.

Based on interdisciplinary explorations and collaborations that kept turning up huge socioeconomic and cultural problems and opportunities and their connections with creativity, giftedness, and talent development (see Ambrose, 2009; Ambrose & Cross, 2009; Ambrose & Sternberg, 2012; Ambrose, Sternberg, & Sriraman, 2012; Sternberg, 2014; Sternberg & Jordan, 2005; K. Sternberg & R. Sternberg, 2012; R. Sternberg & K. Sternberg, 2008), we decided it would be wise to explore the ways in which creative intelligence might be interacting with 21st-century globalization, which is the biggest contextual influence of our time. Consequently, we designed this project involving far-reaching, interdisciplinary analyses of globalization and the high-impact trends and issues it is generating. We invited leading thinkers from the fields of creative studies, gifted education, and general education to respond to an interdisciplinary focus chapter on globalization (the next chapter in this volume) from their areas of expertise. Those analyzing globalization through the lenses of creativity research and theory joined us in the formation of this book. Those doing a similar analysis through the lenses of gifted education and talent development clustered together as contributing authors for a sister book on gifted education (Ambrose & Sternberg, 2016). Taken together, these two projects align with recommendations from leading scholars of creativity and giftedness who envision the need for the development of stronger creative capacities and ethical wisdom so bright young people will be more able to grapple with the complex challenges of the 21st century (see Gardner, 2012; Gardner, Csikszentmihalyi, & Damon, 2001; Reis & Renzulli, 2010; Renzulli, 2012; Sternberg, 2013, 2014).

SOME BIG ISSUES TESTING OUR CREATIVE INTELLIGENCE

Why is interest growing in topics like these? We are in unprecedented times featuring a daunting array of issues. For example, accelerating human impact on the biosphere over the last couple of centuries has encouraged a growing number of scholars to claim that we are living in a new era known as the anthropocene (Brown & Timmerman, 2015; Dirzo et al., 2014; Rockström et al., 2014). Instead of simply crawling around on the surface of the planet, we are now manipulating its biospheric controls and shaping the prospects for life on Earth over the long term. Moreover, this shaping is extremely powerful, complex, and worrisome. In the words of environmental economists, Brown and Timmerman (2015); “Climate change is unlike any other environmental problem, really unlike any other public policy problem. It’s almost uniquely global, uniquely long-term, uniquely irreversible, and uniquely uncertain—certainly unique in the combination of all four” (p. 7). But not to worry. A prominent politician brought a snowball into the U.S. Senate and threw it to a colleague to prove that it was cold outside so global warming isn’t an issue. Caveman principle, anyone?
While climate change is an enormous 21st-century problem, some other issues have been calling out for our attention. Growing socioeconomic inequality within and between nations is one of them. Political scientist Marie Gottschalk (2015) provided a detailed description of “a new war on the poor” and the accompanying criminalization of poverty. “The US incarceration rate of 730 per 100,000 is still the highest in the world and rivals the estimated rate [at which] citizens of the Soviet Union were being sent to the gulags during the final years of Stalin’s rule in the early 1950s” (p. 8). Almost all of the 2.2 million serving prison sentences are poor and a large portion of them are serving very long sentences for minor crimes. An additional 8 million are under some other forms of state control, such as probation or parole. While the problem of severe inequality is most pronounced in the United States, in comparison with other developed nations, it is a growing phenomenon around the world (Wilkinson & Pickett, 2009).

In stark contrast with the war on the poor, economist Joseph Stiglitz (2010, 2012) detailed how a much smaller number of clever but selfish, shortsighted, privileged key players in the financial system manipulated our political regulatory apparatus and gambled with the assets of millions of trusting investors to the point where they precipitated the 2008 economic collapse, which did enormous damage to the well-being of billions around the world. Instead of being incarcerated for these actions, which were far more harmful than those carried out by the vast majority of those languishing in the massive prison system, these corrupt financial gamblers walked away with enormous bonuses largely paid for by taxpayer funded bailouts.

