education sciences

Gifted Education, Creativity and Leadership Development

Edited by
Dorothy Sisk

Printed Edition of the Special Issue Published in *Education Sciences*

www.mdpi.com/journal/education

MDPI

Gifted Education, Creativity and Leadership Development

Gifted Education, Creativity and Leadership Development

Editor

Dorothy Sisk

MDPI • Basel • Beijing • Wuhan • Barcelona • Belgrade • Manchester • Tokyo • Cluj • Tianjin

Editor
Dorothy Sisk
Lamar University
USA

Editorial Office
MDPI
St. Alban-Anlage 66
4052 Basel, Switzerland

This is a reprint of articles from the Special Issue published online in the open access journal *Education Sciences* (ISSN 2227-7102) (available at: https://www.mdpi.com/journal/education/special_issues/gift_education).

For citation purposes, cite each article independently as indicated on the article page online and as indicated below:

LastName, A.A.; LastName, B.B.; LastName, C.C. Article Title. *Journal Name* **Year**, *Volume Number*, Page Range.

ISBN 978-3-0365-5639-0 (Hbk)
ISBN 978-3-0365-5640-6 (PDF)

Contents

Preface to "Gifted Education, Creativity and Leadership Development" . . . . . **vii**

Don Ambrose
Interdisciplinary, International Exploration to Strengthen Creativity, Giftedness and Leadership
Reprinted from: *Educ. Sci.* **2021**, *11*, 822, doi:10.3390/educsci11120822 . . . . . **1**

Robert J Sternberg, Aakash Chowkase, Ophélie Desmet, Sareh Karami, Jenna Landy and Jialin Lu
Beyond Transformational Giftedness
Reprinted from: *Educ. Sci.* **2021**, *11*, 192, doi:10.3390/educsci11050192 . . . . . **11**

C. June Maker
From Leading to Guiding, Facilitating, and Inspiring: A Needed Shift for the 21st Century
Reprinted from: *Educ. Sci.* **2021**, *12*, 18, doi:10.3390/educsci12010018 . . . . . **21**

Roya Klingner
Twice-Exceptional Children and Their Challenges in Dealing with Normality
Reprinted from: *Educ. Sci.* **2022**, *12*, 268, doi:10.3390/educsci12040268 . . . . . **37**

Gillian Eriksson
Pretense or Belief: Creating Meaningful Scenarios and Simulations for Authentic Learning about Diverse Underserved Gifted Students
Reprinted from: *Educ. Sci.* **2022**, *12*, 532, doi:10.3390/educsci12080532 . . . . . **49**

Sandra N. Kaplan
Factors Affecting the Perceptions and Practices of Differentiated Curricula and Pedagogies for Gifted and Talented Students
Reprinted from: *Educ. Sci.* **2022**, *12*, 41, doi:10.3390/educsci12010041 . . . . . **59**

Jacobus G. Maree
Using Integrative Career Construction Counselling to Promote Autobiographicity and Transform Tension into Intention and Action
Reprinted from: *Educ. Sci.* **2022**, *12*, 72, doi:10.3390/educsci12020072 . . . . . **69**

Dorothy Sisk
Managing the Emotional Intensities of Gifted Students with Mindfulness Practices
Reprinted from: *Educ. Sci.* **2021**, *11*, 731, doi:10.3390/educsci11110731 . . . . . **83**

Sally M. Reis, Sara Jane Renzulli and Joseph S. Renzulli
Enrichment and Gifted Education Pedagogy to Develop Talents, Gifts, and Creative Productivity
Reprinted from: *Educ. Sci.* **2021**, *11*, 615, doi:10.3390/educsci11100615 . . . . . **95**

Michelle Ronksley-Pavia and Michelle M. Neumann
Exploring Educator Leadership Practices in Gifted Education to Facilitate Online Learning Experiences for (Re)Engaging Gifted Students
Reprinted from: *Educ. Sci.* **2022**, *12*, 99, doi:10.3390/educsci12020099 . . . . . **105**

Bruce M. Shore
Context Matters in Gifted Education
Reprinted from: *Educ. Sci.* **2021**, *11*, 424, doi:10.3390/educsci11080424 . . . . . **117**

Jane Piirto
Organic Creativity for 21st Century Skills
Reprinted from: *Educ. Sci.* **2021**, *11*, 680, doi:10.3390/educsci11110680 . . . . . **127**

Preface to "Gifted Education, Creativity and Leadership Development"

This ebook, *Gifted Education, Creativity and Leadership Development*, provides new perspectives on gifted education, with contributions from international authors from Australia, Canada, Germany, South Africa, and the United States. These perspectives provide a foundation on which to build an understanding of the complex nature of gifted students. One author, Donald Ambrose, in his article "Interdisciplinary and international exploration to strengthen creativity, giftedness and leadership", set the bar for the book, championing a wider interdisciplinary and international exploration of gifted education, with a wider exploration than just special education.

Beyond Transformation

Robert Sternberg and his co-authors advocate in their article, "Beyond transformation", that gifted students develop gifts that are self- and other forms of transformative. This involves going beyond transformation, combining personal transformation and other forms of transformation. Sternberg and his co-authors describe transformational giftedness as a giftedness that can be employed to make a positive change in the world at some level of analysis. Individuals with transformational giftedness seek to make the world a better place. Sternberg and his co-authors stress that students need to find their purpose and know and understand the inherent oneness that underlies humanity.

Shift in Education and extension of the concept of giftedness

June Maker suggests a shift in education in her article.

She calls for a focus on the identified workplace skills of critical thinking, problem solving, creativity and communication. She stresses the complexity of gifted students' profile of abilities and challenges, and the need to consider the impact of culture, ethnicity, gender, linguistic perspective, and learning expectations on giftedness.

Roya Klinger extends the concept of giftedness with a discussion of twice-exceptional students and their complex nature in her article, "Twice-exceptional children and their challenges in dealing with normalcy". She defines twice-exceptional (2E) students as being gifted but having difficulties in learning. These children are gifted, but they need to learn how to cope with their difficulties with learning. She uses animal-assisted therapy, art therapy and solution-oriented therapy.

Training and professional development to support differentiation of diverse gifted students

The key issue of identifying and providing engaging activities to diverse gifted students is discussed by Gillian Eriksson and Sandra Kaplan, and both support the differentiation of the curriculum for diverse students. Kaplan, in her article "Factors affecting the perceptions and practices of differentiated curriculum and pedagogies for gifted and talented students", identified the factors affecting these perceptions and practices.

One factor is that teachers view a differentiated curriculum as being specific to gifted students and not generalizable to other students. As a result, Kaplan said there is little transfer of training in the teaching of a differentiated curriculum. She strongly advocates that training should be immersive, with multiple strategies being demonstrated to teachers. Finally, Kaplan said that teachers need to be engaged in modifying their own curriculum, rather than thinking that they will

develop and use an entirely new curriculum. Kaplan sees this modification in training as a way to increase teachers' ownership of the curriculum and encourage the use of a differentiated curriculum in their classes.

Gillian Eriksson, in her article, "Pretense or Belief: Creating meaningful scenarios and simulations for authentic learning about underserved gifted", discusses the need to use meaningful scenarios and simulations in teacher training. This training helps teachers learn more about underserved diverse students, and how to develop strength-based differentiated learning experiences for these students.

Dorothy Sisk
Editor

education sciences

MDPI

Article

Interdisciplinary, International Exploration to Strengthen Creativity, Giftedness and Leadership

Don Ambrose

Graduate Education and Human Services, Rider University, Lawrenceville, NJ 08648, USA; ambrose@rider.edu

Abstract: Creativity, giftedness, and leadership are complex, important phenomena, especially in the threatening turbulence of 21st-century conditions; consequently, there is an increasing need to understand how to strengthen them. We can learn much about these phenomena from within the borders of specialized disciplines; however, they are too complex and multifaceted to fit within the walls of disciplinary silos. Interdisciplinary explorations can reveal theories and research findings that expand our knowledge bases about creativity, giftedness, and leadership. This analysis includes the rationale for engaging in interdisciplinary investigations for these purposes. It includes examples of the ways in which interdisciplinary thinking invigorates creativity and cognitive diversity; illuminates the benefits of visual–spatial gifts that strengthen the development of important talents in gifted students who can go on to become creative leaders; and shows how human rights can be strengthened by constraining economic and political corruption. It also describes the benefits of using interdisciplinary navigation through different levels of analysis, each of which includes a number of academic disciplines.

Keywords: cognitive diversity; corruption; creativity; giftedness; human rights; interdisciplinary; leadership; levels of analysis; visual–spatial talent

Citation: Ambrose, D. Interdisciplinary, International Exploration to Strengthen Creativity, Giftedness and Leadership. *Educ. Sci.* **2021**, *11*, 822. https://doi.org/10.3390/educsci11120822

Academic Editor: Albert O. Ziegler

Received: 26 October 2021
Accepted: 14 December 2021
Published: 20 December 2021

1. Introduction to the Need for Interdisciplinary Exploration

There are many conceptions of creativity, giftedness, and leadership. They are highly complex phenomena that defy precise definitions. Consequently, this analysis relies on only the following concentrated conceptions: Creativity is behavior that is novel, often surprising, and in some way compelling or high quality [1]. Giftedness is the possession and use of lofty talents and intelligence [2]. Leadership is the ability to inspire and direct groups through a shared vision, connecting people and ideas, and developing shared ownership of objectives [3,4].

Creativity, giftedness, and leadership have always driven human endeavors, and they have become even more important in view of the complex, turbulent 21st-century conditions. Ever-evolving developments in national, regional, and global socioeconomic, scientific, and political trends and issues are making it much less likely that the decisions of citizens, professionals, and policymakers can effectively address the large-scale problems and opportunities that are emerging in today's world. Without elevations of creativity, giftedness, and leadership, these prospects are grim [5,6].

Some examples of the most pressing 21st-century problems include climate change, extreme socioeconomic inequality, resource shortages, and the accelerating erosion of democracy in many developed nations. These have been termed macroproblems because they are international, interdisciplinary, and long term [7]. They are international because they cannot be solved by a single nation, so their solution requires global cooperation. They are interdisciplinary because they spread throughout the conceptual terrain of multiple disciplines, instead of confining themselves within a single domain. They are long term because they took decades or even centuries to emerge; consequently, their solutions likely will require lengthy, sustained endeavors.

Fortunately, the 21st-century also presents humanity with unprecedented macro-opportunities that also will require the elevation of creativity, giftedness, and leadership because they are enormous and highly complex. Macro-opportunities have the potential to help humanity advance socioeconomically and ethically with considerable speed. Examples include the rapid acceleration of global scientific networking and the development of new technologies that can support and invigorate the advance of green energy systems.

Given all of these highly complex global trends and issues, tomorrow's gifted, creative leaders will need to strengthen interdisciplinary thought and action. Considering the nature of macroproblems and macro-opportunities as well as how they spread outward across multiple, domain-specific fields within the conceptual terrain, interdisciplinary work will be absolutely essential if we are to understand the essence of their structure and dynamics [7].

Of course, many of these large-scale trends and issues are double-sided because they have the potential to produce enormous benefits or harm depending on how they are addressed. For example, socioeconomic globalization is a large-scale macro-opportunity/macroproblem hybrid [7]. Globalization is the strengthening international integration of economies and communication systems. In decades past, there was far less international connection making. Nation states were largely self-contained, although they did engage in economic trade, culture sharing, and occasional conflicts beyond their borders. However, advances in technology enabled economic systems to develop long, growing tentacles that tied national economies together in highly intricate ways. The economic flipsides of globalization include the invigoration of economies as well as the exploitation and mistreatment of work forces through the outsourcing of employment to third-world sweat-shops that approximate slave labor conditions. Because of this dual-sided phenomenon, humanity is both advancing quickly into the 21st-century and moving backward into the 19th-century conditions of the early industrial revolution [7]. Obviously, macroproblems and macro-opportunities make it more necessary than ever that humanity develops more effective ethical awareness, creativity, giftedness, and leadership. They also demand more effective blending of these phenomena.

2. Far-Flung Constructs Smacking Together and Creating Productive Mind Sparks

Interdisciplinary investigations can reveal theories, research findings, trends, and issues that shed new light on the phenomena that scholars study in their own domains [8–15] They also can generate a considerable amount of creativity while expanding conceptions of giftedness and development. They can help thinkers produce an extremely wide variety of connections among diverse concepts.

For example, Ambrose [10] carried out a project resulting in descriptions of 89 theories and research findings from 29 academic disciplines and professional fields. The description of each theory or research finding was connected with one of the other 88 constructs to generate a creative spark. In one of these connections, analyses of utopian demonization from history were connected with scholarship from ethical philosophy portraying the differences between universalist and particularist morality. Leaders of a nation aligning with a utopian ideology portray the belief system that drives that nation as the ideal that other nations should follow [16,17] Meanwhile, the insight from ethical philosophy is that those guided by particularist morality can be kind, thoughtful, and generous toward those in their own identity group but are inclined to be dismissive of, or even vicious toward, outsiders. In contrast, those aligning with universalist morality tend to extend their altruism to outsiders [18]. The insight generated by the creative association emerging from the connection between these constructs from different disciplines included the observation that the wisdom and self-fulfillment of particularist leaders of nations promoting their ideologies as utopian while demonizing outsiders is stunted and hollow in comparison with universalist leaders. Therefore, political leaders would be well advised to develop a screening system to identify candidates for leadership positions according to the extent to which they leaned toward universalism or particularism in their ethical

actions in prior work. As a result, the leaders of those political systems could do much to remove discrimination, abuse, and even genocide from the operations of their governments while injecting more genuine self-fulfillment into their socioeconomic and political actions. The implications of this interdisciplinary synthesis are important. Gifted education has to engage students in interdisciplinary explorations of 21st-century trends and issues while emphasizing moral–ethical development. Fortunately, some work in the field has been moving in that direction [19,20]

If leaders lack the ethical awareness necessary for positive uses of their creativity and giftedness, with the latter taking the form of practical intelligence [21], they likely will engage in extremely harmful dark creativity, which is the use of creative thoughts and actions for unethical, harmful purposes [22–24]. Dark creativity seems to be prevailing in many developed nations that have talented sociopolitical leaders who aspire to magnify their own power, even to the extent that they become dictators of authoritarian regimes [2,25–28]. These leaders and their creative cronies tend to dominate and exploit the economic systems for selfish purposes, making the citizenry more miserable and desperate than they would be under normal circumstances. In order to dodge responsibility for their creation of enormous harm, the leaders and cronies also engage in finger-pointing at one or more minority populations within their borders to identify them as the villains responsible for the suppressed life circumstances of the majority. As a result, the unethical leaders magnify racism, ethnocentrism, and classism, thereby producing far more tribalism, condescension, exploitation, and violence than exists in more normal societies. In these conditions, vast numbers of citizens shift their morality from being somewhat universalist to far more particularist. Virtually all citizens suffer from the dark creativity produced by unethical, gifted, creative leaders in the nations undergoing these disturbing transitions. If the gifted, creative leaders of tomorrow are to address these serious problems, gifted education must recognize and explore the distinction between universalist and particularist morality.

2.1. Viewing Creativity, Giftedness, and Leadership through Levels of Analysis

Another interdisciplinary construct that can reveal the nature and nuances of creativity, giftedness, and leadership is a framework showing levels of scholarly analysis [8,10,29]. Based on broad interdisciplinary explorations, the framework extends from micro to macro, showing how scholarship in a wide variety of fields fits into differing levels, with different implications for various phenomena. Here is a brief overview of the levels, examples of disciplines they encompass, and examples of what they might reveal about human potential and capacities:

- Broad contextual
    - Disciplines operating at this level: political science, cultural anthropology, economics, ethical philosophy, history, social epidemiology, archaeology, etc.;
    - Insights available at this level: the ways in which creativity, giftedness, and leadership are inspired, suppressed, or distorted by large-scale societal and global phenomena;
- Immediate contextual
    - Disciplines operating at this level: educational research, counseling psychology, etc.;
    - Insights available at this level: how the development of aspirations and talents are influenced by educational leadership, curriculum, and the structure and dynamics of programs, classrooms, school and college departments, as well as employment environments for the gifted;
- Individual
    - Disciplines operating at this level: psychology, educational research, etc.;
    - Insights available at this level: the cognitive, affective, motivational, dispositional, talent development, and achievement dynamics of gifted individuals;
- Organic systems
    - Disciplines operating at this level: neuroscience, cognitive science, etc.;

- Insights available at this level: the functions and structures of larger brain components and subsystems that clarify the nature of gifted minds;

- Cellular
  - Disciplines operating at this level: neuroscience, cognitive science, etc.,
  - Insights available at this level: the structure and function of neurons and neural networks in the brain, also clarifying the nature of gifted minds;

- Molecular
  - Disciplines operating at this level: molecular biology, chemistry, etc.;
  - Insights available at this level: genetic influences on behavior and achievement as well as the extent to which gifts and talents are inheritable;

When studying creativity, giftedness, or leadership, scholars tend to be locked into one level of analysis because they operate from within a domain-specific silo that itself operates at a specific level. However, they can strengthen their own creativity, and possibly leadership in their fields, by individually or collaboratively navigating through different levels, capturing otherwise hidden aspects of the phenomena they study.

Sapolsky [30], a prominent neuroscientist, is one example of such a navigator. He connected neuroscientific work from the organic systems and cellular levels of analysis with discoveries at the broad contextual level by using insights from disciplines addressing the nature and impact of deprivation and extreme inequality. Some of the contextual-level fields addressing these issues include sociology, social epidemiology, and the branch of economics that dissents from mainstream theory in that field. According to Sapolsky, the severe inequality and deprivation revealed by scholars at the broad contextual level strongly influence the development and operations of various brain components. He shows how the *biological grind* deriving from the chronic, long-term stress generated by social comparisons in highly unequal societies produces inflammation, chromosomal damage, and distorted brain functioning: more specifically, learning and memory weaken due to damage to the hippocampus; prefrontal cortex impairment causes diminishment of executive functioning leading to weaker planning, decision making, and impulse control; distortion of the amygdala magnifies fear and anxiety; damage to the mesolimbic dopamine system suppresses motivation and leads to depression and addiction; the retraction of connections among neurons and suppression of the emergence of new neurons weaken thought capacities; and chronic inflammation, damage to the circulatory system, and metabolic changes produce bodily ailments that further stifle the aspirations, talent development, knowledge acquisition, and other capacities necessary for the emergence of giftedness, creativity, and leadership.

Thanks to Sapolsky's [30] navigation through the levels of analysis we can perceive giftedness, creativity, and leadership capacities in places you would not think to look. For example, a group of scholars at a Canadian university developed the Lost Prizes initiative to seek out gifted, creative individuals whose lofty abilities are hidden and never developed, or developed in distorted ways, due to their positioning at the bottom of the economic ladder [31,32]. Often, their miserable life circumstances push these individuals into endeavors that lead to crime and incarceration and leave them with minuscule life prospects. The leaders of the Lost Prizes projects identify the lost individuals, meet with them, counsel them in an ongoing basis, and work with the legal system to accelerate their releases from incarceration, to the extent possible. The counseling involves helping them perceive the big picture about their circumstances, which includes the ways in which their deprivation hid or distorted many of their talents and aspirations. Once they develop this awareness, the Lost Prizes team points them toward more promising life paths.

The initiative has helped many escape from devastating life journeys to launch into impressive new careers. For example, a young, formerly incarcerated individual is now a physician. In another example, a huge, muscular, formerly incarcerated street gang leader, who was in prison for drug crimes and violence, is now a very talented artist whose work inspires many in the region, including deprived young people. He also goes out onto the

streets where he was a former gang leader and interacts with current gangs to help their members avoid his prior fate and seek out ways to discover their gifts, talents, and creative capacities, so they can lead more promising lives. In essence, this impressive example of hidden giftedness has been repairing the considerable psychological damage he suffered during his deprivation while also transforming his impressive leadership talents from guiding the unethical work of street gangs to ethically inspiring and mentoring hundreds of young people who desperately need it.

2.2. Generating and Benefiting from Cognitive Diversity

Page [33,34], an economist and complexity theorist, showed how teams in a wide variety of organizations benefit considerably when they include cognitively diverse participants. Cognitive diversity emerges when a problem-solving team includes diverse theories, backgrounds, belief systems, and problem-solving heuristics. A cognitively diverse team will consistently outperform a homogenous team in complex problem-solving processes even when the latter team is comprised of more intelligent participants. One way to think of this is to contemplate the outcomes of two teams: a homogenous team composed of eminent economists and a cognitively diverse team composed of somewhat accomplished but not eminent professionals from diverse cultural backgrounds and professions. The lack of cognitive diversity would confine the minds of the highly intelligent economists within a theoretical silo, preventing them from perceiving or generating creative problem solutions or innovations outside their dominant idea frameworks. The frequent collision and occasional syntheses of diverse perspectives within the cognitively diverse team will give them new insights and opportunities for innovation that are invisible to the homogenous team.