TWO-SIDED ATTRIBUTES FOR CREATIVELY DEALING WITH 21ST-CENTURY GLOBALIZATION

The issues brought forth by 21st-century globalization are so numerous we can’t deal with all of them here. At this point in our analysis, suffice it to say that globalization has created unprecedented economic and technological opportunities along with massive, complex problems with enormous destructive power. A more comprehensive treatment of these opportunities and problems appears in the next chapter of this book. For now we foreshadow some of the contents of the volume by taking a brief look at a few human attributes that can help us deal with complex, widespread socioeconomic and cultural issues. Table 1 includes a number of these attributes in the left-hand column. The second column briefly mentions how each attribute can help us solve today’s enormous problems and capitalize on big opportunities. The third column of the table suggests some ways in which each of these attributes has a flip side that can do significant damage, undermining our efforts or even causing far more harm than good. The brief analyses that follow the table describe the potentially beneficial and harmful effects in a little more detail. These are just a few examples. Many more could have been included and others will show up in the remaining chapters of this volume.
Table 1. Human attributes that can help or hurt our chances of surviving and thriving in the 21st century and beyond

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Beneficial side</th>
<th>Harmful side</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimism</td>
<td>Magnifying and capitalizing on big opportunities</td>
<td>The dangers of utopianism</td>
</tr>
<tr>
<td>Individualism</td>
<td>Recognizing individual aspirations and abilities</td>
<td>Egoistic individualism run amok</td>
</tr>
<tr>
<td>Diversity</td>
<td>Solving big problems through unpredictable creative associations</td>
<td>Identity group divisions divide and conquer us</td>
</tr>
<tr>
<td>Confidence, certainty, striving for precision</td>
<td>Incisive, analytic precision of the scientific method produces new tools for problem solving</td>
<td>Methodological overconfidence and the lure of completeness traps us in unified, insular, dogmatic idea frameworks</td>
</tr>
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</table>

Optimism

Beneficial side. We have to be optimistic if we are to make our way through the complexities of 21st-century globalization. Some of the issues are so complex and daunting that we will need to be extremely resilient, individually and collectively. Positive psychology is an area of scholarship that could be helpful in this regard (see Csikszentmihalyi, 2014; Seligman, 2012).

Harmful side. Optimism taken too far can mutate into a form of utopian thinking that can generate much more harm than good. For example, through studies of despotic regimes such as those led by Hitler, Pol Pot, Milosevic, and Stalin, historian Eric Weitz (2003) found that a utopian doctrine tends to form the ideological core of a strong state. The utopian ideology enables dogmatic, unscrupulous leaders to demonize and persecute minority populations in the name of ideological purity. Hitler’s invocation of the master race is a classic example. Dogmatic, utopian thinking is widespread and has persisted throughout human history so the harmful side of optimism is particularly nettlesome (see Ambrose, 2008; Gerard, Geuy Akers, Shen-Miller, Knežević, & Stankov, 2009; Johnson, 2004).

Recommendation. We never could afford to allow misguided utopian thinking to prevail but we can afford utopian demonization and manipulation even less in the context of 21st-century globalization. The pressing issues we face allow us far less room for these kinds of large-scale mistakes because utopian societies simply will not be able to deal with today’s complex global issues. So we must promote optimism, purpose, and resilience without allowing these positive attributes to crystallize into dogmatic, utopian ideological frameworks. Coming up with ways to accomplish
this will tax our creative intelligence to the maximum. Paying more attention to the ways in which dogmatism distorts creativity, giftedness, and talent development is a good starting point because dogmatic thought and action, especially among societal leaders, is at the root of harmful, utopian thinking (see Ambrose, 2008; Ambrose & Sternberg, 2012; Ambrose, Sternberg, & Sriraman, 2012; Gerard, Geuy Akers, Shen-Miller, Knežević, & Stankov, 2009; Johnson, 2004).

Individualism

Beneficial side. The discovery and pursuit of individual aspirations and the subsequent talent development aligned with those aspirations provides strong support for purposeful creativity over the long term (Gruber, 1999). Such purposeful development carried out by many collaborating individuals in many societies can generate a large number of innovations, some of which might help those societies solve the enormous problems of the 21st century and capitalize on unprecedented opportunities. Promising, emerging examples come from the online networking of purposeful individuals, each contributing unique pieces of “microexpertise” to solve complex technical, architectural, mathematical, and scientific problems that are resistant to solution by individuals or localized groups (see Nielsen, 2011). More detail about such networking is available in the next chapter of this volume.