When individuals or groups carry out interdisciplinary explorations, as in the previously mentioned investigation of 87 theories and research findings from 29 disciplines, they are forcing themselves to become more cognitively diverse. If an individual is conducting an investigation, that person's mind is becoming more cognitively diverse by grappling with very different concepts from very different disciplines. If a group is conducting an investigation, that team could become cognitively diverse in a dual sense: the team will already be cognitively diverse if it includes the aforementioned markers of diversity, and it will become more cognitively diverse in another sense because it is navigating through very different theories and research findings.

Arguably, when individuals become more cognitively diverse, they become more creative because of the unpredictable connection making between diverse concepts. They become more "gifted," if giftedness is interpreted as at least partially emerging from the acquisition of an extremely broad knowledge base [15]. They can become better leaders because they will not be trapped within a dominant, confining theoretical perspective.

Thinking back to the economics example, neoclassical economics is a unified, insular, firmly policed discipline in contrast with a fragmented, porous, contested discipline such as political science [35]. The former type of discipline is unified around a dominant theory, resistant to importing ideas from other fields, and the field's gatekeepers ensure that articles or books deviating too much from the dominant theory do not become published. In contrast, the latter type of discipline is fragmented and contested because there are multiple, conflicting theories. It is porous because it cannot resist, or openly invites, the importation of ideas from other fields. If leadership requires openness to new ideas, a highly intelligent leader trained within a unified, insular, firmly policed discipline will impose strong cognitive barriers hindering her or his own creative problem solving. This is evident in the development of a highly unequal socioeconomic system that has been driven by dogmatism-saturated neoclassical economic theory. The rational actor model confining mainstream economics justifies extreme selfishness and discourages leaders from thinking about ways that the economy could benefit more than just the economic elite [36–41]. Such economic dogmatism inclines the development of intellectual capacities and talents of the gifted to be used for selfish purposes. This provides even more reason for the field of gifted education to inject itself with more ethical awareness.

2.3. Visual–Spatial Talents Strengthening Gifted, Creative Leadership

Bringing together insights from neuroscience, creativity studies, and the history and philosophy of science enables us to understand and appreciate the strengths of visual–spatial thinking, a talent that is becoming more important as the phenomena that gifted and creative professionals grapple with become more complex in 21st-century conditions. This is especially the case when those phenomena emerge from STEM fields. Those with this talent capitalize on their own visual imaginations to understand and generate complex graphic models that incorporate large amounts of data from multiple sources. This enables them to navigate more effectively through the avalanche of STEM findings and innovations that are being generated by scientific networking and advances in technology [42–52]. In just one example, the eminent physicist Albert Einstein generated his groundbreaking theories of relativity largely through visual imagery [53]. Strong visual thinking helped him become a highly creative, gifted, intellectual leader who transformed the field of physics.

The benefits of visual–spatial thinking in STEM arguably carry over into other fields including the social sciences [54]. Metaphorical thought and communication can generate highly creative, compelling visual images that can be very effective tools for leadership. For example, Dr. Martin Luther King Jr. was obviously a highly gifted, creative leader. His speech from the steps of the Lincoln Memorial in Washington, D.C., served as a primary catalyst for the civil rights movement. In the speech, he employed visual–metaphorical imagery to capture the imaginations of the thousands who were at the event, and the millions more who watched it on television. A few examples of metaphors from the speech that provoked powerful, motivational visual thinking included: "rise from the dark and desolate valley of segregation to the sunlit path of racial justice; quicksands of racial injustice to the solid rock of brotherhood; whirlwinds of revolt will continue to shake the foundations of our nation; let us not seek to satisfy our thirst for freedom by drinking from the cup of bitterness and hatred; justice rolls down like waters and righteousness like a mighty stream; let us not wallow in the valley of despair; hew out of the mountain of despair a stone of hope; transform the jangling discords of our nation into a beautiful symphony of brotherhood; let freedom ring." This speech was comprised of 1550 words and included 45 metaphors, many of which were exceptionally powerful [55].

In view of the inspirational power that visual metaphor can generate, and the importance of visual–spatial thinking in STEM and the social sciences, leaders can become far more creative by artfully generating and carefully selecting metaphors that will engage their followers and other constituencies, helping them understand the nature of macroproblems and macro-opportunities while motivating them to address these powerful phenomena. For example, ethical leaders who want to prevent human civilization from collapse in the next few decades can portray climate change as a gigantic firestorm rapidly sweeping over the landscape incinerating the homes and communities of citizens and policymakers. They can portray the disturbing erosion of democracy in many developed nations as evil vampires emerging from their caskets and chasing after the citizens and policymakers to extract their blood. On a more positive note, they can describe the growth of global scientific networking as a gigantic, shining web connecting all communities on the planet, with magnificent innovations sliding down the tentacles of this web into those communities. Overall, if those gifted in visual–spatial thinking recognize their strengths in this capacity, they will have opportunities to become highly creative, effective leaders who can help humanity survive and perhaps thrive in the decades to come.

2.4. Shedding Light on Massive Corruption and the Need to Strengthen Human Rights

For millennia, societies have been plagued by corruption. This problem tends to be magnified in totalitarian systems, but it also infects democracies to a lesser extent [25]. Abraham [56], an evolutionary biologist, pointed out that many societal leaders have engaged in corrupt, even psychopathic, actions that harm the lives of citizens. This was clearly evident in the actions of totalitarian leaders from the past, such as Mussolini, Hitler, Stalin, and Alexander the great; however, it persists into today's world with corporate

leaders often engaging in deceptive, exploitative, even psychopathic, actions. This could be partially due to the fact that corporate leadership is one of the career paths that attracts gifted, talented psychopaths [57–60]. As a consequence of the persistence of psychopathic corruption in the 21st-century, some corporations have become extremely powerful, and their actions often cause damage to millions or even billions around the globe [41,61,62]. In just one example of these effects, the United States Supreme Court opened the door to massive political corruption with the Citizens United decision that portrayed corporations as people and enabled them to purchase politicians with greater ease, thereby undermining democracy and exacerbating already severe inequality [63,64].

A particularly revelatory depiction of the widespread nature of corruption emerged in analyses carried out by Ariely and Garcia-Rada [65]. They showed how more than two-thirds of 180 nations around the world scored less than 50 on a scale ranging from 0 to 100, with the lowest numbers representing vigorous, widespread corruption, and the highest numbers showing that the nation is very clean. The least corrupt nations include Sweden, Finland, Denmark, New Zealand, and Singapore. The United States is well below these nations due to substantial political and economic corruption. A number of Third World nations have scores that indicate extreme corruption. Ariely and Garcia-Rada also described some of the reasons for the persistence and spread of corruption in societies. Receiving a request for a bribe undermines moral character, and bribery becomes contagious. It becomes more acceptable as it spreads throughout a society.

The persistence of nearly psychopathic, or even fully psychopathic behavior in the political and economic leadership in many societies around the world undermines human rights. Weitz [66], a historian, issued a compelling warning about this undermining. He pointed out that the United Nations General Assembly's passage of the Universal Declaration of Human Rights (UDHR) in 1948, constrained the power of unethical leaders in some limited ways but that massive human rights abuses are on the horizon in the decades to come. Severe socioeconomic inequality, the rise of authoritarian populism, the persistence and strengthening of racism, and the devastating effects of climate change are setting the stage for even more unethical leadership with more severe consequences.

These disturbing trends and issues raise implications for creativity, giftedness, and leadership. When intelligent, gifted and talented political and corporate leaders engage in unethical, psychopathic behavior, they produce extremely powerful forms of the aforementioned dark creativity. The severe damage inflicted on the global economy during the 2008 economic collapse is just one example. Gifted, creative, powerful leaders in the financial industry createddeceptive financial instruments that harmed the lives of billions while inflaming the great recession [62,67–69].

Widespread, persistent corruption could be the most important reason for injecting more ethical awareness in into the minds of gifted, creative young people who likely will become tomorrow's leaders. Such injections could enable future ethical leaders to give humanity a fighting chance to constrain corruption and promote the infusion of human rights into political and economic systems.

3. Discussion: Some Practical Responses to 21st-Century Existential Threats and Macro-Opportunities

How can educators of creative, gifted leaders and citizens possibly address the aforementioned 21st-century issues with any effectiveness? They seem so immense and powerful that all of humanity working together might have considerable difficulty dealing with them. However, that does not mean we should not try.

First, all of these gigantic problems and opportunities have ethical dimensions. A substantial lack of ethics in recent decades has exacerbated macroproblems such as climate change, widespread corruption, and the erosion of democracy. Consequently, all young people, especially the gifted, need to learn about the structure and dynamics of global macroproblems and macro-opportunities. This will require them to learn how to navigate through interdisciplinary explorations. Fortunately, curriculum integration processes in gifted education are designed to expand and invigorate interdisciplinary thinking [70,71].

In addition, interdisciplinary projects can generate new creative and critical thinking strategies based on insights derived from concepts that emerge from diverse disciplines. For example, various new strategies are designed to prompt participants to expand their ethical awareness [55]. One of these strategies encourages perception of the extent to which leaders in current events, historical events, or literary works are or were driven by the aforementioned particularist or universalist morality. Another strategy requires participants to place various actions on a diagram that reveals the extent to which morality and legality overlap. Another strategy engages participants in analyzing issues to determine whether or not they are macroproblems or macro-opportunities. Yet another strategy requires participants to clarify their position on a complex, controversial issue and then carry out research with the intention of undermining their own position. Additional strategies magnify wisdom and personal responsibility when dealing with 21st-century issues. Using these new strategies clarifies the nature of ethical creativity and dark creativity while strongly promoting the use of the former. Their use also can enable teachers and mentors of the gifted to focus more on discovering and developing aspirations and talents that align with the emergence of ethical awareness and wisdom, instead of self-centered inclinations, as clarified by Sternberg [20,21,24,72].

4. Concluding Thoughts

Metaphorically speaking, if we think about academic work as exploring and settling on a large island, explorers travel on different domain-specific ships and land in different coves. They build their settlements with the findings from their theorizing and research. Those who are creative use the conceptual building blocks to design novel theoretical and methodological buildings and roads. Those who are gifted use their intelligence and talents to ensure that the new colonies are carefully and efficiently designed to serve the needs of the settlers. Those with leadership capacities pull together the aspirations of the settlers to ensure that their work is guided by a common vision.

All of this sounds promising; however, if the minds of the settlers are too domain-specific, they will assume that there is nothing beyond their own settlement. If, instead, a few of them engage in interdisciplinary exploration, they will make expeditions into the interior, over the hills, and into other domain-specific settlements where they will learn new ways to carry out their work. When they bring those ideas back home, they can help the settlers escape the dogmatism of the "urban planning" they locked themselves into by using only the ideas that have dominated the settlement. The pressing trends and issues of the 21st-century demand energetic, efficient strengthening of ethical creativity, giftedness, and leadership. Interdisciplinary investigations will give us new opportunities to achieve that strengthening.

Funding: The study received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Excluding the statement because the theoretical synthesis did not report any specific research data.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Kaufman, J.C.; Sternberg, R.J. (Eds.) *Cambridge Handbook of Creativity*; Cambridge University Press: Cambridge, UK, 2010.
2. Sternberg, R.J.; Ambrose, D. (Eds.) *Conceptions of Giftedness and Talent*; Palgrave Macmillan: London, UK, 2021.
3. Sisk, D.A. Creative leadership. *Int. J. Talent Dev. Creat.* **2013**, *1*, 17–26.
4. Sisk, D. Developing leadership capacity in gifted students for the present and the future. In *The Roeper School: A Model for Holistic Development of High Ability*; Ambrose, D., Sriraman, B., Cross, T.L., Eds.; Sense: Rotterdam, The Netherlands, 2013; pp. 225–258.
5. Ambrose, D.; Sternberg, R.J. (Eds.) *Creative Intelligence in the 21st Century: Grappling with Enormous Problems and Huge Opportunities*; Sense: Rotterdam, The Netherlands, 2016.

6. Ambrose, D.; Sternberg, R.J. (Eds.) *Giftedness and Talent in the 21st Century: Adapting to the Turbulence of Globalization*; Sense: Rotterdam, The Netherlands, 2016.
7. Ambrose, D. Twenty-first century contextual influences on the life trajectories of creative young people. In *Creative Intelligence in the 21st Century: Grappling with Enormous Problems and Huge Opportunities*; Ambrose, D., Sternberg, R.J., Eds.; Sense: Rotterdam, The Netherlands, 2016; pp. 21–48.
8. Ambrose, D. A model for clarification and expansion of conceptual foundations. *Gift. Child Q.* **1998**, *42*, 77–86. [CrossRef]
9. Ambrose, D. Large-scale contextual influences on creativity: Evolving academic disciplines and global value systems. *Creat. Res. J.* **2006**, *18*, 75–85. [CrossRef]
10. Ambrose, D. *Expanding Visions of Creative Intelligence: An Interdisciplinary Exploration*; Hampton Press: New York, NY, USA, 2009.
11. Ambrose, D. Borrowing insights from other disciplines to strengthen the conceptual foundations for gifted education. *Int. J. Talent Dev. Creat.* **2015**, *3*, 33–57.
12. Ambrose, D. Interdisciplinary invigoration of creativity studies. *J. Creat. Behav.* **2017**, *51*, 348–351. [CrossRef]
13. Ambrose, D. Large-scale interdisciplinary design thinking for dealing with 21st-century problems and opportunities. In *Creativity, Design Thinking, and Interdisciplinarity*; Darbellay, F., Moody, Z., Lubart, T., Eds.; Springer: Cham, Switzerland, 2017; pp. 35–52.
14. Ambrose, D. Interdisciplinary exploration and domain-specific expertise are mutually enriching. In *Dynamic Perspectives on Creativity: New Directions for Theory, Research, and Practice in Education*; Beghetto, R., Corazza, G.E., Eds.; Springer: Cham, Switzerland, 2019; pp. 225–243.
15. Ambrose, D. Interdisciplinary exploration guiding conceptions of giftedness. In *Conceptions of Giftedness*; Sternberg, R.J., Ambrose, D., Eds.; Palgrave MacMillan: London, UK, 2021; pp. 1–20.
16. Weitz, E.D. *A Century of Genocide*; Princeton University Press: Princeton, NJ, USA, 2003.
17. Weitz, E.D. *A World Divided: The Global Struggle for Human Rights in the Age of Nation-States*; Princeton University Press: Princeton, NJ, USA, 2021.
18. Geertz, C. *Available Light: Anthropological Reflections on Philosophical Topics*; Princeton University Press: Princeton, NJ, USA, 2000.
19. Ambrose, D.; Cross, T.L. (Eds.) *Morality, Ethics, and Gifted Minds*; Springer Science: Berlin, Germany, 2009.
20. Sternberg, R.J. ACCEL: A new model for identifying the gifted. *Roeper Rev.* **2017**, *39*, 152–169. [CrossRef]
21. Sternberg, R.J. *Adaptive Intelligence*; Cambridge University Press: Cambridge, UK, 2021.
22. Cropley, D.H.; Cropley, A.J.; Kaufman, J.C.; Runco, M.A. (Eds.) *The Dark Side of Creativity*; Cambridge University Press: Cambridge, UK, 2010.
23. McLaren, R.M. The dark side of creativity. *Creat. Res. J.* **1993**, *6*, 137–144. [CrossRef]
24. Sternberg, R.J. The dark side of creativity and how to combat it. In *The Dark Side of Creativity*; Cropley, D.H., Cropley, A.J., Kaufman, J.C., Runco, M.A., Eds.; Cambridge University Press: Cambridge, UK, 2010; pp. 316–328.
25. Ambrose, D. The erosion of democracy: Can we muster enough wisdom to stop it? In *Applying Wisdom to Contemporary World Problems*; Sternberg, R.J., Glueck, J., Nussbaum, H., Eds.; Palgrave-Macmillan: London, UK, 2019; pp. 21–50.
26. Snyder, T. *The Road to Unfreedom: Russia, Europe, America*; Tim Duggan Books: New York, NY, USA, 2018.
27. Morson, G.S.; Schapiro, M. *Minds Wide Shut: How the New Fundamentalisms Divide Us*; Princeton University Press: Princeton, NJ, USA, 2021.
28. Mounk, Y. *The People vs. Democracy: Why Our Freedom Is in Danger and How to Save It*; Harvard University Press: Cambridge, MA, USA, 2018.
29. Ambrose, D. Interdisciplinary expansion of conceptual foundations: Insights from beyond our field. *Roeper Rev.* **2005**, *27*, 137–143. [CrossRef]
30. Sapolsky, R.M. The health-wealth gap. *Sci. Am.* **2018**, *319*, 63–67. [CrossRef]
31. McCluskey, K.W. Identification of the gifted redefined with ethics and equity in mind. *Roeper Rev.* **2017**, *39*, 195–198. [CrossRef]
32. McCluskey, K.W.; Baker, P.A.; McCluskey, A. Creative problem solving with marginalized populations: Reclaiming lost prizes through in-the-trenches interventions. *Gift. Child Q.* **2005**, *49*, 330–341. [CrossRef]
33. Page, S.E. *The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies*; Princeton University Press: Princeton, NJ, USA, 2007.
34. Page, S. *The Diversity Bonus: How Great Teams Pay Off in the Knowledge Economy*; Princeton University Press: Princeton, NJ, USA, 2017.
35. Bender, T.; Schorske, C.E. (Eds.) *American Academic Culture in Transformation: Fifty Years, Four Disciplines*; Princeton University Press: Princeton, NJ, USA, 1997.
36. Akerlof, G.A.; Shiller, R.J. *Phishing for Phools: The Economics of Manipulation and Deception*; Princeton University Press: Princeton, NJ, USA, 2015.
37. Ambrose, D. Dogmatic neoclassical economics and neoliberal ideology suppressing talent development in mathematics: Implications for teacher education. In *Mathematics Teacher Education in the Public Interest: Equity and Social Justice*; Jacobsen, L.J., Mistele, J., Sriraman, B., Eds.; Information Age: Charlotte, NC, USA, 2012; pp. 83–97.
38. Ambrose, D. The not-so-invisible hand of economics and its impact on conceptions and manifestations of high ability. In *Confronting Dogmatism in Gifted Education*; Ambrose, D., Sternberg, R.J., Sriraman, B., Eds.; Routledge: London, UK, 2012; pp. 97–114.
39. Morson, G.S.; Schapiro, M. *Cents and Sensibility: What Economics can Learn from the Humanities*; Princeton University Press: Princeton, NJ, USA, 2017.