Harmful side. Magnification of individualism has distorted our economic system, making it serve the frivolous wants of those born into privilege and the nefarious schemes of successful psychopaths who engage in harmful economic and other activity (e.g., dirty energy, creative distortions of the financial system…) in service of individualistic vainglory and riches. At the root of the problem is the homo economicus model from the neoclassical economic paradigm that dominates the field of economics and the globalized economic system to the point where a few powerful plutocrats benefit at the expense of the vast majority and short-term gain trumps long-term economic interests and the sustainability of the ecosystem (Chang, 2002; Madrick, 2014; Piketty, 2014; Stiglitz, 2010, 2012, 2015; Zucman, 2015). In the words of leading economist, Joseph Stiglitz (2010): "most of us would not like to think that we conform to the view of man that underlies prevailing economic models, which is of a calculating, rational, self-serving, and self-interested individual. There is no room for human empathy, public spiritedness, or altruism" (p. 249).

Recommendation. Paying too much attention to individualism can cause a society to allow a few powerful, unscrupulous individuals to distort the socioeconomic system, making it work in service of their own short-term goals while hurting the long-term interests of all. This is especially problematic because many of those in positions of power and privilege are inclined to be narcissistic, attributing their advantage to their own abilities while blaming those less fortunate for their desperate
circumstances (see Piff, 2013; Piff, Stancato, Côté, Mendoza-Denton, & Keltner, 2012). Conversely, excessive distorted forms of collectivism can suppress the aspirations and talents of individuals, as in Stalin’s Soviet system of the early to mid 20th century. We must develop and nurture the ability to recognize and support individualistic aspiration discovery and talent development while ensuring that such development doesn’t spin out of control and run roughshod over common interests. The emergence of a new kind of collective intelligence (see Malone & Bernstein, 2015) could be a sign that we are readying ourselves for this. In addition, more attention to ethical reasoning and the wisdom needed to attain a common good can strengthen the chances that the beneficial side of individualism will prevail over the harmful side (see Ambrose & Cross, 2009; Gardner, 2012, 2013; Gardner, Csikszentmihalyi, & Damon, 2001; Sternberg, 2009, 2013, 2014).

**Diversity**

**Beneficial side.** Diverse ideas and initiatives swimming together can generate the cognitive diversity necessary for collaborative solution of highly complex problems (see Page, 2007, 2010). If we can encourage and facilitate the intermixing of diverse economic, scientific, and cultural ideas, we might have a chance to build a stronger, more just socioeconomic system.

**Harmful side.** Various forms of diversity represent some of the biggest barriers to our survival and success in the 21st century. When our thinking is superficial, cultural, ethnic, and religious diversity give us powerful reasons to cluster into angry, fearful identity groups that are unwilling to cooperate and are quite willing to engage in devastating conflicts (Stark, 2003). Even those who are better informed and more considerate still may be prone to the denigration of various identity groups due to implicit biases against outsiders (Banaji & Greenwald, 2013). Class-based diversity in highly unequal populations provides reasons for de facto segregation and the creation of *empathy gulfs* (Shapiro, 2003) that relieve the privileged from caring about the fate of their “inferiors.” Our tendency to divide into diverse, conflicting groups, both culturally and economically, generates much of the dogmatism that plagues humanity.

**Recommendation.** The world is integrating rapidly as electronic networking and increasing international travel bring diverse people together far more than in decades and centuries past. Meanwhile, our problems require global collaboration with input from diverse groups in various geographic locales. For these reasons, we must find ways to recognize the human propensity for marginalizing and even demonizing outsiders while putting that propensity in its place – on the backstage of the human drama. If we can establish respect for differing cultural, ethnic, and religious traditions, we might be able to draw from diverse idea frameworks and integrate those contributions into solutions for our most pressing problems. In order
to establish this respect it will be essential to root out our implicit biases so we become aware of the ethnocentrism, racism, classism, sexism, and other forms of discrimination that have been constructed through experiences over long periods of time. Developing such deeper understanding can help us overcome this widespread, troublesome form of dogmatism (see Banaji & Greenwald, 2013).

Confidence, Certainty, and Striving for Precision

Beneficial side. Based on approximations of the scientific method, many academic disciplines within and beyond the natural sciences have generated productive positivist (quantitative-empirical) investigative paradigms that have led to helpful discoveries about the human condition. Working to generate, employ, and test falsifiable hypotheses (see Atkins, 1995; Popper, 1959) has led to advances in theory and research in most fields, thus giving us some valuable, precise tools for grappling with the big issues of the 21st century.