40. Piketty, T. *Capital in the Twenty-First Century*; Harvard University Press: Cambridge, MA, USA, 2014.
41. Stiglitz, J.E. *Rewriting the Rules of the American Economy: An Agenda for Growth and Shared Prosperity*; W. W. Norton: New York, NY, USA, 2016.
42. Anderson, L. Visual–spatial ability: Important in STEM, ignored in gifted education. *Roeper Rev.* **2014**, *36*, 114–121. [CrossRef]
43. Anderson, G. *Drawing as a Way of Knowing in Art and Science*; Intellect, Ltd.: Bristol, UK, 2017.
44. Börner, K. *Atlas of Science: Visualizing What We Know*; MIT Press: Cambridge, MA, USA, 2010.
45. Fernández-Fontecha, A.; O'Halloran, K.L.; Tan, S.; Wignell, P. A multimodal approach to visual thinking: The scientific sketchnote. *Vis. Commun.* **2019**, *18*, 5–29. [CrossRef]
46. Fisher, B.; Green, T.M.; Arias-Hernández, R. Visual analytics as a translational cognitive science. *Topics Cogn. Sci.* **2011**, *3*, 609–625. [CrossRef]
47. Healy, K. *Data Visualization*; Princeton University Press: Princeton, NJ, USA, 2018.
48. Kalbfleisch, M.L. (Ed.) Visual-spatial talent [special issue]. *Roeper Rev.* **2013**, *35*, 135.
49. Kell, H.J.; Lubinski, D.; Benbow, C.P.; Steiger, J.H. Creativity and technical innovation: Spatial ability's unique role. *Psychol. Sci.* **2013**, *24*, 1831–1836. [CrossRef]
50. Root-Bernstein, R.; Allen, L.; Beach, L.; Bhadula, R.; Fast, J.; Hosey, C.; Kremkow, B.; Lapp, J.; Lonc, K.; Pawelec, K.; et al. Arts foster scientific success: Avocations of Nobel, National Academy, Royal Society, and Sigma Xi members. *J. Psychol. Sci. Technol.* **2008**, *1*, 51–63. [CrossRef]
51. Wai, J.; Lubinski, D.; Benbow, C.P. Spatial ability for STEM domains: Aligning over 50 years of cumulative psychological knowledge solidifies its importance. *J. Educ. Psychol.* **2009**, *101*, 817–835. [CrossRef]
52. West, T.G. Amazing shortcomings, amazing strengths: Beginning to understand the hidden talents of dyslexics. *Asia Pac. J. Dev. Differ.* **2014**, *1*, 78–89. [CrossRef]
53. Shlain, L. *Art & Physics: Parallel Visions in Space, Time, and Light*; William Morrow: New York, NY, USA, 2007.
54. Watts, S.; Wakefield, C. (Eds.) *Teaching Visual Methods in the Social Sciences*; Routledge: London, UK, 2017.
55. Ambrose, D. *Instructional Strategies for Thoughtful, Engaged, 21st-Century Learning*; 2021; book manuscript in preparation.
56. Abraham, J.N. *Kings, Conquerors, Psychopaths: From Alexander to Hitler to the Corporation*; Hidden Hills Press: Hidden Hills, CA, USA, 2018.
57. Babiak, P.; Hare, R.D. *Snakes in Suits: When Psychopaths Go to Work*; HarperCollins: New York, NY, USA, 2006.
58. Babiak, P.; Neumann, C.S.; Hare, R.D. Corporate psychopathy: Talking the walk. *Behav. Sci. Law* **2010**, *28*, 174–193. [CrossRef]
59. Boddy, C.R. Corporate psychopaths: Uncaring citizens, irresponsible leaders. *J. Corp. Citizsh.* **2013**, *49*, 8–16.
60. Boddy, C.R.; Ladyshewsky, R.; Galvin, P. Leaders without ethics in global business: Corporate psychopaths. *J. Public Aff.* **2010**, *10*, 121–138. [CrossRef]
61. Ambrose, D. Unmeritorious meritocracy: The ascendance of psychopathic plutocracy in the globalized 21st-century. In *Risk Factors, Behavioral Symptoms and Treatment Options*; Fitzgerald, M., Ed.; Nova: Hauppauge, NY, USA, 2015; pp. 61–73.
62. Stiglitz, J.E. *Free Fall: America, Free Markets, and the Sinking of the World Economy*; W. W. Norton: New York, NY, USA, 2010.
63. Teachout, Z. *Corruption in America: From Benjamin Franklin's Snuff Box to Citizens United*; Harvard University Press: Cambridge, MA, USA, 2014.
64. Winkler, A. *We the Corporations: How American Businesses Won Their Civil Rights*; W. W. Norton: New York, NY, USA, 2018.
65. Ariely, D.; Garcia-Rada, X. Contagious dishonesty. *Sci. Am.* **2020**, *29*, 80–83.
66. Weitz, E.D. *Reaffirming Human Rights*; Princeton University Press: Princeton, NJ, USA, 2020.
67. Ferguson, C.H. *Predator Nation: Corporate Criminals, Political Corruption, and the Hijacking of America*; Random House: New York, NY, USA, 2013.
68. Phillips, K. *Big Money: Reckless Finance, Failed Politics, and the Global Crisis of American Capitalism*; Viking: New York, NY, USA, 2008.
69. Wolff, R. *Capitalism Hits the Fan*; Interlink: Northampton, MA, USA, 2010.
70. VanTassel-Baska, J.; Stambaugh, T. *Comprehensive Curriculum for Gifted Learners*, 3rd ed.; Allyn & Bacon: Boston, MA, USA, 2006.
71. VanTassel-Baska, J.; Wood, S. The integrated curriculum model (ICM). *Learn. Individ. Differ.* **2010**, *20*, 345–357. [CrossRef]
72. Sternberg, R.J. Why bad leaders? A perspective from WICS. In *Debating Bad Leadership: Reasons and Remedies*; Örtenblad, A., Ed.; Palgrave Macmillan: London, UK, 2021; pp. 141–159.

education sciences

MDPI

Concept Paper

Beyond Transformational Giftedness

Robert J. Sternberg [1,*], Aakash Chowkase [2], Ophélie Desmet [2], Sareh Karami [3], Jenna Landy [1] and Jialin Lu [1]

[1] College of Human Ecology, Cornell University, Ithaca, NY 14853, USA; jpl323@cornell.edu (J.L.); jl4234@cornell.edu (J.L.)
[2] Department of Educational Studies, College of Education, Purdue University, West Lafayette, IN 47907, USA; achowkas@purdue.edu (A.C.), odesmet@purdue.edu (O.D.)
[3] Department of Counseling, Educational Psychology, and Foundations, College of Education, Mississippi State University, Starkville, MS 39762, USA; skarami@colled.msstate.edu
* Correspondence: rjs487@cornell.edu

Abstract: This article discusses kinds of transformational giftedness, or giftedness that makes a positive, meaningful, and possibly enduring difference to the world. We extend previous work by suggesting that there are two kinds of transformation that matter: self-transformation and other-transformation. Combining these two kinds of transformation yields a 2 × 2 grid of four kinds of giftedness: non-transformational giftedness (no transformation), transformational giftedness (self- and other-transformation combined), self-realized giftedness (whereby one transforms oneself but not others), and other-realized giftedness (whereby one transforms others but not oneself). We open with a discussion of some of the history of conceptions of giftedness. Then we discuss transformational giftedness as it has been defined in the recent past. We then introduce our concepts of self- and other-transformation. We also describe two other kinds of giftedness—inert giftedness, which is giftedness in personal attributes that has not been realized in interactions with others and the world; and transactional giftedness, which is a give-and-take form of giftedness whereby one meets certain societal expectations in exchange for being identified as gifted. We finally conclude that the gifted movement needs to focus much more on developing transformational giftedness, or at least the potential for it, in our young people.

Keywords: transactional giftedness; inert giftedness; other-transformational giftedness; transformational giftedness; self-transformational giftedness; giftedness

Citation: Sternberg, R.J.; Chowkase, A.; Desmet, O.; Karami, S.; Landy, J.; Lu, J. Beyond Transformational Giftedness. *Educ. Sci.* **2021**, *11*, 192. https://doi.org/10.3390/educsci11050192

Academic Editors: Dorothy Sisk and James Albright

Received: 27 February 2021
Accepted: 13 April 2021
Published: 22 April 2021

1. Beyond Transformational Giftedness

If there is one thing the world needs right now, it is gifted individuals. There are so many problems, ranging from global climate change to pandemics to enormous income disparities to uncontrolled obesity. The world needs gifted individuals to contribute toward the solution of these problems.

How, though, should giftedness be conceptualized? Many conceptions of giftedness have been proposed, a number of which are reviewed immediately below. We, however, have chosen to build upon Sternberg's notion of transformational vs. transactional giftedness, suggesting that this conception, as it exists, is an excellent start but is missing some elements [1,2]. People who are transformationally gifted seek to make positive and meaningful changes to the world, at some level. We have proposed to expand the model and, perhaps, to complete it by considering the concept of transformation in more detail than Sternberg did in his original articles.

2. History of Some Conceptions of Giftedness

The question always is exactly what one means by "gifted". Over time, scholars have had somewhat different ideas. For example, Sir Francis Galton believed that gifted individuals excel in psychophysical skills, such as recognizing differences between similar

visual stimuli or pitches [3]. He also believed these skills are largely hereditary—passed on from one generation to the next via our genes [4]. Alfred Binet and Theodore Simon had a very different conception, relating intelligence more to judgmental abilities [5]. However, Binet and Simon's primary interest was in children with intellectual challenges rather than in those who were gifted. The challenge of developing Binet's ideas was taken up by Lewis Terman, a professor at Stanford University, to operationalize Binet and Simon's ideas for the gifted. Terman adopted the idea of giftedness as recognizable by an IQ of over 140, or roughly 2 $\frac{1}{2}$ standard deviations above the mean score of 100 on the version of Binet's test he created [6,7].

Over the years, many other conceptions of giftedness have evolved. For example, Renzulli proposed that above-average ability, creativity, and task commitment intersect to form giftedness [8,9]; Tannenbaum suggested general ability, special aptitudes, non-intellective requisites, environmental supports, and chance in his "sea-star" model [10]. Some theorists have gone beyond the usual boundaries of such conceptions. For example, Sisk has gone further in her suggestion of a form of spiritual intelligence as a basis for giftedness [11]. This intelligence was considered but ultimately not included by Gardner in his model of multiple intelligences [12].

Further, Ziegler has proposed an actiotope model, according to which giftedness is not an internal property of an individual but rather the result of a label assigned by experts that represents interactions that an individual has with the environment [13]. Gagné has proposed a differentiated model of giftedness and talent (DMGT), according to which one can distinguish the gifts with which one starts life, from talents, which develop out of gifts [14,15]. Gagné further distinguishes among intellectual, creative, socio-affective, and sensorimotor abilities, as well as among academic, artistic, business, leisure, social affective, athletic, and technological talents. Dai, in his evolving-complexity theory, suggests that giftedness should be viewed developmentally by treating the developing individual as an open, dynamic, and adaptive system, which changes itself (similarly to Ziegler's notion) as it interacts with the opportunities as well as the challenges that the environment provides [16]. Subotnik et al. have proposed a so-called "megamodel," according to which "giftedness (a) reflects the values of society; (b) is typically manifested in actual outcomes, especially in adulthood; (c) is specific to domains of endeavor; (d) is the result of the coalescing of biological, pedagogical, psychological, and psychosocial factors; and (e) is relative not just to the ordinary (e.g., a child with exceptional art ability compared to peers) but to the extraordinary (e.g., an artist who revolutionizes a field of art)" [17] (p. 3) [18]. And Cross and Cross have proposed a school-based conception of giftedness, which emphasizes the various domains of giftedness that schools seek and recognize [19].

All of these models assume, at some level, that there is an identifiable group of people within the larger population who, one way or another, can be designated as "gifted," "talented," or both [20–22]. What differs among the models is precisely what set of attributes or behaviors constitutes giftedness, and how context affects the identification of the attributes in that set.

Edited compendia of conceptions of giftedness have been published from time to time by Sternberg and his colleagues [23–26]. Histories of conceptions and how they have played out in society have been written by Margolin and by Jolly [27,28]. But these conceptions have been variable in how quickly and easily they have taken hold in gifted identification programs in schools. Moreover, the conceptions and the ways they have been implemented sometimes have had racist, classist, or other prejudicial elements (see [29,30]).

Most of the models of giftedness that have been proposed have focused on aspects of the person, such as intelligence, creativity, and motivation. Some have included environmental factors as well that either facilitate or hinder the expression of giftedness. Recently, Sternberg has suggested a somewhat different functional account, inspired in part by theories of transactional and transformational leadership [1,2,31–33].

3. Transformational and Transactional Giftedness

Sternberg has defined transformational giftedness as giftedness that, by its nature, is deployed to make a positive change in the world at some level of analysis [2]. Transformationally gifted individuals seek to make the world a better place (see also [34]). People who are transformationally gifted are so by virtue of the function to which they direct their giftedness. They seek to create positive, meaningful, and hopefully, enduring change. In contrast, transactional giftedness is giftedness that is tit-for-tat, representing a form of give and take. A transactionally gifted individual is identified as "gifted" and then is expected to give something back in return. They may be expected to have a string of successes on standardized tests, or to get good grades in school, or to be admitted to prestigious colleges and universities, or to attain prestigious occupational postings and then to excel in them.

Transactional or transformational giftedness do not result merely from someone being born with a particular set of traits. Rather, they result from the kind of give-back the gifted person offers—either an exchange of services (transactional giftedness) or a positive, meaningful, and possibly enduring change in the world. The focus of the current article, however, is on transformational, not transactional giftedness.

The two types of giftedness are not mutually exclusive. Transformationally gifted individuals are often extremely determined to make the positive changes that they wish to make. This kind of resilience helps them to excel in their field. Therefore, most transformationally gifted people are sufficiently transactionally gifted that they can reach a position in society from which they can make the meaningful difference they seek to make. Some programs, such as the Schoolwide Enrichment Model, may help develop aspects of transformational giftedness [35].

There are many measures of transactional giftedness—virtually all the measures that currently are used to assess giftedness. One might wonder whether transformational giftedness similarly can be measured, or whether it is either immeasurable or measurable only after one's career is over, and one can assess that career in retrospect. Just as measures of transactional giftedness are actually predictors of transactional giftedness rather than measures of transactional achievement, so, we suggest, is it possible to predict transformational giftedness. The transformational-giftedness scale we are currently exploring in our empirical research is shown in Table 1. It is taken from Sternberg [36]. It is available for research purposes for those wishing to use it.

Table 1. STGS: Preliminary Version.

Part I.
1. Write a paragraph about what your future dream life in 25 years would look like, with the constraint that there is a chance of achieving it.
2. What are you passionate about? How would you expect that passion to affect your future life?
3. Design an App. What is its purpose and how does it accomplish it?
Part II.
1. What would you most like to accomplish in your life? How will you get from where you are to where you want to be to accomplish that thing?
2. What are two other things you would like to accomplish in your life?
3. When you are older, how will you decide if you are satisfied with what you have done in your life?
4. What do you see as the biggest obstacle to accomplishing your principal goal in life and how will you overcome it?
Part III.
1. Pick a major world problem. What are things you personally could do to help solve the problem? How could you do them?
2. What are things the country in which you live could do to help solve the problem you chose? How could the country do them?
3. Have you done anything in your life that you believe helps to make the world a better place? If so, what?

Table 1. *Cont.*

Part IV.
1. What is the one thing you have done in your life of which you are most proud? Why are you proud of it?
Part V
1. If you were to change one thing in the world, what would it be?
Part VI
1. Martin Luther King and Mahatma Gandhi both defied the laws of their times and went to prison for their beliefs. Did they do the right thing in defying the law? Why or why not? 2. Suppose you had a belief about how things in the world need to change. But other people close to you told you they disagreed with you. What would you do? 3. Do you think there might be a time in your life when it will be better to be right than to be well-liked? If so, what might an example be?
Part VII
1. If a lot of people believe something, do you generally conclude that it is most likely true? Why or why not? 2. Have you had any beliefs that you used to accept but that you no longer accept? If so, what changed your mind, and why? 3. Can you think of a belief most people have that you do not accept? If so, what is it and why do you not accept it?

Scoring: Scoring is by the consensual assessment technique. Judges are asked to rate the extent to which each response reflects, on a 1–5 scale, a transformational rather than merely transactional mindset. Adapted from: Sternberg, R. J. (2021b). Transformational vs. transactional deployment of intelligence. *Journal of Intelligence*, *9*(15), https://doi.org/10.3390/jintelligence9010015. Reprinted with permission. This measure was developed by Robert J. Sternberg in collaboration with Aakash Chowkase, Ophélie Desmet, Sareh Karami, Jenna Landy, Jennifer Long, and Jialin Lu.

4. Other-Transformational vs. Self-Transformational Giftedness

In reflecting upon the concept of transformational giftedness, we have concluded that the concept needs expansion. In particular, there appear to be two kinds of transformational giftedness that lead to "transformations" in the sense of changing one thing into something different and perhaps very different. Thus, we make a proposal that we believe helps to "complete" Sternberg's model.

Other-transformational giftedness refers to the direction of one's giftedness toward making a transformative difference with respect to others—making a positive, meaningful, and possibly enduring difference to the world. This concept appears to be similar to what Sternberg [1,2] referred to as transformational giftedness.

Self-transformational giftedness refers to the direction of one's giftedness toward making a transformative difference with respect to oneself—to making a positive, meaningful, and possibly enduring difference within oneself. For many individuals, self-transformational giftedness is a preliminary to other-transformational giftedness. One finds one's purpose in life [37] or in becoming, in Maslow's terms, self-actualized [38].

On this view, people do not just simply transform the world at some level. Rather, first, they find a purpose in life—they self-actualize in terms of whatever is meaningful to them [39]. This purpose and its corresponding goal or set of goals become clear to them. In other words, self-transformational giftedness becomes a base from which transformational giftedness arises.

Figure 1 shows our newly proposed model. It links self- and other-transformational giftedness to generate four kinds of functional giftedness.

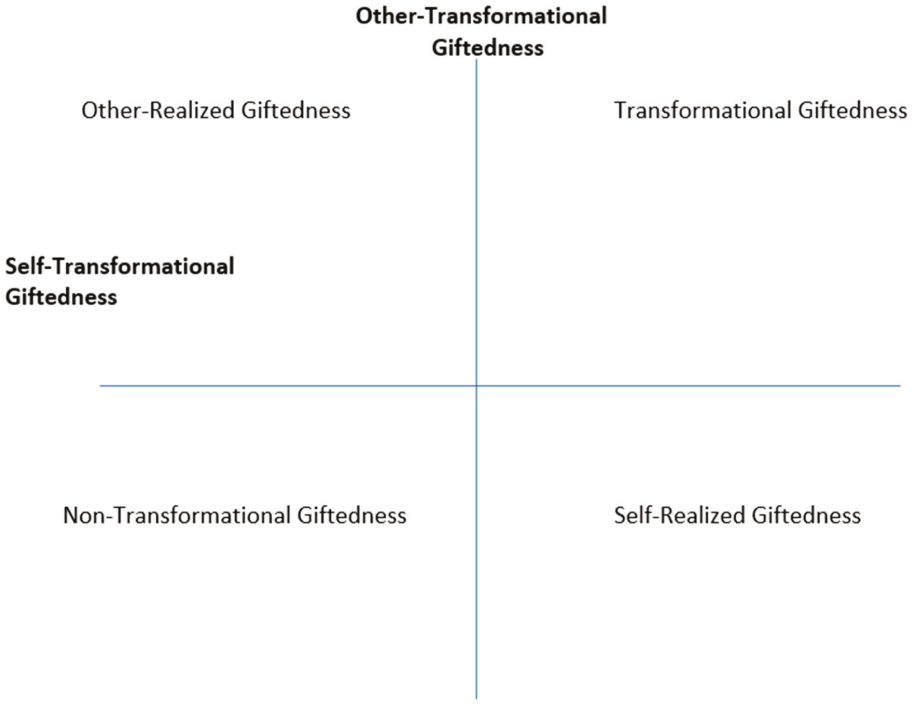


Figure 1. Other-transformational and self-transformational giftedness. The *x*-axis (horizontal axis) represents either low (left quadrants) or high (right quadrants) levels of self-transformational giftedness. The *y*-axis (vertical axis) represents either low (lower quadrants) or high (upper quadrants) levels of other-transformational giftedness. Inert (Immobilized) Giftedness is giftedness in the absence of transactional and both self-directed and other-directed transformational giftedness. Transactional Giftedness is on a different dimension, not shown in the figure. Thus, it crosses all the quadrants as a separate dimension.

5. Non-Transformational Giftedness

In the lower-left quadrant, where we have neither other- nor self-transformational giftedness, we have non-transformational giftedness. The giftedness has not been directed toward transformation. Someone in this quadrant may be gifted. Indeed, they may be either inertly or transactionally gifted at any level. They simply lack transformational giftedness of any kind.

Inert giftedness is, perhaps oddly, the kind of giftedness that educational institutions have most emphasized in their identification procedures and in much of their education. Inert giftedness is displayed in having the personal qualities that identify one as gifted but not necessarily as showing any signs of having used these qualities to make any positive and meaningful difference of any kind. One simply possesses identified personal qualities that are sitting in oneself, waiting to be used in some way. Even adults may be inertly gifted. They may have a high IQ or have shown unusual talents on gifted identification measures. But they have not (at least, yet) used their gifts actively. Their last great accomplishment may have been their high scores on a standardized test or their elite university education with which they have done little. Inert giftedness is not shown in Figure 1, as it is neither self- nor other-transformational.

Inert giftedness is similar, perhaps, to what Renzulli refers to as "schoolhouse giftedness" [40]. Inert giftedness also is similar to what Gagné has called "outstanding natural abilities" or "gifts" [14,15]. And it is similar to Tannenbaum's notion of "promise" or "potential for gifted fulfillment" [10]. Gagné and Tannenbaum have viewed giftedness as

a developmental concept, whereas inert giftedness is only a starting point, but hopefully not an endpoint, to developing "talent," in Gagné's words, or "fulfillment of potential", in Tannenbaum's words. Our notion of inert giftedness is similar in that it is a type of giftedness that has not been realized yet. Whatever label one uses, the inertly gifted person has the qualifications to be identified as gifted but stops there because they have not displayed their giftedness in a meaningful societal way.

Transactional giftedness, as noted above, does require some kind of accomplishment. The transactionally gifted individual has given something back—in exchange for their being identified as gifted, they have achieved high grades, or college or university success, or success in a job. But they are in the mode of give-and-take rather than of meaningful change. Transactional giftedness is not shown in Figure 1, as it is a separate dimension from transformational giftedness. Transformationally gifted individuals almost always know, at some level, how to be transactional when they need to be, but transactionally gifted individuals may or may not be transformationally gifted. Most probably are not. The transactionally gifted person gives back to society, but in a way that requires them to receive something concrete in exchange for what they have given.