Harmful side. Excessive certainty sometimes turns into a form of dogmatism, such as the entrenched within scientific paradigms described by Kuhn (1962) and the lure of completeness articulated by physicist Hermann Bondi (1977). Both Kuhn and Bondi argued that we should not remain complacent about current knowledge structures and recognized the likelihood that new discoveries and theories usually emerge and modify or overturn the old. Some disciplines, notably economics and analytic philosophy, are prone to capture by the lure of completeness because they are (a) unified around a dominant theory, (b) insular because they resist interaction with ideas from outside their epistemological borders, and (c) firmly policed because the gatekeepers of the field automatically reject new work that does not fit the orthodoxy (see Ambrose, VanTassel-Baska, Coleman, & Cross, 2010; Bender & Schorske, 1997). If important academic disciplines mire themselves in the lure of completeness, we likely will be unable to generate new solutions to complex 21st-century problems.

Of course, overconfidence and excessive intellectual certainty are not confined to academia. Leaders in the professions often trap themselves within these forms of dogmatism as evidenced by the corporate infatuation with deregulated free markets. Leading economist Joseph Stiglitz (2010) called this infatuation market fundamentalism because radical free-market beliefs, especially in the financial industry, seem to be as impervious to evidence as is radical religious fundamentalism.

Recommendation. Dogmatism might be our biggest enemy in the 21st century because it confines us to narrow-minded, shortsighted, superficial thinking. In the case of disciplines trapped by the lure of completeness, the problem might not include superficiality because those disciplines go very deeply into the phenomena under study, at least by current standards of investigation. Nevertheless, unified, insular, firmly policed disciplines certainly can produce narrow-minded, shortsighted
thinking about complex problems, especially when those problems spread across the borders of academic disciplines, making interdisciplinary borrowing necessary. We have to find ways to resist premature closure in our own thinking while helping the more confident, certain, closed disciplines recognize the value in ideas that differ from the orthodoxy within their own borders.

Based on this brief analysis of just a few human attributes, it appears that finding a balance between extremes might be an important guiding principle for success in grappling with 21st-century globalization. Something like Aristotle’s (1908) golden mean might be useful to consider because it encourages navigation between extremes of conduct. Sternberg’s (1998) balance theory of wisdom provides more specific guidance along these lines because it emphasizes the need for recognizing the interests of various stakeholders, the influences of various contexts, and the importance of adaptation to complex conditions. The element of wisdom is particularly important because the problems generated by globalization are severely testing our ethical capacities. Additional discussions of the need for balance and wisdom in today’s world show up later in this chapter and in the next chapter of this volume.

Now that we have taken a brief look at a few 21st-century issues and some human attributes that might be helpful for dealing with them, we can consider what’s to come in the rest of this book. The next section of this chapter provides a brief overview of each contribution from our thoughtful, highly accomplished collaborators.

AN OVERVIEW OF THE CONTENTS OF THE VOLUME

This book includes five sections that connect much of what we know about creativity with the challenges of 21st-century globalization. The first section introduces the project and provides an interdisciplinary framework for analyses of globalization. The second section addresses conceptions of creativity within the context of globalization. Authors in the third section analyze the large-scale contextual constraints on creative teaching and learning. Section four includes authors who make more direct suggestions about ways in which educators and students can work creatively to address the demands posed by the enormous challenges of the 21st century socioeconomic and cultural contexts. Finally, section five represents a synthesis of the contributions in the volume.

Our introductory section titled Recognizing Powerful Contextual Influences on Creative Intelligence, is comprised of this introductory chapter and a focus chapter titled, Twenty-First Century Contextual Influences on the Life Trajectories of Creative Young People. In the focus chapter, Don Ambrose provides a conceptual model based on the integration of perspectives from multiple disciplines. The model illustrates the threat of enormous macroproblems and the potential benefits of unprecedented macro-opportunities that arise from socioeconomic, technological, cultural, and political-ideological conditions in the 21st century. The macroproblems threaten to crush individuals and societies that find themselves mired in a miserable
trap underneath an enormous globalization wave. Fortunately, the macro-opportunities promise to lift individuals and societies toward unprecedented success, if the education system can enable today’s young people to leap to the crest of the globalization wave. After the analysis of 21st-century demands, suggestions are made about the blend of knowledge, skills, and dispositions required for dealing with the macroproblems and capitalizing on the macro-opportunities. This focus chapter serves as a launching pad for the other contributing authors’ analyses. They use it to examine ways in which their expertise fits together with trends and issues in the 21st century.