6. Transformational Giftedness

Transformational giftedness is represented in the quadrant, in the upper-right, that we have considered above. The individual has transformed themselves—has found their purpose and passion—and has directed themselves toward making the world a better place. They may be adults, of course, as in the case of Martin Luther King, Jr., Albert Einstein, Mother Teresa, or Nelson Mandela. But they also may be adolescents, as in the case of Malala Yousafzai, who was shot for advocating the rights of young women to an education in Pakistan, or Greta Thunberg, who has started a worldwide movement of young people advocating for action to combat climate change. The transformationally gifted person gives without any necessary expectation of a give-back. The main reward for them is the transformation that they hope to help achieve.

Transformational giftedness is not equivalent to mere social engagement or activism. Many social activists simply advocate for causes, following in the possibly admirable, but also well-worn paths of activists who came before them. They echo the messages of others. Like so many people in any other pursuit, you generally never hear about them.

Then there are activists such as those mentioned above—Malala Yousafzai, who at the age of 21 has over 6 million hits on Google; and Greta Thunberg, who, at the age of 18, has roughly 19 million hits on Google. Alexandria Ocasio-Cortez, who at the age of 31 has roughly 14 million hits, turned a career as a progressive social activist into a stint as a Representative in the United States Congress. Some who seek transformation represent a different perspective, such as conservative commentator Ben Shapiro, age 37, with roughly 46 million hits on Google. The point is not the politics or the social activism or whether one believes in their cause, but rather the successful transformation they achieve through their efforts.

7. Self-Realized Giftedness

Self-realized giftedness is represented in the lower-right quadrant of the figure. It refers to people who have transformed themselves to find a sense of purpose and meaning in their lives, but who have not, at least yet, translated this self-transformation into a transformation that also impacts the world at some level. They may simply have not yet gotten to other-transformation, or they may have no desire to get to it. One could imagine, for example, someone who has found a sense of peace, balance, and meaning within their life, but whose sense of purpose simply does not extend, at a given point in their life, to transforming the lives of others. The self-realized gifted person's gift, in essence, is to themselves. They may find peace and harmony on top of a mountain with no interpersonal contacts, or they may find that peace and harmony in the context of interactions with

others. But the gift is in their transformation of self. The interactions may help achieve that transformation but are not the recipients of it.

Who are the famous people with self-realized giftedness? Not many. That is the point: they do not seek fame, but rather, spiritual fulfillment, and often, withdrawal and even isolation. They are content to develop their own self-actualization without seeking fame or other forms of recognition in the world. They may become nuns, or monks, or philosophers on a metaphorical mountaintop. Or they may be next-door neighbors who have achieved self-actualization but have no need or desire to impose it on, or perhaps even share it with, others. They may teach religion or spirituality or yoga or meditation or mindfulness, but their goal is not to make a big splash, but rather to share in a limited way the heights they have reached. The Dalai Lama has been thrust into the role of an ambassador for mindfulness and spirituality but probably has in common many characteristics with those who are self-realized gifted.

8. Other-Realized Giftedness

Other-realized giftedness, represented in the upper-left quadrant of the figure, refers to a realization by people who have made a difference to others but who have not transformed themselves. They are making a difference, but they lack a clear sense of inner direction and purpose. They either may be doing what they are doing because others have put them up to it or because they happened to stumble upon some way in which they can make a difference. But they have not reflected as to why they are doing what they are doing and why it matters for fulfilling themselves and the world. The other-realized gifted person makes a difference to others but may themselves have achieved little or no internal transformation—they direct their gifts fully outwardly, often at the cost of their own self-development.

There are so many examples of people with other-realized giftedness, whose lives have transformed others but at their own expense. Notable examples are popular-music stars such as Elvis Presley, Janis Joplin, Jimi Hendrix, and Keith Moon. They made a huge difference to others but utterly failed to get their own lives together. F. Scott Fitzgerald died of alcoholism at age 44 and various other literary geniuses committed suicide, such as Ernest Hemingway, Sylvia Plath, and Virginia Woolf. These individuals transformed the lives of others but never were able to transform their own lives to deal with their greatness, their inner struggles, or both. These individuals made important positive transformations in society, but perhaps at their own expense.

9. Conclusions

We suggest that, if the world is truly to become a better place, we need to develop gifts that are self- and other-transformational. Developing giftedness in children is not just about accelerating them in some subject, or about enriching their learning about that subject matter. Rather, such development is in helping the children find purpose and meaning in their lives and then making a positive, meaningful, and possibly enduring difference to others through the sense of purpose they have developed. To that end, educators and schools may be able to help young individuals develop an understanding of their inner self, guide them to find more purposeful life goals, motivate them to empathize with others and with nature around them, help them develop compassion for others' suffering, and cultivate attitudes of the inherent oneness that underlies humanity. Schools striving to develop transformational giftedness may not shy away from exposing students to the issues of social injustice and inequity prevalent in human societies.

One can be gifted without being transformationally gifted. But we suggest that if society wants to solve the many problems confronting it, it must develop young people who are not just gifted but gifted in a transformational way. Society must develop the young people who will find meaning in life that will transform them, and then who will make a positive, meaningful, and possibly enduring difference to a world desperately in need of positive change.

Author Contributions: R.J.S. was the lead in conceptualizing the article and wrote the first draft. All other coauthors contributed to the conceptualization and writing, in the order in which they are listed as co-authors. All co-authors reviewed all drafts of the article and revised them as appropriate. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgments: We are grateful to members of Robert J. Sternberg's research group at Cornell for occasional discussions of the topic of transformational giftedness.

Conflicts of Interest: The authors declare no conflict of interest.

Summary: Historically, giftedness has been viewed as a single attribute, with the concept of giftedness often operationalized by a minimum IQ score or combination of an IQ score with measures of school achievement. But gifted individuals, as traditionally defined and educated, have not proven up to the task of meeting the grave challenges of contemporary life, such as pandemics, global climate change, weapons of mass destruction, pollution, income disparities, hunger, and repressive governments. We propose that giftedness needs to be conceptualized in a more variegated and practically useful way. For the first time, we propose eight categories of giftedness, which expand upon two categories initially proposed by Robert J. Sternberg. The traditional form of giftedness is viewed as "transactional giftedness," whereby those identified are expected to give back to society in proportion to the extra resources invested in them. People who are identified but who do not give back are referred to here as "inertly" gifted. We distinguish transactional from transformational giftedness. Self-transformational giftedness involves a positive restructuring of the self; other-transformational giftedness involves restructuring life for others; and fully transformational giftedness involves transforming both the self and others. Giftedness also can be destructive, either of the self, others, or both.

References

1. Sternberg, R.J. Transformational giftedness. In *Conceptual Frameworks for Giftedness and Talent Development*; Cross, T.L., Olszewski-Kubilius, P., Eds.; Prufrock Press: Waco, TX, USA, 2020; pp. 203–234.
2. Sternberg, R.J. Transformational giftedness: Rethinking our paradigm for gifted education. *Roeper Rev.* **2020**, *42*, 230–240. [CrossRef]
3. Galton, F. *Inquiries into Human Faculty and Its Development (1883)*; Cornell University Library: Ithaca, NY, USA, 2009.
4. Galton, F. *Hereditary Genius*; Macmillan: New York, NY, USA, 1869.
5. Binet, A.; Simon, T. *The Development of Intelligence in Children*; Williams & Wilkins: Baltimore, MA, USA, 1916.
6. Terman, L.M. *The Measurement of Intelligence: An Explanation of and a Complete Guide for the Use of the Stanford Revision and Extension of the Binet-Simon Intelligence Scale*; Houghton Mifflin: Boston, MA, USA, 1916.
7. Terman, L.M. *Genetic Studies of Genius: Mental and Physical Traits of a Thousand Gifted Children*; Stanford University Press: Palo Alto, CA, USA, 1925; Volume 1.
8. Renzulli, J.S. What makes giftedness: Re-examining a definition. *Phi Delta Kappan* **1978**, *60*, 180–184. [CrossRef]
9. Renzulli, J.S. The three-ring conception of giftedness: A developmental model for promoting creative productivity. In *Reflections on Gifted Education: Critical Works by Joseph S. Renzulli and Colleagues*; Reis, S.M., Ed.; Prufrock Press: Waco, TX, USA, 2016; pp. 55–90.
10. Tannenbaum, A.J. *Gifted Children: Psychological and Educational Perspectives*; Macmillan Publishing: New York, NY, USA, 1983.
11. Sisk, D. Engaging the spiritual intelligence of gifted students to build global awareness in the classroom. *Roeper Rev.* **2008**, *30*, 24–30. [CrossRef]
12. Gardner, H. *Frames of Mind: The Theory of Multiple Intelligences*, 3rd ed.; Basic Books: New York, NY, USA, 2011.
13. Ziegler, A. The actiotope model of giftedness. In *Conceptions of Giftedness*, 2nd ed.; Sternberg, R.J., Davidson, J.E., Eds.; Cambridge University Press: New York, NY, USA, 2005; pp. 411–437.
14. Gagné, F. Motivation within the DMGT 2.0 framework. *High Abil. Stud.* **2010**, *21*, 81–99. [CrossRef]
15. Gagné, F. Academic talent development: Theory and best practices. In *APA Handbooks in Psychology®. APA Handbook of Giftedness and Talent*; Pfeiffer, S.I., Shaunessy-Dedrick, E., Foley-Nicpon, M., Eds.; American Psychological Association: Washington, DC, USA, 2018; pp. 163–183. [CrossRef]
16. Dai, D.Y. Evolving complexity theory of talent development. In *Conceptual Frameworks for Giftedness and Talent Development*; Cross, T.L., Olszewski-Kubilius, P., Eds.; Prufrock Press: Waco, TX, USA, 2020; pp. 1–27.

17. Subotnik, R.F.; Olszewski-Kubilius, P.; Worrell, F.C. Rethinking giftedness and gifted education: A proposed direction forward based on psychological science. *Psychol. Sci. Public Interest* **2011**, *12*, 3–54. [CrossRef]
18. Subotnik, R.F.; Olszewski-Kubilius, P.; Worrell, F.C. The talent development megamodel. In *Conceptual Frameworks for Giftedness and Talent Development*; Cross, T.L., Olszewski-Kubilius, P., Eds.; Prufrock Press: Waco, TX, USA, 2020; pp. 265–288.
19. Cross, T.L.; Cross, J.R. An enhanced school-based conception of giftedness. In *Conceptual Frameworks for Giftedness and Talent Development*; Cross, T.L., Olszewski-Kubilius, P., Eds.; Prufrock Press: Waco, TX, USA, 2020; pp. 265–288.
20. Pfeiffer, S.I. (Ed.) *APA Handbook of Giftedness and Talent*; American Psychological Association: Washington, DC, USA, 2018.
21. Pfeiffer, S.I. (Ed.) *Handbook of Giftedness in Children*, 2nd ed.; Springer: Cham, Switzerland, 2018.
22. Silverman, S. *Giftedness 101*; Springer: New York, NY, USA, 2012.
23. Sternberg, R.J.; Ambrose, D. (Eds.) *Conceptions of Giftedness and Talent*; Palgrave-Macmillan: Cham, Switzerland, 2021.
24. Sternberg, R.J.; Davidson, J.E. (Eds.) *Conceptions of Giftedness*; Cambridge University Press: Cambridge, UK, 1986.
25. Sternberg, R.J.; Davidson, J.E. (Eds.) *Conceptions of Giftedness*, 2nd ed.; Cambridge University Press: Cambridge, UK, 2005.
26. Sternberg, R.J.; Reis, S.M. (Eds.) *Definitions and Conceptions of Giftedness*; Corwin: Thousand Oaks, CA, USA, 2004.
27. Margolin, L. *Goodness Personified: The Emergence of Gifted Children*; Aldine Transaction: Piscataway, NJ, USA, 1994.
28. Jolly, J.L. *A History of American Gifted Education*; Routledge: London, UK, 2018.
29. Porter, J.W. The "precious minority": Constructing the "gifted" and "academically talented" student in the era of *Brown v. Board of Education* and the National Defense Education Act. *ISIS* **2017**, *108*, 581–605. [CrossRef]
30. Sternberg, R.J.; Desmet, O.A.; Ford, D.; Gentry, M.L.; Grantham, T.; Karami, S. The legacy: Coming to terms with the origins and development of the gifted-child movement. *Roeper Rev.*. in press.
31. Bass, B.M. *Transformational Leadership: Industrial, Military, and Educational Impact*; Lawrence Erlbaum Associates: Mahwah, NJ, USA, 1998.
32. Bass, B.M.; Avolio, B.J.; Atwater, L. The Transformational and Transactional Leadership of Men and Women. *Appl. Psychol.* **1996**, *45*, 5–34. [CrossRef]
33. Bass, B.M.; Riggio, R.E. *Transformational Leadership: A Comprehensive Review of Theory and Research*, 2nd ed.; Psychology Press: London, UK, 2006.
34. Sternberg, R.J. ACCEL: A new model for identifying the gifted. *Roeper Rev.* **2017**, *39*, 139–152. [CrossRef]
35. Renzulli, J.S.; Reis, S. *The Schoolwide Enrichment Model: A How-to Guide for Talent Development*, 3rd ed.; Prufrock Press: Waco, TX, USA, 2014.
36. Sternberg, R.J. Transformational vs. transactional deployment of intelligence. *J. Intell.* **2021**, *9*, 15. [CrossRef] [PubMed]
37. Kaufman, S.B. *Transcend: The New Science of Self-Actualization*; TarcherPerigree: New York, NY, USA, 2020.
38. Maslow, A. *Toward a Psychology of Being*; Sublime Books: Floyd, VA, USA, 2014.
39. Sternberg, R.J. *Adaptive Intelligence: Surviving and Thriving in Times of Uncertainty*; Cambridge University Press: New York, NY, USA, 2021.
40. Renzulli, J.S. Myth: The gifted constitute 3–5% of the population (Dear Mr. and Mrs. Copernicus: We regret to inform you . . .). *Gift. Child Q.* **1982**, *26*, 11–14. [CrossRef]

education sciences

MDPI

Article

From Leading to Guiding, Facilitating, and Inspiring: A Needed Shift for the 21st Century

C. June Maker

Department of Disability and Psychoeducational Studies, University of Arizona, Tucson, AZ 85705, USA; junemaker@hotmail.com

Abstract: In the 21st-century context, problem solving, creativity, critical thinking, collaboration, and communication are the most valued skills in the workplace. Thus, those in positions often labeled as "leadership" need to make a valuable shift: to *guiding*, *inspiring*, and *facilitating* rather than directing. In this article, I review research on two styles of leadership, *transformational* and *transactional*, and relate this research to discussions of the same two types of giftedness. Research on the effectiveness of leaders at engendering creative problem solving has shown the transformational style to be more effective. Leaders are guides in the *process* rather than the *content*, facilitators of the gathering and exchange of information from varied sources, and role models as they exhibit effective problem-solving behaviors themselves. As role models, they inspire others to take risks, think innovatively, and collaborate with others. Examples of methods for identifying exceptionally talented leaders and behaviors to observe are provided. In addition, an evidence-based model for igniting, cultivating, extending, and strengthening exceptional talent in leadership is described.

Keywords: leadership; gifted; creative problem solving; exceptional talent; collaboration; facilitating; inspiring; 21st-century skills

Citation: Maker, C.J. From Leading to Guiding, Facilitating, and Inspiring: A Needed Shift for the 21st Century. *Educ. Sci.* **2022**, *12*, 18. https://doi.org/10.3390/educsci12010018

Academic Editors: Krishan Kumar Sood, Keith Morrison and Dorothy Sisk

Received: 27 September 2021
Accepted: 29 November 2021
Published: 30 December 2021

1. The Need for a Different Conception of Leadership and Talent in Leadership

In the 21st century, our increasingly interconnected world is facing unprecedented problems and situations that most people have never encountered or even believed could occur. Men and women in leadership positions have the potential to contribute to solving these significant problems, but they must do so in ways that are consistent with research on effective leadership and in recognition of the context in which those problems and challenges are occurring. In a recent IBM survey, 1541 chief executive officers in 60 countries and 63 industries identified creativity as the most valuable ability for top managers of the future [1]. These results correspond to the trend noted by economists, who observe a movement from managed economies to entrepreneurial economies [2], and who have identified four key "21st Century Skills": creativity, critical thinking, collaboration, and communication (http.//p21.org; accessed on 28 November 2021). These so-called "soft" skills are essential for leaders and groups who need to design new solutions for old problems and effective, innovative ways to meet challenges that have never been encountered or even imagined.

Leaders often are seen as people who have a vision and who are skilled at getting others to follow them to make this vision a reality. For example, in the Merriam-Webster Dictionary [3], synonyms for leadership include control, direction, management, governance, regulation, and surveillance. In other words, leaders think of the problems and solutions and others implement them as the leader directs, controls, and manages. What if this is an outdated and outmoded perspective? I propose a different view, one that fits with the current and future context: *effective leaders guide, facilitate, and inspire rather than direct or control*. They co-create with colleagues the vision that will guide their work together, and together define the problems, thinking of many methods for solving them and selecting the

best solutions to implement. The process becomes a *team* effort. Consistent with this view, leaders would be selected based on their 21st Century Skills of creativity, critical thinking, collaboration, and communication (http.//p21.org; accessed on 28 November 2021). One quality needs to be added: the *ability and willingness to inspire others to create positive changes in their lives and in their world*. Consistent with the vision they articulated together, leaders would collaborate with their teams to identify areas of need, help team members apply their critical thinking, give them the freedom to be creative, encourage free and open communication, and facilitate group decision making while inspiring everyone by manifesting these qualities themselves. In the academic literature on leadership, many different perspectives are offered and studied. Of all these perspectives, I believe the contrast between *transformational* and *transactional* leadership styles is the most important for the 21st-century context. The transformational style is the most appropriate for the current and future context, while the transactional style fits with the common perceptions of the past.

2. Transformational Leadership: An Important Style for the 21st Century

If all of us on this planet are to survive (and hopefully thrive), regardless of whether individuals are leaders of ideas or leaders of people, the focus of gifted leaders needs to be on changing the world to make it a better place, not just for themselves, but for other people, living beings of all types, and the plants that purify our air. Leaders also must give priority to solutions with long-term benefits, not just those that may solve the problem for now, but cause damage in the future [4–6]. In the literature on leadership, two styles or types have been identified: *transformational* and *transactional* [7–9]. Transformational leaders inspire and encourage those with whom they collaborate, thus motivating others to create positive change. Their focus is on designing a positive future for the organization or entity *in collaboration with the people whom they lead*. They lead by example rather than through a system of rewards and punishments or directives that need to be followed, leading to the personal growth of all involved, empowering and inducing self-belief in others. These positive role models focus on the *process* of creative problem solving rather than on a particular goal, solution, or method for implementing solutions and plans [10,11].

In an educational context, transformational administrators develop a shared vision [12,13] and identify, with teachers and other staff members, potential innovations that are consistent with this vision [14]. New programs are chosen based on the shared vision, agreed upon, and believed in by the majority of the staff [15]. The focus is on student outcomes rather than teacher or administrator innovations [12,16,17]. In a study involving four schools serving students in low-income areas, in two of the four schools, principals exhibited transformational leadership by involving teachers in making the decision to participate in the innovative program. In those schools, student achievement increased significantly [15,18]. In one school, for example, the average achievement scores on the Stanford Achievement Test (SAT-9) in reading, math, and language increased from approximately the 20th percentile to the 62nd percentile during the four-year period in which the DISCOVER team was involved [18]. Similarly, in a study involving exemplary principals in Australia [17], several principals described beliefs and practices from the perspective of transformational leaders. For example, they set up a guiding coalition to "help teachers build on their strengths" [17] p. 109, developed a shared vision and strategy by understanding that "The vision can only be a vision if the whole school is brought into it" [17] p. 109. These principals also led by building and sharing knowledge and information through modeling and being actively involved with teachers in the learning process. They acknowledged teachers' successes, recognized their accomplishments, and worked toward incorporating changes into the school culture [17]. Practices such as these empower teachers and help to embed new methods in the school culture, enabling staff to implement them more effectively while supporting each other [19,20].

Extending this idea to a more collaborative level means involving not only the teachers, administrators, and other staff members at the school, but also collaborating with

the students, their parents and caregivers, and individuals in related organizations in the school community [21]. One exemplary principal in New South Wales is an inspirational model for this practice, as she united the school community and the wider community of parents and influential members of the local area in the decision to bring in a new program, and, after field testing it, to implement it school-wide. As a result of school-wide implementation, and because the innovation was embedded into the school culture, teachers made significant changes in their practices [22] and expressed perceptions consistent with the underlying principles of the new teaching approach [23]. An important finding of these two studies was that teacher fidelity of implementation of the innovation was much higher than normally found in such studies [22]. Student growth in creative problem solving in math [24] and science [25], as well as in understanding the complexity of concepts and their interrelationships [26], was significant. Furthermore, the changes were more pronounced in the classrooms of teachers who implemented the model with a high level of fidelity, showing that the new teaching methods were key components of student growth.

On the other hand, *transactional* leaders use systems of rewards and punishments to exert "control" over the goals and solutions, as well as the methods used for implementing plans and solutions [7–9]. Incentives or benefits are awarded by transactional leaders for valued behaviors or results and penalties are imposed on those who do not follow guidelines or who do not achieve the desired results. Usually these systems are complex, but the goal is to ensure that the leader's agenda is followed, often rewarding the pursuit of given short-term goals [4,27]. Administrators in the two schools in Maker's studies [15,18], in which no overall increases in academic achievement were found, exhibited transactional leadership through actions such as selecting programs to implement without involving the teachers in decision making but monitoring their implementation of these projects. They used evaluation strategies designed by the program developers rather than designed cooperatively by teachers and administrators at the school. Administrators did not participate in the professional development provided to teachers, thus leaving evaluation and guidance up to outsiders who designed the programs and who were not familiar with the school contexts or the characteristics of the teachers. This practice also prevented administrators from modeling desired behaviors and approaches or finding appropriate ways to support teachers in implementing the innovative programs school leaders had chosen and were advocating. Neither the local community nor the students were involved in the decision-making process.

3. Transformational Giftedness: An Important Type of Giftedness for the 21st Century

An interesting parallel is in the recent writing of Sternberg [6,28]. He separates gifted people into the same two types, presenting evidence that methods for defining giftedness and identifying gifted people now and in the in the past have resulted in selecting those who are transactionally gifted. Transactionally gifted individuals are "identified as gifted and then expected to do something in return" [6] p. 231 such as getting good grades, performing well in special coursework, going to a prestigious school, and, most importantly, succeeding later in life by becoming eminent [29]. Sternberg argues that a new definition and new methods are necessary to fit the current world context. We need to identify and cultivate giftedness that is transformative, "that by its very nature seeks positively to change the world at some level—to make the world a better place" [6] p. 231. He further expands the concept to include both self- and other-transformation [28]. This is not a new concept. In Indigenous cultures, an underlying principle is the "connectedness of all life and a connection of all beings with the earth. As individuals and members of diverse cultures, we have a responsibility to protect 'Mother Earth' and to respect each other as spiritual beings with worth and significance regardless of our differences in characteristics, experiences, beliefs, and values" [30] p. 5.

In the Navajo culture in the USA, family members are expected to identify the gifts of each individual and nurture them [31]. In turn, "each individual is expected to use her or his gifts for the good of all" [30] p. 5. Similarly, in the Māori culture in New Zealand,

all students, especially those who are gifted, are expected to "give back" to their local communities. "Their responsibility as gifted individuals is to use their gifts to benefit all, not just themselves" [30] p. 5. This perspective is important to the island as a whole, and is embedded in curriculum standards in schools. In our mainstream culture, particularly at certain periods, this perspective has been articulated, but perhaps was not pervasive. Professor Virgil Ward often said that the difference between gifted people and those who are not gifted is that gifted people want to change their world to make it a better place, while other people want to simply understand and adapt to it. I suggest, at this crucial time, we need to return to the wisdom of using our gifts and talents for the good of our world.

Transformationally gifted individuals focus on making a positive and transformative difference, focusing on the *positive changes* that result from their actions *as their rewards*. On the other hand, although transactionally gifted individuals may make positive changes, their focus is on personal benefits (e.g., extrinsic motivation), such as money, recognition, or status that may result from their actions. Although a distinction often is made between intrinsic and extrinsic motivation, Amabile [32] makes a case for synergy between the two types of motivation. Synergy happens when "strong levels of personal interest and involvement are combined with the promise of rewards that confirm competence, support skill development, and enable future achievement" (p. 18). These are the kinds of rewards given by leaders with a transformational style. People are not born as one or the other type, but develop these tendencies through their interaction with mentors, role models, and other aspects of their environments [33]. In his argument for a paradigm shift, Sternberg poses an important question for educators of the gifted: "Do we want to continue to teach gifted children that being gifted means getting better grades or accelerating in one's studies, when there are so many problems in the world begging for solution?" [6] p. 232.

4. Exceptional Talent: A Conceptual Framework

The paradigm shift advocated by Sternberg [6] is similar to that advocated by Maker [5,34], in that its emphasis is on solving complex and varied problems for the good of the world rather than on gathering information, getting good grades, and performing beyond one's grade level. In Maker's definition [5,15,34,35], the term *exceptional talent* is used instead of gifted to situate it within the talent development paradigm [36]. Exceptional talent is defined as consisting of three interacting components: (a) the ability and willingness to solve the most complex problems, (b) the ability and willingness to solve a variety of types of problems, and (c) a highly integrated and interconnected knowledge structure within or across disciplines. Further included in this definition are adjectives to use when making judgments about the problem-solving processes and results. They need to be effective, efficient, economical, ethical, and/or elegant. Elegant is a criterion not always used; however, it is important for integrating the concepts of originality and novelty with appropriateness, as in definitions of creativity: "pleasingly ingenious and simple" [5] p. 162.

Not all adjectives may be appropriate for all solutions. For example, a solution may be efficient, but not effective, and another solution may be effective, but not efficient; another may be effective, but not economical, or economical, but not effective. In these cases, problem solvers must decide which are the most important criteria to apply in a particular instance. However, I argue that the ethical criterion needs to be applied in all cases, but in recognition of differing belief systems, while still following universal ethical principles, such as compassion, respecting the rights and needs of others, kindness, refraining from stealing or harming other people's property, and honesty [30,37].

Wisdom is necessary for problem solvers to know what attributes are needed for solutions to meet the four conditions of action that will change the world in beneficial ways, and is the overarching purpose of education for exceptionally talented individuals [5,6]. The third component of the definition, a rich, diversified, associative network of knowledge, facilitates creativity and problem solving [38–40]. Merging the definitions of transforma-

tional leadership and transformational exceptional talent leads to a conceptual framework for defining *exceptional talent in leadership*.

5. Exceptionally Talented Leaders: The Conceptual Framework Modified for Leadership

As in the framework proposed by Maker [5], described above, and as with other areas, *exceptional talent in leadership* has three interacting components: solving complex problems, solving varied types of problems, and having a complex and interconnected knowledge structure. However, exceptionally talented leaders are not only able to solve problems, but also to guide, facilitate, and inspire others to create solutions that are effective, efficient, economical, ethical, and/or elegant. Thus, exceptional talent in leadership has *four* interacting components. Leadership is a type of exceptional talent that often is overlooked by teachers [41], but is a talent essential for the success of groups and organizations. Ten human abilities have been outlined by Maker [5]: auditory, bodily/somatic, emotional/intrapersonal, linguistic, mathematical, mechanical/technical, moral/ethical/spiritual, scientific/naturalistic, social/interpersonal, and visual/spatial. Leadership talent differs from these. Unlike the other abilities, which are mostly connected to domains and symbol systems, exceptional talent in leadership cuts across and integrates several domains. For instance, three core abilities are necessary for transformational leadership regardless of the occupation, organization, or agency: social/interpersonal, emotional/intrapersonal, and moral/ethical/spiritual. Social/interpersonal abilities are essential for engendering cooperation, guiding groups and individuals, and inspiring them. Emotional/intrapersonal abilities enhance the ability of leaders to understand and manage their own emotions and reactions so they can be inspirational models for others. Moral/ethical abilities are essential for guiding others and themselves to make wise decisions that have impacts in local, regional, national, and international contexts in both the short and long terms.

Other abilities needed for exceptionally talented leaders may be different depending on the type of leadership position. For instance, in business and industry, leaders may need mechanical/technical, scientific/naturalistic, and mathematical abilities, while in education, linguistic abilities are important; in the arts, visual/spatial, auditory, and bodily/somatic may be important to enable the leader to understand and facilitate problem solving. In the culinary arts, bodily/somatic, with its inclusion of taste, would likely enhance a leader's ability to facilitate, guide, and inspire team members. In all these cases, however, being exceptionally talented in the three core areas is essential, while being exceptionally talented in the supporting areas is helpful, but not essential.

5.1. Exceptionally Talented Leaders and Creative Problem Solving

In the 21st-century shift from managed economies to entrepreneurial ones [2], increasing emphasis needs to be placed upon "making and using knowledge" [2] p. 303. In this new economy, employees, teams of managers, consumers, and others with an interest in a particular agency or organization will need to collaborate: share knowledge, create new knowledge, and use their knowledge in creative and innovative ways [42]. What is the role of exceptionally talented leaders in the creative problem-solving process? Consistent with their style of transformational leadership and the research on effective group problem solving, these guides, facilitators, and inspirers shape a climate of psychological safety and reflexivity (examining one's own feelings, reactions, and motives, leading to an understanding of the ways in which these factors influence what one does or thinks in a situation) [11]. The concept of reflexivity, as used in Carmeli and colleagues' research, corresponds to the definition of emotional/intrapersonal ability in the Prism of Learning [5], and is one of the three core components of leadership talent. Transformational leaders play a critical role in the workplace by providing support and motivating employees to engage in and display creativity [42–51]. Transformational leaders inspire and help others transcend their own self-interests and pursue collective goals, thus becoming effective beyond their own expectations [52]. Transformational leaders encourage their teams to challenge the

norm, question their assumptions and the old ways of doing things, and take risks by addressing problems and doing things in a novel way [53–55]. Two ways leaders do this is by being role models [11,42,56] and recognizing the value of the contributions of their team members [42,48,57,58].

In one of the key studies that have been conducted since 1982, Basadur [42] experimented with methods for leading others to think innovatively together, and found that a key component of success is for the leader to focus on the *process* of problem solving, rather than the *content*. Leaders transfer ownership of challenges by interacting with others as a process leader or coach; their job is to help everyone in the group "work together toward a useful solution" [42] p. 111. They model process skills and encourage others to use these same skills, thus becoming consultants or facilitators in the problem-solving process, rather than "giving orders" or solving the problems themselves. One practical method resulting from Basadur's research is a circular process for creative problem solving with four steps: generating, conceptualizing, optimizing, and implementing. Individuals have preferences and strengths at different steps; therefore, more effective teams can be assembled if individuals with different strengths and preferences are expected to work together. They may experience more difficulties in the beginning, but after they have accepted and begun to respect their differences, the results are superior to those of teams whose members have the same strengths and preferences. The instruments designed by Basadur [42] and Treffinger and colleagues [59] can be used to assess individual styles and preferences. Another method is the creative profiler [39], which is based on creativity assessments, and includes strengths in cognitive (e.g., divergent thinking, mental flexibility) and conative (e.g., risk-taking, openness) factors. The creative profiler can be used both to assist individuals in developing strengths and meeting challenges and also to match them with others with similar and different profiles—for the benefit of the individuals and their collaborative groups.

5.2. Collaborative and Individual Creative Problem Solving

In the past, a prevailing belief was that individuals produced more creative solutions than groups, especially during brainstorming (c.f. [60,61]). However, the writing and research of Amabile and colleagues (c.f. [32,62]) has revealed a different way of viewing the work of individuals and groups when solving problems creatively. Consistent with Amabile's ideas and research, Brophy [10] separated problem-solving tasks into single-part problems and multi-step problems in his review of research and in his own investigation. In a review of 92 studies of individual–group comparisons, individuals did better in 83% of the 60 *single-part* tasks, groups did better on 7% of these tasks, and they did equally well on 10% of these tasks. However, with the 15 *multi-part* tasks, one individual (7%) did better, individuals and groups performed at the same level on three (20%) of the tasks, and on 11 (73%) of the tasks, groups performed better [10]. In his own study, Brophy investigated the creative outcomes (number of solutions, originality of solutions, quality of solutions, cost–benefit trade-offs and reductions, meeting all task demands, addressing all problem parts, selecting solutions, and defending their choices) of the same 51 interactive (group) and nominal (single-person) problem-solving groups. He found that when working on a multi-part task, the same 51 interactive groups did better than the same 51 nominal groups, and the effect sizes were large (F [1, 50] = 731.59, $p < 0.001$, $d = 4.78$).

In the current context, another useful definitional shift has been to view creativity as *both a process and a product*. Although some believe that the creative process is more important than the product (c.f. [63]), most definitions have been focused on the attributes of the product (c.f. [39,57,64–66]). An integrated perspective is to acknowledge the importance of creative processes for producing creative outcomes [59,62]. For example, regardless of the methods used to score originality, studies have shown that the more ideas one produces (fluency), which results from the creative processes of divergent thinking and deferred judgment [67], the more likely one is to produce original ideas, the quality deemed to be most important in creative products [68]. In studies of creative problem solving, the creative

process can be defined as "a process whereby individuals are able to identify and construct a problem, engage in information search and encoding, discover, evaluate, and select the most novel solution" [11] p. 117. This integrated perspective is particularly relevant when considering the creative problem solving of groups and the leadership needed to guide, facilitate, and inspire.

5.3. Problem Types and the Discover Framework

Research and practice emanating from Discovering Intellectual Strengths and Capabilities while Observing Varied Ethnic Responses (DISCOVER) has built upon and extended the original framework of problem solving as a key component in giftedness [34]. In this framework, the seminal work of Getzels and Csikszentmihalyi [69,70] was modified to include three fundamental types of problems [5], based on the components of problems and the amount of information available to both the problem solver and the one proposing the challenge: the problem, the method, and the solution. The first type, *closed*, has a well-defined problem, a specified method, and one acceptable solution; the problem solver has to apply the given method and identify the solution known by the presenter of the problem. The second type, *semi-open*, has a well-defined problem, a *range* of acceptable methods, and a *range* of appropriate solutions. The third type, *open-ended*, has a problem situation that is either partially defined or completely undefined, an unlimited number of possible methods, and an unlimited number of appropriate solutions [5,35]. This is the most complex type of problem, and the kind defined by Brophy [10] as a multi-step problem. This kind of real-world, complex problem is the type studied by Carmeli and colleagues [11,56] in their investigation of the impact of transformational leadership on creative problem solving. Similarly, Basadur [42], in studies of creative leadership, has used the term *applied creativity*, which is a process necessary for finding and solving complex problems that involves having an actual creative product or plan as the final result [42] p. 104.

6. Identifying Potential and Actualized Exceptionally Talented Leaders

If we have such a great need for these exceptionally talented leaders, how do we identify those with the greatest potential or those who have actualized their talents so their development can be nurtured or they can be chosen for leadership positions? Over the years, in the DISCOVER projects [15,71–77], we have experimented with assessments of creative problem solving related to the three core abilities of social/interpersonal, emotional/intrapersonal, and moral/ethical/spiritual [5]. For instance, in the first versions of the assessments for grades K–2, 3–5, and 6–8, we noted behaviors indicating interpersonal (social) abilities and intrapersonal (understanding of self) behaviors while students were interacting in groups to solve individual problems. Later, we designed an assessment for high school students (grades 9 to 12) in which three to five students solved a problem together, making a large triangle with tangrams. Recently, we designed separate assessments of all ten abilities in the Prism of Learning model for very young children (ages 4 to 6) and field tested them in both the USA and the United Arab Emirates [78]. The assessment battery included the three core abilities (social/interpersonal, emotional/intrapersonal, and moral/ethical/spiritual), which were combined into a leadership cluster.

As part of the development and field testing of all the performance-based assessments, the research team asked observers (one for each group of three to five students) to identify students whom they considered to be superior problem solvers in a particular domain, and then to tell the researchers what the students did or said that led to this belief (observable behaviors). Observers were from various age groups, different cultures, different occupations, and different perspectives [79]. After approximately 5000 students were observed, checklists of these behaviors were provided for future observers. Observers also could add behaviors not on the checklist, and the research team periodically examined these "write-ins" to determine if other behaviors needed to be included [15,74]. In Table 1, I have listed the behaviors identified during all levels of assessments that could be considered

to be indicators of transformational or transactional leadership potential. Some could be indicators of either or both, depending on the situation.

Table 1. Indicators of Potential or Actualized Transformational and/or Transactional Leadership Styles.

Domain or Type of Task	Transformational	Transactional	Either or Both
Social/ Interpersonal	Evaluates others by making positive comments or giving constructive criticism Shows pleasure when others solve a problem or complete a task Encourages others to attempt difficult tasks Assumes responsibility for writing, recording, or facilitating the activity Assists observer in accomplishing his/her purposes Attempts to involve all group members in activity Keeps mood of group cheerful Makes suggestions to group without dominating Changes behavior if it seems to affect the group in a negative way Manages own and/or group disappointment effectively Finds ways to include others Takes turns	Others follow his/her suggestions Competes with others Organizes group activity	Shows humor when interacting with others Initiates sharing of product with others Stories/pictures/constructions demonstrate understanding of emotions and motivations of others Stories/pictures/constructions demonstrate understanding of social relationships Demonstrates interpersonal behaviors valued by own culture Demonstrates interpersonal behaviors valued by dominant culture Linguistic product includes self as a character
Emotional/ Intrapersonal	Competes with self Demonstrates confidence in self Comments about own abilities are consistent with observed abilities Describes actions demonstrating effective management of emotions		Enjoys solving problems or completing constructions Stories/pictures/constructions demonstrate understanding of emotions and motivations of self Identifies own emotions Identifies reasons for emotions Describes behavior consistent with emotions identified Identifies different emotions for different situations
Moral/ Ethical/ Spiritual	Talks about fairness Talks about love Talks about honesty Talks about sharing Talks about caring for the natural world	Talks about hitting or hurting others	Talks about correcting wrong behavior

Note: These behaviors were observed when students were working together, either to solve individual problems in a group setting or to solve a problem as a group during the Discovering Intellectual Strengths and Capabilities while Observing Varied Ethnic Responses (DISCOVER) performance assessments.

Interestingly, young people of all ages exhibit behaviors that can be indicators of one or the other style of leadership. In the DISCOVER assessment of social/interpersonal abilities for children ages 4, 5, and 6, for example, children were given large blocks of different sizes and shapes along with a picture of a bridge that can be made with the blocks. Their task was to *build one bridge, all together*. During the first trial of the assessment, I saw two young children who were already exhibiting transactional and transformational leadership styles! Most of the children in the group had built a very nice bridge together. Then, a little girl put a block in the middle of the bridge and refused to move it even when the other children told her it was blocking the traffic going over the bridge. She insisted it was important in the design of the bridge. When the children seemed to be at an impasse, one little boy turned the block sideways and said, "it can be a car going across the bridge." Everyone was pleased and satisfied, including the girl who had placed it there. He was definitely a transformational type of leader in the making! The little girl had her own agenda and was intent on having her own way, showing a tendency toward a transactional style.

Emotional/intrapersonal abilities have been observed in separate tasks, as in the DISCOVER assessment of young children, or as an aspect of other activities. For instance, after high school students made the large triangle, they were asked to reflect on their participation in the group, including how they had helped and/or hindered the work of the group. Being able to identify their own strengths and weaknesses, as well as being able to manage their emotions, was an important aspect of these observations. Young children

identified emotions and then explained what they would do (and why they would do it) if they experienced a particular emotion.

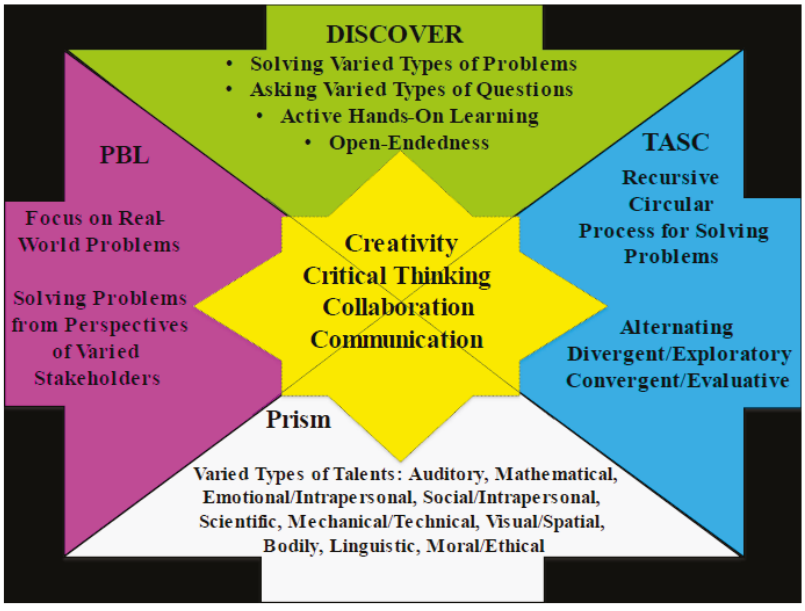
Moral/ethical/spiritual abilities have been included only in the assessment of young children: they said what they would do if they saw negative events happening, and then described and drew a good person. In these assessments, children expressed positive ethical values that seemed far beyond what one would expect for their ages. One 5-year-old drew a picture of the world with people of different colors of skin and hair, and said "All people are good people. They have different hair and skin, and they live in different places." Children, regardless of their cultures, talked about positive ethical values, such as kindness, love, and honesty (Table 1). They were showing their potential to develop the ethical values needed for wise use of their talents as leaders.