Section two of the book is titled *Creativity in the Turbulent 21st Century*. In this section our authors fit creativity research and theory into the macro-context of globalization.

Dean Keith Simonton initiates this section with his chapter titled, *The Decline of the West? A Comparative Civilizations Perspective*. He engages in an impressive, broad scope, interdisciplinary exploration of creativity on the large-scale looking at the ways in which creative work evolves in societies past and present, East and West, over the long term. His analysis addresses various rise-and-decline theories in an effort to assess whether or not the decline of Western civilization is imminent, inevitable, or avoidable. Considering two lengthy time periods, ancient-medieval and post-Renaissance-modern, he ponders questions pertaining to the nature of creative work that emerges, evolves, and sometimes declines in various civilizations, as well as the reasons for those changes in creativity. Through his analysis we gain appreciation of the nature and dynamics of golden ages, dark ages, and societal transition points that influence creative work in the sciences, arts, and technologies. Consistent with the purpose of this book, Dean’s panoramic analysis takes us on a long-range, broad-scope excursion through creativity and then concludes with a hopeful discussion of the ways in which current societal evolution might be providing opportunities for healthy, creative work just when we need it most in a turbulent globalized era.

Mark Runco extends the notion that 21st-century macroproblems and macro-opportunities might not be as they seem at first in his chapter titled, *We Must Prepare for the Unforeseeable Future*. He shows how shifting perspectives facilitated by creative problem solving processes can turn a problem into an opportunity. Employing relevant creativity research, Mark illustrates some ways in which problem-finding processes, intrinsic motivation, persistence, adaptation, and other methods might be able to help us grapple with unprecedented 21st-century problems. He also discusses the importance of incorporating these ideas into education to make curriculum and instruction align better with current conditions.

In their chapter titled, *Asking the Wrong Question: Why Shouldn’t People Dislike Creativity?* Laura Yahn and James Kaufman explore the pros, cons, costs, and benefits of creativity in the classroom, the workplace, and the world. In recognition that creative people and creative work can generate both profound benefits and significant harm they focus their analysis on some ways in which the harmful side
of creativity can have a magnified impact in complex, 21st-century conditions. They also explore social dynamics pertaining to creativity such as the tendency for creative outsiders to be ostracized or bullied, that many profess to value creativity but shy away from it, and that we can have inaccurate perceptions of creativity. Finally, they conclude with the promising notion that creativity likely will continue to enable us to survive and thrive, even in complex conditions and even though we tend to hold it at arms length due to its novelty, complexity, and uncertainty.

Mary Jacobsen and Lorna Goulden directly address some of the driving forces of 21st-century globalization in their chapter titled, *A Whole New Way of Working with Creativity, Innovation and Innovators*. These forces include the exponential growth of the power of technology and the importance of innovation in a changing world. Mary and Lorna argue that the nature and interaction of these forces, along with other developments, exert powerful influences on the structure and dynamics of economic and cultural systems. These disruptive influences have both beneficial and harmful implications for the effectiveness of the organizations that enable individuals and groups to develop and apply their creative abilities, and on the nature of creative work itself. They also consider ways to support innovation and make it more productive. Their analysis portrays some promising applications of creativity in the evolving workplaces of the 21st century.

In her chapter titled *Facilitating Creative Thinking: When Constraints Help*, Catrinel (Cathy) Haught-Tromp applies insights from the intriguing research on creative constraints to phenomena generated by 21st-century globalization. Contrary to popular belief, constraints that arise from the contexts surrounding our thoughts, actions, and work processes can be useful when it comes to the production and employment of creative insights. Cathy proposes a “green eggs and ham” hypothesis for explaining how constraints that seem prohibitively confining actually can facilitate the flourishing of creative ideas. This could be extremely helpful given the very broad, complex, ill-defined nature of 21st-century problems. She explores the relevance of the hypothesis to various domains and then concludes with the optimistic recommendation that we embrace the opportunities embedded in constraints when dealing with complex issues.

The third section of the book is titled *Unshackling Students, Teachers, and Schools: Recognizing Contextual Constraints*. It includes two chapters on large-scale contextual influences that are shaping the structure and dynamics of school systems. The authors address some disturbing pressures for standardization of education at a time when embracing diverse pedagogical approaches might be more productive.

Yong Zhao and Brian Gearin employ our theme of globalization to develop a panoramic analysis of some disconcerting trends in education around the world. In their chapter, *Squeezed Out: The Threat of Global Homogenization of Education to Creativity*, they describe an overemphasis on measurement-driven education based on shortsighted concerns about international competitiveness. The outcome of this form of dogmatism on a global scale is a narrowing of the cognitive abilities addressed by educational systems. Curriculum, instruction, learning, and assessment
all suffer from this narrowing, which makes education excessively mechanistic, less
enjoyable, and less purposeful. In essence, the homogenization of education around
the world suppresses and distorts creativity just when the forces of globalization are
demanding that young people become more creative.

Jane Piirto analyzes the damage the corporatization of education has done to
teaching and learning in her chapter titled, *The Creative Intelligence of Teachers
Resisting the Pearsonizing of Global Education*. Jane grapples with enormous
questions about what educators can do in view of the daunting challenges posed
by the macroproblems and macro-opportunities of 21st century globalization. She uses exemplars of creative teaching from a recent inquiry project to illustrate
creative teaching and learning approaches that can invigorate gifted education
and general education while enabling young people to overcome the “creative
intelligence gap” that separates where we currently are from where we need to be
in terms of our capacities. She frames the analysis with descriptions of the ways
in which major publishers and testing companies are exerting dominance over
educational purposes and processes. The hegemony of these corporations and the
ideologues and policymakers who collaborate with them is leeching the education
system of creativity and purpose just when purposeful creativity is needed the
most. She also proposes that the creative teaching approaches described in the
chapter can serve as methods of resistance against the dominance of misguided
reform initiatives.

Section four, titled *Invigorating Creativity in Education*, includes authors who
explore particular strategies and approaches to education that can preserve and
strengthen creative teaching and learning. Consistent with the theme of cognitive
diversity that emerges periodically throughout this project they propose a very
diverse set of ideas that address various dimensions of the educational system.

Ron Beghetto begins this section by delineating some ways that classroom
creativity might address today’s big socio-contextual issues in his chapter, *Leveraging
Micro-Opportunities to Address Macroproblems: Toward an Unshakable Sense of
Possibility Thinking*. Ron suggests that the enormous macroproblems of the 21st
century might not require enormous solutions. Instead, they might be addressed
productively through the employment of rather small but widespread shifts in
teaching approaches. He recommends that teachers back away from striving for
certainty in curriculum and instruction to make room for the growth of students’
creative imagination, thus putting them in the habit of generating new possibilities.
This requires overcoming the “uncertain future paradox,” which refers to the
pedagogical problem of using established, concretized, stultifying curricula. While
making this argument he provides some rather remarkable examples of high-level
achievements based on imaginative approaches to teaching and learning. Overall,
his argument presents a doable initiative that has the potential to remove some of the
dogmatism that prevents us from recognizing and grappling with the big problems
of the 21st century.
John Baer makes us think creatively about creative education with his chapter, *Creativity and the Common Core Need Each Other*. While sets of standards can harm creativity and education, as discussed by Yong Zhao and Jane Piirto in this volume, there can be a very positive flip side. John shows us how the Common Core standards that are influencing teaching and learning in the USA can help teachers and students think creatively about the content and processes of learning. The deep mastery of domain-specific content promoted by the standards can provide the fuel for more creative thinking because it aligns with insights generated by research on domain-specific creativity. Appropriately designed standards working within the context of 21st-century globalization can paradoxically provide creative opportunities for offsetting and going far beyond the problems that ill-conceived standards might perpetuate.

In their chapter, *Creative Approaches to Literacy Learning: A Transformative Vision for Education in the 21st Century*, Karen Magro and Kathleen Pierce use the turbulent conditions of today’s globalization as background for a discussion of the evolution and growing importance of literacy in our changing world. They identify and describe a wide variety of student-centered literacy learning strategies that can help young people develop the intrinsic motivation and skills necessary for success in today’s complex cultural and socioeconomic conditions. Throughout their analysis they point out ways in which literacy enables individuals and groups to perceive and work against oppressive societal barriers that suppress aspirations. For example, storytelling, arts integration, and multicultural literacy approaches can clarify international perspectives on social justice while enabling individuals from diverse backgrounds to understand one another. Karen and Kathleen also highlight the importance of emotional intelligence and transformative learning experiences as crucial elements in the development of 21st-century literacy.