Reflecting on these results and the lists of behaviors in Table 1, one can see that behaviors indicative of a transformational style have been identified more frequently by observers. Why? One possible reason is that children have a tendency toward transformational styles, developing transactional ones after experiencing systems of rewards and punishments in school and at home. Because observers were asked to focus on positive behaviors rather than negative ones, a second possibility is if observers had a transformational view, then perhaps they identified behaviors from this perspective. A third possibility is the types of tasks presented to students stimulated them to act in ways more characteristic of a transformational style. Another reason could be a cultural component. As noted earlier, Indigenous groups, such as Navajo, Tohono O'Odham, and Yaqui, as well as Hispanic cultures, which were prevalent in the schools involved in the DISCOVER assessments, tend to be more collaborative in their activities, and thus demonstrate a more transformational style of leadership. In the DISCOVER high school assessment, for instance, of the 303 students in one study, 50% were Hispanic, 29% were Navajo, and 20% were White [80]. In another study, 47% were Navajo, 38.5% were Hispanic, and 14.5% were White [76]. In a third study, 44% were Navajo, 46% were Hispanic, and 20% were White [75].

7. Igniting, Cultivating, Extending, and Strengthening Exceptional Talent through Real Engagement in Active Problem Solving

Regardless of whether young people have demonstrated potential for exceptional talent in leadership, but especially if they have, Real Engagement in Active Problem Solving (REAPS) is a valuable teaching approach that can help to develop exceptional talent in leadership in both general and special classrooms at all levels of education [5,21–23,81]. Since developing the conceptual framework for defining exceptional talent [34], the DISCOVER researchers have experimented with different methods for developing problem-solving abilities. In 2008 [82], we designed an approach that we have found to be successful based on field testing and evaluation at different grade levels and in various cultures [5,22,23,83–85]. The REAPS model is an integration of four evidence-based teaching models with problem solving as a common goal (Figure 1): the DISCOVER problem types and curriculum principles [15], the Thinking Actively in a Social Context (TASC) problem-solving process (c.f. [86,87]), the Problem Based Learning (PBL) approach to selecting real-world problems and solving them from the perspective of different stakeholders (c.f. [82,88]), and the Prism of Learning domains of ability [5]. All of the models require and develop the 21st Century Skills of creativity, critical thinking, collaboration, and communication.

Figure 1. Real Engagement in Active Problem Solving (REAPS).



Note: The four models that make up REAPS all contribute to the development of key 21st Century Skills. The models also provide methods for participants and guides to use during the problem-solving process.

When teachers use the REAPS model, they choose local, national, and international real-life problem situations that are developmentally appropriate for the students. After students have experienced the model, they are invited to choose problems they believe are significant. For instance, in Grade 1 classrooms in Australia, children decided to solve the problem of loneliness on the playground. Their solutions showed clearly their focus on making their world a better place for children at the school: a loneliness bench where children who were lonely could come and someone would find others to play with them and a "loneliness cop" who went around the playground looking for children who seemed lonely, asked them if they wanted to play with someone, and found a child or group of children who welcomed them [22]. At other levels, students either chose or were introduced to problems, such as whether to build a resort in an indigenous rainforest [22], how to reduce or reverse the effects of desertification in the arid land in which they live [30], and how to reduce the ocean pollution that is harming the marine life the local residents depended upon for food [83,84].

To assess and develop the third component of giftedness, the rich, associative network of knowledge essential for creativity and problem solving [38,39], and to understand the complexity and interrelationships among concepts [5], we have used concept maps for pre-and post-assessments [26,89–91]. In these cases, the concept maps were used to assess students' structure of knowledge related to the content of their problem solving. However, if one is assessing their potential for exceptional talent in leadership, the concepts students would be asked to map would be related to the core abilities that make up the leadership cluster. For example, they could be given concepts such as evaluate, inspire, compete, make positive comments, collaborate, guide, manage, control, respect, role model, creative problem solving, encourage others to be creative, influence, power, and other similar words. Concepts could be taken from descriptions of both types of leaders. A focus question to propose for the mapping exercise could be "Who is an effective leader?" More information

about concept mapping and its use in identifying exceptional talent can be found in articles by Maker and Zimmerman [5,35,89].

Most recently, the DISCOVER team collaborated with the United Arab Emirates University [92], teaching an online class on creative problem solving for high-potential high school students in the UAE. We put forth a significant international problem that is a national priority in their country: plastic pollution. We first administered concept maps related to life science and climate change to help us make a pre- and post-assessment of changes in their understanding of the complexity and interrelationships of concepts related to the problem they were solving. With teachers as facilitators of small groups and the DISCOVER team as guides in the process, students followed the TASC steps of gathering and organizing information, identifying the problem, generating ideas for solving it, deciding on the best solution(s), developing a plan for implementing the solution(s), evaluating the solution(s), communicating the results to a real audience, and reflecting on their learning. This process is an effective way to reach creative solutions because it alternates between divergent-exploratory and convergent-integrative thinking [93] and is a method everyone can learn and continue to apply in many areas of their lives [87]. The students in the class were in stakeholder groups that were real in their country or created for the purpose of having variety in the interests of the groups: waste management, the plastic industry, a student-led group working for a plastic-free Abu Dhabi, and the government agency responsible for environmental protections.

Students' solutions showed their passion for creating a better world for both people and the marine animals in the ocean near their community. In their group solutions, most students demonstrated a transformational type of exceptional talent. Several groups and individuals also exhibited transformational types of leadership. To create their solutions, they surveyed community members, presented potential solutions to audiences, and incorporated responses from community members into their final solutions. One example was the plastic industry group. They asked community members what substances could be substituted for the materials normally used that would be more eco-friendly. The majority of respondents suggested bamboo, so the group researched what products could be made from bamboo and incorporated this as their most important solution.

These experiences and our research on the results of implementing the REAPS model show it can be an effective way to develop transformational forms of exceptional talent, and also can be effective as a context for igniting, cultivating, extending, and strengthening student potential for developing exceptional talent in leadership. When the teacher acts as a process coach, guiding and facilitating the work of the group rather than directing the group's decision making [22,23], the teacher is acting as a role model, prompting students to employ this important leadership style in their problem solving in school and as professionals.

8. Conclusions

Solving the unprecedented, complex problems threatening our way of life and the ecosystems in which we live will require transformational leaders who themselves possess the 21st-century skills of creativity, critical thinking, collaboration, and communication. We need these exceptionally talented leaders, not to solve the problems themselves, but to guide, facilitate, and inspire others to develop and use these skills by being an example and by guiding others in the *process* of solving problems. They are transformational rather than transactional in their style and their motivation. These inspirational leaders are motivated, not by their desire for personal rewards, such as power, influence, or money, but by their sincere desire to make the world a better place.

Young children and young adults already exhibit signs of exceptional talent in leadership through behaviors such as encouraging others, helping to resolve conflicts in group settings, understanding and managing their own emotions, and talking about positive ethical values, such as fairness, honesty, and sharing. If these characteristics are ignited, nurtured, and extended through Real Engagement in Active Problem Solving, in which

they collaborate with their peers and design solutions to real-world problems that are of concern to them, and are encouraged to design innovative plans they can implement, then they can actualize this potential and become the leaders we so desperately need.

The evidence-based models in REAPS contribute to different experiences that are related to the development of exceptional talent in leadership. The Prism of Learning helps students and teachers identify and develop diverse talents that are components of leadership abilities. The DISCOVER curriculum model helps teachers choose open-ended problems as the main focus for real-world problem solving and to present closed and semi-open problems within the overall focus on open-ended problems. Problem Based Learning contributes an emphasis on the real-world nature of problems with its corresponding inclusion of different stakeholders, which helps students understand how diverse interests and perspectives need to be considered and integrated into their solutions if they are to be successful as transformational leaders. When teachers guide their process and give them ownership of their solutions and the ways they implement their plans, students have a role model to follow that will enable them to become process coaches for their own collaborative groups in the future.

The most important conclusion I have reached from the 30 years of experimenting with performance-based assessments, the Real Engagement in Active Problem Solving (REAPS) teaching model, and other methods for identifying and nurturing exceptional talent is this: when considering exceptional talent in leadership, decisions must be made on the basis of *observations* in real-world situations, not on the basis of *self-reports* of leadership preferences and actions. Although what people *say* can be an indicator of their tendency toward a particular style, what they *do* is more important.

Funding: No funding was received.

Institutional Review Board Statement: This article does not contain data from research on human subjects unless the data were reported in another article, and if so, that article was cited.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: I have no conflict of interest.

References

1. Berman, S.; Korsten, P. *Capitalizing on Complexity: Insights from the Global Chief Executive Officer Study*; IBM: Somers, NY, USA, 2010.
2. Thurik, A.R.; Stam, E.; Audretsch, D.B. The rise of the entrepreneurial economy and the future of dynamic capitalism. *Technovation* **2013**, *33*, 302–310. [CrossRef]
3. "Leadership." Merriam-Webster.com Thesaurus, Merriam-Webster. Available online: https://www.merriam-webster.com/thesaurus/leadership (accessed on 28 October 2021).
4. Jung, D.I. Transformational and transactional leadership and their effect on creativity in groups. *Creat. Res. J.* **2001**, *13*, 185–195. [CrossRef]
5. Maker, C.J. Exceptional talent in the 21st century context: Conceptual framework, definition, assessment, and development. *Gift. Educ. Int.* **2021**, *37*, 158–198. [CrossRef]
6. Sternberg, R.J. Transformational giftedness: Rethinking our paradigm for gifted education. *Roep. Rev.* **2020**, *42*, 230–240. [CrossRef]
7. Bass, B.M.; Riggio, R.E. *Transformational Leadership: A Comprehensive Review Theory and Research*, 2nd ed.; Psychology Press: East Sussex, UK, 2006.
8. Karnes, F.A.; Bean, S.M. Leadership and the gifted. *Focus Except. Child.* **2017**, *29*, 1–12. [CrossRef]
9. Sashkin, M. Transformational leadership approaches: A review and synthesis. In *The Nature Leadership*; Antonakis, J., Cianciolo, A., Sternberg, R.J., Eds.; Sage: Newcastle upon Tyne, UK, 2004; pp. 171–196.
10. Brophy, D.R. A comparison of individual and group efforts to creatively solve. *contrasting types of problems. Creat. Res. J.* **2006**, *18*, 293–315.
11. Carmeli, A.; Sheaffer, Z.; Binyamin, G.; Reiter-Palmon, R. Transformational leadership and creative problem-solving: The mediating role of psychological safety and reflexivity. *J. Creat. Behav.* **2013**, *48*, 115–135. [CrossRef]
12. Stewart, J. Transformational leadership: An evolving concept examined through the works of Burns, Bass, Avolio, and Leithwood. *Can. J. Educ. Adm. Polic.* **2006**, *54*, 1–29. Available online: https://cdm.ucalgary.ca/index.php/cjeap/article/view/42735 (accessed on 12 November 2021).

13. Zepeda, S.J. *The Principal as Instructional Leader*; Eye on Education: Larchmont, NY, USA, 2013.
14. Sisk, D.A. A case for leadership development to meet the need for excellence in teachers and youth. *Roep. Rev.* **1988**, *11*, 43–46. [CrossRef]
15. Maker, C.J. Senior Scholars Series Monograph. In *The DISCOVER Project: Improving Assessment and Curriculum for Diverse Gift. Learners*; National Research Center on the Gifted and Talented: Storrs, CT, USA, 2005.
16. Burns, J.M. *Leadership*; Harper and Row: New York, NY, USA, 1978.
17. Chandra Handa, M. Leading differentiated learning for the gifted. *Roeper Rev.* **2019**, *41*, 102–118. [CrossRef]
18. Maker, C.J. Creativity and multiple intelligences: The DISCOVER project and research. In *Creativity: When East Meets West*; Lau, S., Hui, N.N.A., Ng, Y.C.G., Eds.; World Scientific Publishing Co. Pte. Ltd.: Singapore, 2004; pp. 341–392.
19. Fullan, M. *Motion Leadership: The Skinny on Becoming Change Savvy*; Corwin: Thousand Oaks, CA, USA, 2010.
20. Tomlinson, C.A.; Allan, S.D. *Leadership for Differentiating Schools and Classrooms*; ASCD: Alexandria, VA, USA, 2000.
21. Maker, C.J.; Wearne, M. Engaging gifted students in solving real problems creatively: Implementing the Real Engagement in Active Problem Solving (REAPS) teaching/learning model in Australasian and Pacific Rim contexts. In *International Handbook of Giftedness & Talent Development in the Asia-Pacific*; Smith, S.R., Ed.; Springer International Handbooks of Education: Singapore, 2020. [CrossRef]
22. Maker, C.J.; Pease, R. Building on and extending the characteristics of gifted learners: Implementing the Real Engagement in Active Problem Solving (REAPS) teaching model. *Australas. J. Gift. Educ.* **2021**, *30*, 5–25. [CrossRef]
23. Wu, I.-C.; Pease, R.; Maker, C.J. Teachers' perceptions of the Real Engagement in Active Problem Solving (REAPS) model. *Australasi. J. Gift. Educ.* **2021**, *30*, 64–79.
24. Bahar, A.K.; Maker, C.J.; Scherbakova, A. The Role of Teachers' Implementation of the Real Engagement in Active Problem Solving (REAPS) Model in Developing Creative Problem Solving in Mathematics. *Australas. J. Gift. Educ.* **2021**, *30*, 26–39. [CrossRef]
25. Maker, C.J.; Bahar, A.K.; Alfaiz, F.A. The effect of fidelity of implementation of the Real Engagement in Active Problem Solving (REAPS) model on students' creative problem solving in science. *Australas. J. Gift. Educ.* 2021, *in press*.
26. Maker, C.J.; Zimmerman, R.H.; Bahar, A.K.; In-Albon, C. The Influence of Real Engagement in Active Problem Solving on deep learning: An important component of exceptional talent in the 21st century context. *Australas. J. Gift. Educ.* **2021**, *30*, 40–63. [CrossRef]
27. Sosik, J.J.; Kahai, S.S.; Avolio, B.J. Leadership style, anonymity, and creativity in group decision support systems: The mediating role of optimal flow. *J. Creat. Behav.* **1999**, *33*, 227–256. [CrossRef]
28. Sternberg, R.J.; Chowkase, A.; Desmet, O.; Karami, S.; Landy, J.; Lu, J. Beyond transformational giftedness. *Educ. Sci.* **2021**, *11*, 192. [CrossRef]
29. Subotnik, R.F.; Olszewski-Kubilius, P.; Worrell, F. Rethinking giftedness and gifted education: A proposed direction forward based on psychological science. *Psychol. Sci. Public Interest* **2011**, *12*, 3–54. [CrossRef]
30. Maker, C.J. Recognizing and developing spiritual abilities through real-life problem solving. *Gift. Educ. Int.* **2016**, *32*, 271–306. [CrossRef]
31. Begay, H.; Maker, C.J. When geniuses fail Na-Dine (Navajo) conception of giftedness. In *Conceptions Giftedness: Socio-Cultural Perspectives*; Phillipson, S.N., McCann, M., Eds.; Lawrence Erlbaum Associates: Mahwah, NJ, USA, 2007; pp. 127–168.
32. Amabile, T.M. Entrepreneurial creativity through motivational synergy. *J. Create. Behav.* **1997**, *31*, 18–26. [CrossRef]
33. Sak, U. The fuzzy conception of giftedness. In *Conceptions Giftedness and Talent*; Sternberg, R.J., Ambrose, D., Eds.; Palgrave Macmillan: London, UK, 2012; pp. 371–392. [CrossRef]
34. Maker, C.J. Creativity, intelligence, and problem solving: A definition and design for cross-cultural research and measurement related to giftedness. *Gift. Educ. Int.* **1993**, *9*, 68–77. [CrossRef]
35. Maker, C.J. Identifying exceptional talent in science, technology, engineering, and mathematics: Increasing diversity and assessing creative problem-solving. *J. Adv. Acade.* **2020**, *31*, 161–210. [CrossRef]
36. Dai, D.Y.; Chen, F. Three paradigms of gifted education: In search of conceptual clarity in research and practice. *Gift. Child Q.* **2013**, *57*, 151–168. [CrossRef]
37. Sisk, D.A.; Torrance, E.P. *Spiritual Intelligence: Developing Higher Consciousness*; Creative Education Foundation Press: Scituate, NY, USA, 2011.
38. Bransford, J.; Brown, A.L.; Cocking, R.R. *How People Learn: Brain, Mind, Experience, and School*, Expanded ed.; National Academy Press: Washington, DC, USA, 2000.
39. Lubart, T.I.; Zenasni, F.; Barbot, B. Creative potential and its measurement. *Int. J. Talent Dev. Creat.* **2013**, *1*, 41–50.
40. Loughran, J.L. *What Expert Teachers Do: Enhancing Professional Knowledge for Classroom Practice*; Allen and Unwin: Crows Nest, NSW, Australia, 2010.
41. Aljughaiman, A.M.; Ayoub, A.E.A. Giftedness in Arabic environments: Concepts, implicit theories, and the contributed factors in the enrichment programs. *Cogent Educ.* **2017**, *4*, 1364900. [CrossRef]
42. Basadur, M. Leading others to think innovatively together: Creative leadership. *Leadersh. Q.* **2004**, *15*, 103–121. [CrossRef]
43. Amabile, T.M.; Conti, H.; Coon, L.; Lazenby, J.; Herron, M. Assessing the work environment for creativity. *Acad. Manag. J.* **1996**, *39*, 1154–1184.
44. Beaty, R.E.; Silvia, P.J. Why do ideas get more creative across time? An executive interpretation of the serial order effect in divergent thinking tasks. *Psychol. Aesthet. Creat. Arts* **2012**, *6*, 309–319. [CrossRef]