Surviving and thriving in the 21st century will require some inventiveness on the part of individuals and societies. Fortunately, Leigh Zeitz and Sharon “Sam” Sakai Miller show us how we might promote that ability in their chapter titled *Cultivating Innovation Through Invention: How Rube Goldberg Inventions Can Ignite Creativity*. For decades, Rube Goldberg inventions captured the imagination of many; however, they seemed impractical, even frivolous. If we think of them as end products those impressions likely are correct. But Leigh and Sam go deeper into the invention process, highlighting the ways in which it promotes imagination, intrinsic motivation, and creative problem solving. Students who learn through this process could be more likely to perceive opportunities in gigantic problems. This could give them a significant advantage in the turbulence of 21st century conditions.

Dorothy Sisk completes this section by illustrating the important leadership dimension of education with her chapter titled, *Creativity and Leadership Development: Can They Coexist for Transformational Change in Education?* Recognizing that the daunting problems and unprecedented opportunities presented by 21st-century globalization will require unusual creative action on our part, she analyzes a variety of ways in which creative leadership can come into play in
complex situations. While generating this ambitious, multidimensional portrayal of creative leadership she invokes two exemplars, Sid Parnes and Annemarie Roeper, who showed us how these lofty abilities and strategies actually can come into play. Dorothy also synthesizes a wide variety of sources from the leadership and creativity literature to build her 21st-century leadership framework. Overall, the analysis expands our thinking beyond cognitive frameworks to include diverse aspects of human awareness and ability. This expansion generates possibilities for recognizing and dealing with today’s very large, complex issues. These possibilities come through in her descriptions of some recent, highly innovative collaborations aimed at solving global problems.

Finally in section 5 Robert Sternberg integrates the complex, diverse elements of creativity, education, and globalization in his chapter titled What’s Wrong and How to Fix It: Balance of Abilities Matters More Than Levels. He contemplates the prospects for human survival over the long term and then proposes that the difficulties we cause for ourselves arise from an imbalance of important abilities. For example, when suffering from imbalance, otherwise intelligent individuals can rely excessively on analytical ability leaving them seriously short on creativity, practicality, and wisdom. Sternberg also highlights the ways in which societal favoritism of “forward incrementation” locks creativity into small steps forward within existing paradigms thus making it unlikely that we will be able to deal with the enormous problems of the 21st century because those problems will require large-scale creativity guided by wise leadership. In essence, if we are to survive and thrive in the 21st century and beyond we will need to balance our abilities while maximizing them. If we are unable to do this our prospects are grim.

CONCLUDING THOUGHTS

In the end, the question is how we can reorient ourselves to think globally but at the same time wisely. The two kinds of thinking do not necessarily go together. At times, they even make strange bedfellows. Much of what passes as globalization is an attempt by parties in one nation to use global marketplaces—whether products or ideas—to benefit them in particular, not to benefit the world.

In our view, the problem, at least in the West, starts with schooling. More and more, schooling is being oriented toward passing tests. Oddly, this orientation derives from the East, where schooling has long been based largely on the passing of tests. This practice has helped cram-school operators, but few others. The test-driven approach to schooling, at least as it is being implemented in this country, tends to encourage students to try to drill facts into their heads, often at the expense of understanding the relations among, and meaning of, the facts that are learned.

In the augmented theory of successful intelligence (Sternberg, 2003), four sets of cognitive skills are viewed as being essential to becoming an educated person: creative, analytical, practical, and wisdom-based. As this chapter has made clear, what is most missing from thinking in today’s world—and the education of students
in preparation for their adult thinking in a globalized world—is balance. For us, part of that balance is among these sets of cognitive skills. Students need to develop creative thinking skills to generate novel and compelling ideas for dealing with complex global problems; analytical skills to ascertain whether their new ideas are good ones; practical skills to implement their ideas and to persuade others of their usefulness; and wisdom-based skills to ensure that individuals use their knowledge and abilities to help promote a common good, by balancing their own, with others’ and larger interests, over the long- as well as the short-term, through the infusion of positive ethical values.