45. Carmeli, A.; Reiter-Palmon, R.; Ziv, E. Inclusive leadership and employee involvement in creative tasks in the workplace: The mediating role of psychological safety. *Creat. Res. J.* **2010**, *22*, 250–260. [CrossRef]
46. Elkins, T.K.; Keller, R.T. Leadership in research and development organizations: A literature review and conceptual framework. *Leadersh. Q.* **2003**, *14*, 587–606. [CrossRef]
47. Gong, Y.; Huang, J.C.; Farh, J.L. Employee learning orientation, transformational leadership, and employee creativity: The mediating role of employee creative self-efficacy. *Acad. Manag. J.* **2009**, *52*, 765–778. [CrossRef]
48. Hennessey, B.A.; Amabile, T.M. Creativity. *Annu. Rev. Psychol.* **2010**, *61*, 569–598. [CrossRef] [PubMed]
49. Shalley, C.E.; Gilson, L.L. What leaders need to know: A review of social and contextual factors that can foster or hinder creativity. *Leadership. Q.* **2004**, *15*, 33–53. [CrossRef]
50. Shin, S.J.; Zhou, J.M. Transformational leadership, conservation, and creativity: Evidence from Korea. *Acad. Manag. J.* **2003**, *46*, 703–714. [CrossRef]
51. Tierney, P. Leadership and employee creativity. In *Handbook Organizational Creativity*; Zhou, J., Shalley, C.E., Eds.; Lawrence Erlbaum Associates: New York, USA, 2008; pp. 95–123.
52. Bass, B.M.; Avolio, B.J. The implications of transactional and transformational leadership for individual, team, and organizational development. *Res. Organ. Change Dev.* **1990**, *4*, 231–272.
53. Mumford, M.D.; Scott, G.M.; Gaddis, B.; Strange, J.M. Leading creative people: Orchestrating expertise and relationships. *Leadersh. Q.* **2002**, *13*, 705–750. [CrossRef]
54. Mumford, M.D.; Medeiros, K.E.; Partlow, P.J. Creative thinking: Processes, strategies, and knowledge. *J. Creat. Behav.* **2012**, *46*, 30–47. [CrossRef]
55. Zhou, Q.; Hirst, G.; Shipton, H. Promoting creativity at work: The role of problem-solving demand. *Appl. Psychol. Int. Rev.* **2012**, *61*, 56–80. [CrossRef]
56. Carmeli, A.; Gelbard, R.; Reiter-Palmon, R. Leadership, creative problem-solving capacity, and creative performance: The importance of knowledge sharing. *Hum. Resour. Manag.* **2013**, *52*, 95–122. [CrossRef]
57. Amabile, T.M. *Creativity in Context*; Westview Press: Boulder, CO, USA, 1996.
58. Hirst, G.; van Dick, R.; van Knippenberg, D. A social identity perspective on leadership and employee creativity. *J. Organ. Behav.* **2009**, *30*, 963–982. [CrossRef]
59. Treffinger, D.J.; Selby, E.C.; Isaksen, S.G. Understanding individual problem-solving style: A key to learning and applying creative problem solving. *Learn. Individ. Differ.* **2008**, *18*, 390–401. [CrossRef]
60. Gallupe, R.B.; Bastianutti, L.M.; Cooper, W.H. Unblocking brainstorming. *J. Appl. Psychol.* **1991**, *76*, 137–142. [CrossRef]
61. Mullen, B.; Johnson, C.; Salas, E. Productivity loss in brainstorming groups: A meta-analytic integration. *Basic Appl. Soc. Psychol.* **1991**, *12*, 3–23. [CrossRef]
62. Kurtzberg, T.R.; Amabile, T.M. From Guilford to creative synergy: Opening the black box of team-level creativity. *Creat. Res. J.* **2001**, *13*, 285–294. [CrossRef]
63. Shamas, V. *Deep Creativity: Inside the Creative Mystery*; Morgan James Publishing: New York, NY, USA, 2017.
64. Amabile, T.M. Componential theory of creativity. In *Encyclopedia of Management Theory*; Kessler, E.H., Ed.; Sage: Newcastle upon Tyne, UK, 2013; pp. 134–139.
65. Torrance, E.P. *Torrance Tests Creative Thinking: Norms-Technical Manual, Research Ed.*; Personnel Press: Princeton, NJ, USA, 1996.
66. Torrance, E.P. *The Torrance Tests Creative Thinking: Norms-Technical Manual*; Scholastic Testing Service: Bensenville, IL, USA, 1990.
67. Sternberg, R.J.; Lubart, T.I. Creative giftedness: A Multivariate investment approach. *Gift. Child Q.* **1993**, *37*, 7–15. [CrossRef]
68. Mouchiroud, C.; Lubart, T.I. Children's original thinking: An empirical examination of alternative measures derived from divergent thinking tasks. *J. Genet. Psychol.* **2001**, *102*, 382–401. [CrossRef] [PubMed]
69. Getzels, J.W.; Csikszentmihalyi, M. Scientific creativity. *Sci. J.* **1967**, *3*, 80–84.
70. Getzels, J.W.; Csikszentmihalyi, M. *The Creative Vision: A Longitudinal Study Problem Finding in Art*; Wiley: New York, NY, USA, 1976.
71. Maker, C.J. Authentic assessment of problem solving and giftedness in secondary school students. *J. Second. Gift. Educ.* **1994**, *2*, 19–29.
72. Maker, C.J. Identification of gifted minority students. A national problem, needed changes, and a promising solution. *Gift. Child Q.* **1996**, *40*, 41–50. [CrossRef]
73. Maker, C.J.; Nielson, A.B.; Rogers, J.A. Giftedness, diversity, and problem solving. *Teach. Except. Child.* **1994**, *27*, 4–19. [CrossRef]
74. Rogers, J. Refocusing the lens: Using observation to assess and identify gifted learners. *Gift. Educ. Int.* **1998**, *12*, 129–144. [CrossRef]
75. Sarouphim, K.M. Internal structure of DISCOVER: A performance-based assessment. *J. Educ. Gift.* **2000**, *23*, 314–327.
76. Sarouphim, K.M. DISCOVER in middle school: Identifying gifted minority students. *J. Second. Gift. Educ.* **2004**, *10*, 61–69. [CrossRef]
77. Sarouphim, K.; Maker, C.J. Ethnic and gender differences in identifying gifted students: A multicultural analysis. *Int. Educ.* **2010**, *39*, 42–56.
78. Maker, C.J.; Pease, R.; Alfaiz, F.A. DISCOVER Projects. In *Manual for Discovering Intellectual Strengths and Capabilities while Observing Varied Ethnic Responses (DISCOVER) 456 Assessment Battery*; University of Arizona: Tucson, AZ, USA, 2019.
79. Maker, C.J. DISCOVER Problem-Solving Assessment. *Quest J. Div. Res. Eval. Natl. Assoc. Gift. Child.* **1997**, *7*, 9.

80. Sarouphim, K.M. DISCOVER in high school: Identifying gifted Hispanic and Native American students. *J. Second. Gift. Educ.* **2002**, *14*, 30–38. [CrossRef]
81. Gomez-Arizaga, M.; Bahar, K.A.; Maker, C.J.; Zimmerman, R.H.; Pease, R. How does science learning occur in the classroom? *Students' perceptions of science instruction during implementation of the REAPS model. Eurasia. J. Math. Sci. Educ.* **2016**, *12*, 1–24.
82. Maker, C.J.; Zimmerman, R.H. Problem Solving in a Complex World: Integrating DISCOVER, TASC, and PBL in a Teacher Education Project. *Gift. Educ. Int.* **2008**, *24*, 160–178. [CrossRef]
83. Riley, T.; Webber, M.; Sylva, K. Real engagement in active problem solving for Māori boys: A case study in a New Zealand secondary school. *Gift. Talent. Int.* **2017**, *32*, 75–86. [CrossRef]
84. Webber, M.; Riley, T.; Sylva, K.; Scobie-Jennings, E. The Ruamano project: Raising. expectations, realising community aspirations and recognising gifted potential in Māori. boys. *Aust. J. Indig. Educ.* **2018**, *49*, 77–88. [CrossRef]
85. Wu, I.-C.; Pease, R.; Maker, C.J. Students' perceptions of Real Engagement in Active Problem Solving. *Gift. Talent. Int.* **2015**, *30*, 106–121. [CrossRef]
86. Fauziah, M.; Marmoah, S.; Murwaningsih, T.; Saddhono, K. The effect of thinking actively in a social context and creative problem-solving learning models on divergent-thinking skills viewed from adversity quotient. *Eur. J. Educ. Res.* **2020**, *9*, 537–568. [CrossRef]
87. Wallace, B. The early seedbed of the growth of TASC: Thinking Actively in a Social Context. *Gifted Educ. Int.* **2008**, *24*, 139–155. [CrossRef]
88. Gallagher, S.A. The role of problem based learning in developing creative expertise. *Asia Pac. Educ. Rev.* **2015**, *16*, 225–235. [CrossRef]
89. Maker, C.J.; Zimmerman, R.H. Concept maps as assessments of expertise: Understanding of the complexity and interrelationships of concepts in science. *J. Adv. Acad.* **2020**, *31*, 254–297. [CrossRef]
90. Novak, J.D.; Cañas, A.J. Technical Report IHMC CmapTools. In *The Theory Underlying Concept Maps and how to Construct and Use Them*; Rev 01-2008; Institute for Human and Machine Cognition: Pensacola, FL, USA, 2006; Available online: http://cmap.ihmc.us/Publications/ResearchPapers/TheoryUnderlyingConceptMaps.pdf (accessed on 28 November 2021).
91. Zimmerman, R.; Maker, C.J.; Gomez-Arizaga, M.P.; Pease, R. The use of concept maps in facilitating problem solving in earth science. *Gift. Educ. Int.* **2011**, *27*, 274–287. [CrossRef]
92. Elhoweris, H.; Hemdan, A.; Bacsal, M.; Opoku, M.; Al Mohammedi, N.; Maker, C.J.; Pease, R. The Impact the I-Mentoring Enrichment Program on Enhancing Gifted/Talented Students' Creative Problem-Solving Abilities. In Proceedings of the Virtual World Conference on Gifted and Talented Students, 31 July–1 August & 7–8 August, 2021.
93. Lubart, T.I. Models of the creative process: Past, present and future. *Creat. Res. J.* **2001**, *13*, 295–308. [CrossRef]

education sciences

MDPI

Article

Twice-Exceptional Children and Their Challenges in Dealing with Normality

Roya Klingner

The Global Center for Gifted and Talented Children, 81379 Munich, Germany; info@gcgtc.com

Abstract: This article defines the term twice-exceptional as being gifted (highly able) and having challenges with learning or physical disabilities. The focus is on understanding these children, who are brilliant in one way but at the same time in some situations are at risk. The biggest challenges they face are misunderstanding and misdiagnosis. This article will assist those involved in the life and education of twice-exceptional children to help light the way towards better understanding them, focusing on their strengths and supporting them individually to change their life in an optimal direction. One million of our nation's most promising, innovative thinkers—children who learn differently, not "deficiently"—constitute a neglected national resource.

Keywords: gifted education; psychology; twice-exceptional; animal-assisted therapy; positive psychology

Citation: Klingner, R. Twice-Exceptional Children and Their Challenges in Dealing with Normality. *Educ. Sci.* **2022**, *12*, 268. https://doi.org/10.3390/educsci12040268

Academic Editors: Dorothy Sisk and Jacobus G. Maree

Received: 17 January 2022
Accepted: 23 March 2022
Published: 11 April 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

1. What Does It Mean to Be a Twice-Exceptional Child?

One definition of twice-exceptional children includes children who are identified as gifted but demonstrate evidence of one or more disabilities. One might ask, how could someone be gifted but have disabilities? In a performance-oriented education system, it is unfortunately difficult to believe. Some educators argue that gifted students cannot also have disabilities or special needs. Unfortunately, there is no consensus among educators and psychologists for a comprehensive definition of gifted.

2. Who Is Gifted?

In Germany and some other countries, we define a child as gifted when the IQ is higher than 130 but being gifted is more than just having a high IQ. In our center, The Global Center for Gifted and Talented Children, we call a child Gifted when the IQ and creativity are both high. In addition, we use a behavior checklist for Highly Gifted Children and several interviews with the child, their parents, and teachers for additional important information for the identification process. In some cases, we noticed that gifted children with high IQs have disabilities in reading, Asperger's, Autism, ADHD, and more. We call these children 2e.

Some students with learning disabilities have considerable strengths in comparison with their areas of weakness [1]. Such students are called twice-exceptional [2]. This was the first mention of that term to describe students who were gifted and displayed learning disabilities at the same time. However, even today, many psychologists still have a problem with diagnosing gifted or 2e children. They tend to focus on performance or just on an IQ score. This leads to misdiagnosis and can change a child's life. There are many definitions of twice-exceptionality, and the views of two educators, Sally Reis and Alexinia Baldwin, will be briefly examined.

Twice-exceptional learners are students who demonstrate the potential for high achievement or creative productivity in one or more domains such as math, science, technology, the social arts, the visual, spatial, or performing arts or other areas of human productivity AND who manifest one or more disabilities as defined by federal or state eligibility criteria [3]. These disabilities include specific learning disabilities, speech and language disorders, emotional/behavioral disorders, physical disabilities, Autism Spectrum

Disorders (ASD), or other health impairments, such as Attention-Deficit/Hyperactivity Disorder (ADHD). These disabilities and high abilities combine to produce a unique population of students who may fail to demonstrate either high academic performance or specific disabilities. Their gifts may mask their disabilities, and their disabilities may mask their gifts [3].

Identification of twice-exceptional students requires comprehensive assessment in both the areas of giftedness and disabilities, as one does not preclude the other. Identification, when possible, should be conducted by professionals from both disciplines and, when at all possible, by those with knowledge about twice-exceptionality in order to address the impact of coincidence/comorbidity of both areas on diagnostic assessments and eligibility requirements for services.

Educational services must identify and serve both the high achievement potential and the academic and social-emotional deficits of this population of students. Twice-exceptional students require differentiated instruction, curricular and instructional accommodations or modifications, direct services, specialized instruction, acceleration options, and opportunities for talent development that incorporate the effects of their dual diagnosis.

Twice-exceptional students require an individual education plan (IEP) or a 504-accommodation plan with goals and strategies that enable them to achieve at a level and rate commensurate with their abilities. This comprehensive education plan must include talent development goals, compensation skills, and strategies to address their disabilities and their social and emotional needs.

Twice-exceptional children are also defined as students showing evidence of exceptional ability and disability, which results in a unique set of circumstances [4]. Their exceptional ability may dominate, hiding their disability, or their disability may dominate, hiding their exceptional ability. Each may mask the other so that neither is recognized or addressed. Twice-exceptional students may perform below, at, or above grade level, and they require the following:

- Specialized methods of identification that consider the possible interaction of the exceptionalities;
- Enriched/advanced educational opportunities that develop the child´s interests, gifts, and talents while also meeting the child´s learning needs;
- Simultaneous support that ensures the child´s academic success and social and emotional well-being, such as accommodations, therapeutic interventions, and specialized instruction;
- Working successfully with this unique population requires specialized academic training and ongoing professional development.

3. How Can We Recognize the Twice-Exceptional Learner?

Parents are the first contacts of the 2e children, and they recognize their gifts, potential, talents, and disabilities as well. The 2e children have two seemingly paradoxical sets of behaviors: high cognitive and creative abilities, as well as those associated with their particular challenge area. Typical gifted behaviors include [5–10]:

- Sense of humor;
- Unusual alertness early in life;
- Strong long-term memory and short-term memory;
- Rapid learning and quick thinking;
- Large vocabulary and complex sentence structure for their age;
- Longer attention spans, persistence in subjects in which they are interested;
- Highly developed curiosity and asking limitless questions;
- Imaginary playmates and vivid imaginations;
- Wide range of interests;
- Experimentation and doing things differently;
- Unusual emotional depth, intense feelings, and reactions;
- Sense of idealism and justice at an early age;

- Impatience with self or others;
- Talents in distinct domains, such as the arts, design, technology, robotics, writing, mathematics;
- Self-teaching in reading and writing;
- Putting ideas or things together in ways that are unusual or not obvious (divergent thinking);
- Enjoyment of solving problems;
- Self-criticism and perfectionism;
- These behaviors make them different from children of the same biological age;
- Typical disabilities diagnoses of 2e are
- SLD (Specific Learning Disabilities);
- ADHD (Attention-Deficit/Hyperactivity Disorder);
- ODD (Oppositional Defiant Disorder);
- GAD (Generalized Anxiety Disorder);
- ASD (autism spectrum disorder).

4. Misdiagnoses and Missed Diagnoses

Some experts in gifted education contend that misdiagnoses stem primarily from the widespread ignorance among otherwise well-meaning and well-trained professionals about the social and emotional characteristics of gifted children and adults; as many as half of gifted students with the diagnosis of ADHD are misdiagnosed [11].

In addition to misdiagnosis, there is the risk of a missed diagnosis. In Germany, many psychologists focus only on performance and IQ results of tests, but this can lead to a wrong diagnosis. In some situations, the student is not recognized or identified as gifted because the disability serves to overshadow the intellectual or academic gift. In other situations, the student is identified as gifted but not diagnosed as having a coexisting disability because the advanced intellectual or academic abilities camouflage the disability. In both situations, students are denied much-needed special services or programs as their twice-exceptional status goes unrecognized [12].

With time, the difficulties 2e students may have can cause them to fall behind academically, become highly anxious and depressed, and even drop out of school. This situation can lead to a downward spiral causing them to shut down, act out, or give up [5,13,14].

5. Brief Descriptive Summaries of Selected 2e Students

In the last 13 years of working with gifted children and particularly with 2e children in the Global Center for Gifted and Talented Children, we have had many 2e clients, and some of their cases will be shared here (and whose real names have been changed). Bulleted lists look like this:

5.1. Noel

Noel´s mother contacted us and shared the following situation: Noel had problems in kindergarten and school, fewer social skills than other children, and less empathy towards other children. Because of his behavior and aggression, the school sent him to a psychiatrist. He diagnosed him with ADHD and Asperger's. When we met Noel, he was very rude and disrespectful to his mother during the consulting session. He had no friends in school and hated school. We tested him and noticed that he was highly gifted. His IQ was higher than 145. He had problems with noise, light, and many other things. The solution we planned together with his parents was to move him from a public school to a private school with a program for gifted children with some disorders. In a small group of children and a school program supportive of individual needs, Noel´s behavior changed extremely fast in a good direction. He changed his nutrition and daily program too. Some activities such as sport and interest-based learning helped Noel to be more focused on his strengths. The situation improved for him and his family.

5.2. Tina

Tina was misdiagnosed in a university setting as gifted because of her high IQ. In the afterschool program (Hort), she always fought with other children, refused to accept the rules, hated homework, and never made eye contact when someone talked to her. Our diagnosis was Asperger's/Autism, which was not accepted by her mother. She was unable to believe that the University had made a mistake. We were unable to solve the problem because her mother refused to accept the fact that Tina was a 2e child.

5.3. Mike

Mike showed aggression in school, and the principal recommended that his parents contact us. His mother was crying during the consulting session, and he showed no empathy or any reaction to her distress. When we asked him if he liked his mother, he did not answer. In school, he always fought with other children, and sometimes his teachers and classmates were unable to control him. He could not explain his emotions or show them. In some areas, he was very good at creating objects or informatics. The diagnosis was 2e with Autism. We contacted his school and his teachers and gave them some suggestions on how to help Mike. He slowly learned to deal with normality and learned about emotions and empathy. The individual support at home and in his school helped him a lot.

5.4. Tom

Tom´s mother contacted us and asked us to help her son, who had been diagnosed as an ADHD child. The result of the test showed that his IQ and creativity were very high. When asked to tell about his situation at home, we noticed that his mother pressured him to learn the piano, which he hated a lot. He loved percussion. All his problems were based on this situation that made him unhappy and the fact that he could not tell his mother what he wanted. When we tried to find a solution together with his mother, the situation improved, and there was no more sign of ADHD. He stopped his piano lessons, went to a drawing class because he loved art, and he was very good at it. Everything became better in a very short time after the family understood him and his needs.

6. How Can We Help Twice-Exceptional Children?

Parents are the first important contact to support a 2e child by laying the foundation of how the child expects to interact with the world, and by setting a strong example, the parent can help lead the child toward their full developmental potential. Many twice-exceptional children have problems with finding friends, and parents may consider ways of filling the peer gap for their child. It is important to help 2e children develop self-esteem and focus on strengths rather than disabilities.

Many teachers in Germany have never learned about gifted children or twice-exceptional children. They think that to be gifted means to be a high performer. How can they understand a 2e child with high IQ or high creativity but who experiences challenges with learning? In addition, the education system is highly focused on helping children with handicaps rather than focusing on talents or potential. It is important to change situations such as this in many countries and start with teacher training, workshops for parents, and creating organizations for parents of twice-exceptional children to share their experiences and learning with each other. The focus needs to be more on the solution rather than dealing with all the problems. Creativity and flexibility, and thinking in a positive direction, can help parents and educators to learn how to support gifted and twice-exceptional children. Being a twice-exceptional child is frustrating sometimes when they understand that they are different. In some cases, this might even lead to suicide (Webb et al., 2015). Yet, even though having a 2e child might be particularly challenging, sometimes it has a beautiful side as well if we try to find it and think positively.

7. How Can We Help Twice-Exceptional Children?

In the Global Center for Gifted and Talented Children, we use different kinds of methods to help gifted and twice-exceptional children:

- Solution-Oriented Therapy and Positive Emotions;
- Art Therapy;
- Animal-Assisted Therapy

8. Solution-Oriented Therapy

We have been inspired by the methods of Steve de Shazer and his wife Insoo Kim Berg's Solution-Focused Brief Therapy. We have always been interested in finding ways to support families and children with special needs. De Shazer and Berg said problem talk creates problems, but solution talk creates solutions [15]. At the highest level, there are three key principles to working in a solution-focused way [15].

8.1. "If It Ain't Broke, Don't Fix It"

By broke, we mean somebody in the organization is dissatisfied and wants something to be different. If this is the case, we start to work with the people who want something different and are prepared to do something about it—not the others (who may be ambivalent or who do not see any need for improvement).

8.2. Once You Know What Works, Do More of It

When the solution is happening already, whether spontaneously, by accident, or even only in part, we have priceless knowledge and should do more with it.

8.3. If It Is Not Working, Do Something Different

Although we usually make progress by using principle 2, just occasionally, something else is required. It sounds simple, does it not? And it is. However, simple is not the same as easy, and we are still surprised by the lure problem talk holds for those who want differences in their lives and organizations and for those whose job it is to help find them. We found that this method helps parents and children focus on solutions and keeps them working on them. In a positive thinking environment, one can be more creative and come up with solutions.