Our societies often bemoan the lack of wisdom in our adults—in the United States, we see it in every presidential campaign—but we then have to ask ourselves how much our schools do teach for wisdom. The answer, unfortunately, is practically nothing, even though wisdom is the key to a better world. Many if not most of the problems we have in the world today, if they are to be solved, will be solved only through wisdom. But the more important fact is that if we and our leaders were wise, we would not have the problems in the first place—global warming, extreme inequality of incomes, and terrorism—to name a few.

At the very least, we need creative thinking to attack global problems, but then we have to ask how much our schools do to teach in ways that develop creative thinking, and the answer again is practically nothing. Yet means exist to teach students how to think both creatively and wisely (Sternberg & Grigorenko, 2007; Sternberg, Jarvin, & Grigorenko, 2009). Instead, schools concentrate on memory and analytical skills, which are primarily what standardized tests test.

Standardized tests are being used in the name of accountability, but the accountability these tests produce is very narrow. And in a complex and, in many respects, dangerous world, we can’t afford to be developing thinkers who lack the creativity, wisdom, and quite frankly, common sense (practical skills) to solve important global problems. Instead of asking students on what date or in what place a treaty was signed, why not ask instead how the terms of the treaty could have been improved? Instead of asking students to list symptoms of diabetes, why not ask them what schools could do to improve their menus to minimize the chances of children developing diabetes either in childhood or later on? Instead of asking students merely to analyze the ending to a story, why not ask them as well to provide an alternative ending to the story?

Why don’t we teach for wisdom and for creativity, when they are essential to solving global problems? There are lots of reasons.

First, in education, entrenchment is an extremely powerful factor. It’s not the way we have been teaching for the last several hundred years; it’s not the way teachers were trained to teach; so it’s not the way they do teach or principals expect them to teach.

Second, teaching for wisdom and creativity requires substantial measures of each in the teacher, and teachers are not necessarily selected for those attributes. Indeed,
teachers who are too creative may find that they fit only poorly into today’s schools, with their orientation on preparing students for mind-numbing tests.

Third, teachers teach to standardized tests and those tests do not assess wisdom and creativity, for the most part. They could, but they don’t. So school systems probably would devalue teachers who teach in ways that are orthogonal to what the tests measure.

Fourth, it simply is harder to teach for wisdom and creativity, or even for common sense, than for memory and analytical skills. So teachers do what comes more easily to them.

Fifth, it is harder to test for wisdom, creative, and practical skills, and tests of such skills need to be human-scored. In a world that wants to do as much as possible by machine, reflective hand scoring may seem anachronistic but, more importantly, too expensive. There is always a boondoggle to spend the money on.

Finally, teaching for wisdom and creativity is threatening to many elements of society. They view it as “soft.” They want students to learn hard facts. One person even wrote a book, The Know-It-All: One Man’s Humble Quest to Become the Smartest Person in the World (Jacobs, 2004). Given that the chances are you have never heard of the author, A. J. Jacobs, the quest either failed or being smart does not count for much in this world. His plan for becoming the smartest person in the world: to read all 44 million words of the 2002 Encyclopedia Britannica. What’s worse than the idiotic idea that reading an encyclopedia would make you the smartest person in the world is that the book has a 4-star rating on Amazon.com with 358 customer reviews. So people fell for it, much like they fall for the idea that winning a spelling bee shows a child is very smart. Of course, it may be that Amazon book readers are idiosyncratic, but the book also has a 4-star rating on Barnes and Noble’s website, with 129 reviews. We as a society believe that absorbing a lot of facts will make us smart. It may, in a limited sense, but we won’t solve problems of globalization by memorizing thousands or even millions of facts.

Although some of our concluding comments are based on one particular theory, the theory is not really what is important. There are lots of theories in this book; there are lots of different points of view. What is important is that we develop global citizens able to face the challenges of a complex, quickly changing world. Right now, we are failing in this challenge, glued as we are to standardized tests and the misguided accountability systems they serve. We can do better. Will we?

NOTE
1 The term globalization signifies the massive socioeconomic, technological, and cultural integration of populations around the world (see Beneria, 2003; Goldin & Mariathasan, 2014; Rodrik, 2007; Sen, 2010; Stiglitz, 2003; Tsing, 2004). More details about the nature of globalization and the problems and opportunities it creates appear in the next chapter of this book.
REFERENCES