9. Broaden-and-Build Theory

The foundational research of Fredrickson led her to develop a theory on positive emotions called the broaden-and-build theory [16]. The substance of this theory lies in the notion that positive emotions play an essential role in our survival. Positive emotions, such as love, joy, and gratitude promote new and creative actions, ideas, and social bonds. When people experience positive emotions, their minds broaden, and they open up to new possibilities and ideas. At the same time, positive emotions help people build their well-being resources, ranging from physical to intellectual and social resources [16]. The building part of this theory is tied to the findings that these resources are durable and can be drawn upon later on, in different emotional states, to maintain well-being. The theory suggests that negative emotions serve the opposite function of positive ones. When threatened with negative emotions such as anxiety, fear, frustration, or anger, the mind constricts and focuses on the imposing threat (real or imagined), limiting one's ability to be open to new ideas and build resources and relationships. Fredrickson draws on the imagery of the water lily to beautifully illustrate her theory by saying:

> *"Just as water lilies retract when sunlight fades, so do our minds when positivity fades".*
>
> (Fredrickson 2009, p. 55)

Solution-oriented therapy and positive thinking help many of our clients to find an optimal way to deal with their situations and find a perfect solution.

10. Art Therapy

Art therapy is another good method to help families and gifted children deal with problems and solve them. *Creativity in Gifted Children* describes the importance of the development of creativity and the use of Art therapy for gifted or twice-exceptional children [17]. Silverman reported from her research that more than 80% of gifted children are visual–spatial learners, and the use of their visual and spatial skills in art therapy is an excellent strategy for parents and educators [10]. Gifted children are often creative as well as intellectually capable and seem to find visual art a comfortable medium for working out some of the things that trouble them.

The physical act of drawing, painting, chipping away stone, weaving fabric, and spinning the wool is therapeutic and releases anxieties and reduces stress which, when denied outlets, can become blocks to healthy emotional development. At the same time, the freedom of artistic expression is a well-received change for gifted students, who are often under pressure to achieve intellectually in a standardized curriculum. Art is one way in which we can guide gifted children toward reconciling and integrating their inner and outer conditions, the realities, and myths of themselves, in a nonverbal language unique to them [18].

Spinning the wool trains concentration, develops fine motor skills, and increases a level of relaxation.

11. Animal-Assisted Therapy

Learning about animal-assisted therapy (AAT) was one of the best ideas we have had in the Global Center for Gifted and Talented Children, GCGTC. We have trained sheep and alpacas to help gifted and twice-exceptional children. (Figures 1 and 2)

Figure 1. Spinning the wool (picture used with parental consent).

Figure 2. Senija, the trained alpine stone sheep with our client, a gifted boy (picture used with parental consent).

12. What Is Animal-Assisted Therapy?

Animal-Assisted Therapy uses animal companions and trained animals to help people recover from health problems or manage certain medical conditions. AAT aims to improve a person's quality of life through the comfort and enjoyment of spending quality time with animals. Assisted-therapy animals typically work with physical or occupational therapists to help people reach specific goals.

13. What Children Can Benefit from AAT?

Animal-Assisted Therapy is useful for children with a wide range of physical, emotional, and mental disabilities. Animal-assisted therapy has proven helpful for children with the following conditions:

- Autism spectrum disorder;
- Asperger–Autism;
- Behavioral disorders;
- Cerebral palsy;
- Intellectual or developmental disabilities;
- Muscular dystrophy;
- Post-traumatic stress disorder;
- Traumatic brain injuries;
- ADHD

14. Benefits of AAT for Gifted and Twice-Exceptional Children

Research shows that animals have the natural ability to improve our mood, lower our blood pressure, and provide a pleasurable rush of feel-good chemicals; for children with special needs, animals play an incredibly important role [19,20]:

- Animals are naturally trusting;
- They do not judge us, humans, by our disabilities or gifts, talents, or abilities;
- Animals can pace our inner mood and energy very well;
- Animals reduce stress and help us to deal with anxiety;
- A number of skills can be improved during animal therapy sessions;
- The presence of animals in therapy provides psychological, emotional, social, and physical benefits;
- AAT increased relaxation, self-esteem, and self-confidence;
- Animals help gifted children with depression;
- Improve joint movement;
- Reduce or alleviate pain;

- Hone fine motor skills;
- Improve independent or assisted movement;
- Promote greater emotional stability;
- Reduce the feeling of isolation or loneliness;
- Increase the feeling of security, trust, happiness, and hope;
- Increase empathy, compassion, and nurturing;
- Improve verbal and nonverbal communication skills.

15. Research on the Use of Animal-Assisted Therapy

Charry-Sánchez, Pradilla, and Talero-Gutiérrez examined 26 studies with children: 10 with cerebral palsy, 9 with Autism, 2 with Down syndrome, 3 in pain, and 2 in other conditions. They found, using qualitative analysis, that a small but significant contribution was made by ATT in the management of these conditions [21].

Dalien described the results of research in which it was found that animals have the natural ability to improve mood, lower blood pressure, and provide a pleasurable rush of good chemicals in children with special needs. The author said that for a child with special needs, relationships might be hard to develop, which is why animals can work their special magic without the child knowing. Animals are naturally trusting and want to be accepted, just as children do, and do not judge us, humans, by our disabilities or limitations. Dalien said a few hours a day or week with an animal could do wonders for a child with special needs [19].

Carrie Borzillo shares Dr. Lesli Preuss' amazing story in the Samaritan Magazine of how her dog grabbed at her neck, and after taking him to the vet for anger management, the vet suggested she check with her doctor since the dog may have intuited something was wrong. Preuss found she had a tumor in her neck. This is a powerful example of the connection between animals and humans that can save lives. Preuss' research includes working with children with ADHD and Gifted and Asperger's at her ranch for animal therapy. The United Disabilities Service (UDS) found that animal therapy reduces anxiety, provides motivation, and brightens spirits. Jaimie Bott, a Special Education Supervisor of Mechanicsburg School district in Lancaster, PA, USA, said no one plays alone, the service dogs find someone alone at recess and play with them, and the dogs greet the students as they come into the school, setting a warm, friendly start of the day. The dogs they have in four schools were trained and provided by UDS [22].

In her thesis on the benefits of animal-assisted therapy with Children in Special Education at Bethel University, Erica Dolsey-Bugenhagen described how the presence of an animal motivated and encouraged one student to be creative and innovative [20]. For the first time, this student was able to create a project and complete it. Follow through and completion were problems for this student and with ATT, he created a running course for a rabbit, and his emotional meltdowns decreased.

What animals are used in animal-assisted therapy for Children? Dogs are the most often used animals for AAT, but a variety of other animals are also used, including:

- Cats;
- Pigs;
- Rabbits;
- Birds;
- Fish;
- Llamas;
- Alpacas;
- Horses;
- Dolphins;
- Goats;
- Sheep

16. Why Select Alpacas and Llamas for ATT?

It is well documented that holding and stroking animals can reduce blood pressure, lower pulse rates, and alleviate feelings of tension and anxiety [21]. Animals offer attention and unconditional acceptance; they are responsive, live in the 'here and now', and do not mind who you are or what you look like.

Alpacas and llamas are intelligent and inquisitive but can also be reticent with humans who fail to give adequate consideration to their needs. They are usually direct and honest, but unlike humans, they are nonjudgmental and do not confuse verbal communications. So, they are ideal for working with people who find themselves confused or threatened by human relations, and many clients report they feel safer and less threatened by animals. Being with animals can encourage nurturing and empathic traits, and for survivors of abuse, they offer an opportunity for safe touch. Benefits of positive interactions between people and alpacas and llamas are likely to include:

- Development of relationships and emotional bonds built on trust and respect;
- Improved mood, morale, and sense of self-worth;
- Better social interaction, reducing feelings of social isolation;
- Relief from anxiety and stress (slower heart rate and lower blood pressure);
- Learning new skills—nurturing and caring for animals appropriately;
- Self-esteem and confidence building.

Working alongside alpacas and llamas offers a different way of exploring difficult and sensitive issues as clients may find it easier to express their feelings and recount painful experiences.

Where clients are suffering from depression, research indicates the animals also have the potential to draw the person out of themselves, either by watching, stroking, or speaking to the animals, so they focus less on themselves and more on their external environment. So rather than thinking and talking about themselves and their problems, they watch and talk to (and about) the animals, changing the focus of interest and gaining positive attention, as well as pleasure in handling them. https://simplyalpaca.co.uk/therapy/details.aspx?positionId=113 (access on 12 December 2021). Figures 3 and 4 show some examples of children with therapy animals.

Figure 3. Alpacas helped a twice-exceptional boy with ADHD to be calm (picture used with parental consent).

Figure 4. Gifted boy with llama, Qallas, hiking in the forest (picture used with parental consent).

17. Summary and Conclusions

The concept of twice-exceptionality can be a challenge for schools, families, and the students themselves. However, this article outlined several considerations to ensure that the needs of 2e students are met in the school environment. When teachers acknowledge the strengths of the student before addressing their areas of need, there is a higher likelihood of success for the student. If teachers provide access to challenging content in multiple ways, 2e students may be more engaged. Additionally, acknowledging that 2e students have unique social and emotional needs and finding ways to help them navigate social situations in the school setting is critical for their long-term success [3].

Collaboration can help classroom teachers decipher between 2e students and gifted underachievers. Once their needs are identified, the students can be supported when special educators, gifted support personnel, and families exercise collaboration [23]. Considering a collaborative approach to meet the unique needs and strengths of each 2e student maximizes their opportunities for success in the school environment.

By understanding their own talents, 2e children build self-confidence, create positive identities, and find like-minded friends. These are essential strategies for coping with their challenges, finding their path in life, and being able to pursue their dreams. To meet the needs of these children, there must be a paradigm shift from a remediation or deficit model to a strength-based model of education. This is particularly true as a growing body of research demonstrates that learning disabilities coexist with unique learning strengths. These children need programs and schools that transform the research on twice-exceptionality into a daily commitment to combine academic rigor with individualized accommodations and adaptations.

Twice-exceptional children need individual support based on their individual needs and requirements. It is important to recognize their problems and work on solutions together with their parents and school, teachers, and educators. Animal-assisted therapy cannot stand on its own but is a complement to art therapy, coaching, and the development of plans. In our experience at our Global Center, we support the strengths of 2e children, which help to improve their well-being, show their potential, and help them to deal with normality without depicting them as weak links of society. Twice-exceptional children need an education that fits their needs, and it is in all our interests to provide it.

Funding: This research received no external Funding.

Institutional Review Board Statement: Ethical review and approval were waived for this study, due to examples being taken directly from actual cases.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Archer, D. The ADHD Advantage: What you Thought Was a Diagnosis May Be your Greatest Strength. 2015. Available online: https://www.pdfdrive.com/the-adhd-advantage-what-you-thought-was-a-diagnosis-may-be-your-greatest-strength-e184018136.html (accessed on 12 December 2021).
2. Armstrong, T. *Neurodiversity in the Classroom: Strength-Based Strategies to Help Students with Special Needs Succeed in School and Life*; ASCD: Alexandria, VA, USA, 2012.
3. Asperger, H. Die autistischen Psychopathen im Kindesalter. *Eur. Arch. Psychiatry Clin. Neurosci.* **1944**, *117*, 76–136. [CrossRef]
4. Asperger, H. Problems of infantile autism. *Communication* **1979**, *13*, 45–52.
5. Assouline, S.G.; Whiteman, C.S. Twice-exceptionality: Implications for school psychologists in the post-IDEA 2004 era. *J. Appl. Sch. Psychol.* **2011**, *27*, 380–402. [CrossRef]
6. Baldwin, L.; Baum, S.; Perles, D.; Hughes, C. Twice-exceptional learners: The journey toward a shared vision. *Gift. Child Today* **2015**, *38*, 206–214. [CrossRef]
7. Baum, S. Learning Disabled Students with Superior Cognitive Abilities: A Validation Study of Description Behaviors. Doctoral Dissertation, University of Connecticut, Mansfield, CT, USA, 1985.
8. Baum, S.; Schader, R. *2e2: Teaching the Twice Exceptional Viewer's Guide*; Child of Giants LLC: Berkeley, CA, USA, 2018.
9. Baum, S.; Schader, R. Using a Positive Lens: 2e Students as Engaged Learners. In *Twice Exceptional: Supporting and Educating Bright and Creative Students with Learning Difficulties*; Kaufman, S.B., Ed.; Oxford University Press: Oxford, UK, 2018. [CrossRef]
10. Baum, S.M.; Cooper, C.R.; Neu, T. Dual differentiation: An approach for meeting the curricular needs of gifted students with learning disabilities. *Psychol. Sch.* **2001**, *38*, 477–490. [CrossRef]
11. Baum, S.M.; Owen, S.V. High ability/learning disabled students: How are they different? *Gift. Child Q.* **1988**, *32*, 321–326. [CrossRef]
12. Baum, S.M.; Schader, R.M.; Hébert, T.P. Through a different lens: Reflecting on a strength-based, talent-focused approach for twice-exceptional learners. *Gift. Child Q.* **2014**, *58*, 311–327. [CrossRef]
13. Baum, S.M.; Schader, R.M.; Owen, S.V. *To Be Gifted and Learning Disabled: Strength-Based Strategies for Helping Twice-Exceptional Students with LD, ADHD, ASD, and More*, 3rd ed.; Prufrock Press: Austin, TX, USA, 2017.
14. Brody, L.E.; Mills, C.J. Gifted children with learning disabilities: A review of the issues. *J. Learn. Disabil.* **1997**, *30*, 282–296. [CrossRef] [PubMed]
15. Sanchez, C.; Ivan, D.; Gutierrez, T. Effectiveness of Animal-Assisted Therapy in the Pediatric Population: Systematic Review and Meta-Analysis of Controlled Studies. *J. Dev. Pediatr.* **2018**, *39*, 580–590. [CrossRef] [PubMed]
16. Cruickshank, W.M. Myths and realities in learning disabilities. *J. Learn. Disabil.* **1977**, *10*, 51–58. [CrossRef]
17. Cruickshank, W.M.; Bentzen, F.A.; Ratzeburg, G.H.; Tannhauser, M.T. *A Training Method for Hyperactive Children*; Syracuse University Press: Syracuse, NY, USA, 1961.
18. Dalren, S. Animal Therapy for Children with Special Needs. Available online: https://specialedresource.com/animal-therapy-children-special-needs (accessed on 12 December 2021).
19. Dictionary.com. Socialization. Available online: https://www.dictionary.com/browse/socialization (accessed on 12 December 2021).
20. Dolesy-Bugenhagen, E. Benefits of Animal Therapy with Children in Special Ed., All Electronic Theses and Dissertations 171. 2018. Available online: https://spark.bethel.edu/eld/171 (accessed on 12 December 2021).
21. Education for All Handicapped Children Act of 1975, Pub. L. No. 94-142. 1975. Available online: https://www.govinfo.gov/content/pkg/STATUTE-89/pdf/STATUTE-89-Pg773.pdf (accessed on 12 December 2021).
22. Foley-Nicpon, M.; Alimon, A.; Sieck, R.; Stinson, R.D. Empirical investigation of twice-exceptionality: Where have we been and where are we going? *Gift. Child Q.* **2011**, *55*, 3–17. [CrossRef]
23. Eide, B.L.; Eide, F.F. *The Dyslexic Advantage: Unlocking the Hidden Potential of The Dyslexic Brain*; Penguin Group: London, UK, 2011.

education sciences

MDPI

Article

Pretense or Belief: Creating Meaningful Scenarios and Simulations for Authentic Learning about Diverse Underserved Gifted Students

Gillian Eriksson

Learning Sciences and Educational Research, University of Central Florida, Orlando, FL 32816, USA; gillian.eriksson@ucf.edu

Abstract: Understanding of the complexity of gifted students who present with an intersection of unique profiles of abilities and challenges, cultural, ethnic, gender and linguistic perspectives, learning experiences across contexts and personal expectations remains a challenge in identifying and serving diverse gifted students. Training teachers to recognize talent and high ability in these diverse populations remains a central problem in addressing issues of underrepresentation and providing a differentiated curriculum to meet their unique needs. The use of scenarios and simulations offers ways to observe, engage, interact and practice strategies in the post-pandemic online and hybrid learning modes, as demonstrated through a simulated classroom of diverse gifted learners. Presented here are ways to ensure that the scenarios and simulations can be designed to be authentic and present cases that approximate real students so that teachers can transcend the 'pretense' into 'belief' with real lessons and develop knowledge and skills to address the needs of underserved gifted students.

Keywords: underserved; gifted; authentic; scenarios; simulations

Citation: Eriksson, G. Pretense or Belief: Creating Meaningful Scenarios and Simulations for Authentic Learning about Diverse Underserved Gifted Students. *Educ. Sci.* **2022**, *12*, 532. https://doi.org/10.3390/educsci12080532

Academic Editor: Jacobus G. Maree

Received: 22 April 2022
Accepted: 27 July 2022
Published: 8 August 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

1. Key Questions

Several questions need to be addressed when examining how to train teachers for the authentic recognition of underserved gifted students. How can teachers be trained to understand the full complexity of each of these unique diverse learners, especially those who are immigrants and English Language Learners (ELL)? What are the most effective methods to address stereotypes, myths and misconceptions about diverse students to bring about attitude changes and lead teachers to effectively identify and refer students for assessment for gifted services and programs? How can teachers be trained to develop services and curricula that are most meaningful, appropriate and challenging for these unique learners in relation to their individual profiles? What are the specific strategies that need to be included for students from low-income backgrounds and for English learners in the context of low-income schools (Title I)?

2. Introduction

As we emerge into a post-pandemic era, we can examine the lessons learned about ways to engage students in authentic learning and to train teachers. Teachers and students have been swept into crisis mode—a paradigm shift that resulted in acquiring skills for new learning management systems and applications as they strive to bridge online, hybrid, face-to-face and partially in-person modes of learning. In addition, this period generated an age of social criticism and activism directed towards a range of social issues prevalent in the media. Arguments are being debated about "going back" to pre-pandemic learning modes with in-person attendance versus the continuation of online learning and its benefits or drawbacks. Educators have argued that we are entering a new set of experiences in learning, in which the focus should be on the core objectives and mission of learning and then the selection of content that is both current and historical and choosing from the wide

range of possible learning opportunities that make the most meaning [1]. Central also to this is the issue of accessibility to and affordability of online learning options, especially in relation to increased levels of poverty and disparity in language and literacy skills.

Also emerging at the forefront of gifted education is the renewed focus on underserved gifted learners from diverse populations, with some districts in the United States questioning inequity and access and threatening the continuation of advanced and gifted programs. A report entitled 'Access Denied: System Failure' by Gentry and Colleagues [2] on the inequity in identification of gifted underserved students in the United States introduced the concept of 'missingness', stating:

> "*We define missingness as students who could/should have been identified, based on the percentages identified in each state on average (lower boundary) and at the higher rate of identification in Non-Title I schools (upper boundary). Missing students come from two sources: Schools in which students have no access to identification (schools that do not identify students) and schools in which some groups of students are under-identified.*" [2]

What is also needed is a closer examination of the individual characteristics of these diverse students, whose profiles present a complex interplay of abilities, interests and motivations infused with cultural, national, multilingual, gender and socio-economic factors and unique personalities.

3. What Is 'Real' or 'Authentic' Learning?

The assumption exists that the most meaningful learning should be 'hands-on', 'real-world' or 'experiential'—terms that often appear in popular media without an examination of the depth of thinking and inquiry that should be integrated, especially for gifted learners. John Dewey [3,4], with his pragmatic approach to learning, advocated for experiential learning: "*Give the pupils something to do, not something to learn; and the doing is of such a nature as to demand thinking; learning naturally results*", but at the same time, he stressed the need for this to be inquiry- and problem-based: "*We only think when confronted with a problem*" and "*We do not learn from experience, we learn from reflecting on an experience*" [3]. During the pandemic, many online opportunities were developed with extensive virtual field trips from core museums and institutes with online activities and learning. In addition, a range of innovative approaches included a hybrid of actual and virtual learning, while place-based education developed with some schools and programs emerging that took place outside or in natural surroundings (many schools were encouraged to move outdoors during the pandemic). Leder [5] describes the curriculum and benefits to young children in a kindergarten school set in a forest in Denmark. However, as most teachers will attest, going on a field trip in itself does not necessarily result in automatic depth of learning—the way that observation is integrated into thinking, inquiry and problem-solving and results in student productivity is essential to develop meaning. Kaplan [6] has clarified the importance of prompts of depth and complexity within a learning experience to focus attention and clarify meaning in relation to both content and skill-related learning. Hence, in the use of scenarios and simulations, these prompts can be generated to steer student perceptions and understanding towards greater depth and complexity in learning, which is especially relevant for gifted students.

The question that arises, "What is real learning?", is contemplated by the philosopher David Chalmers [7] with regard to the impact of virtual worlds, a topic explored in his book entitled *Reality+* that argues for the use of augmented, immersed and virtual learning to confirm notions of authentic learning. Galindo [1] clarifies the term 'authentic' in terms of a Constructivist approach, as stated on his website: "*Authentic Learning describes learning activities that are either carried out in real-world contexts, or have high transfer to a real-world setting*" (https://ablconnect.harvard.edu/authentic-learning; accessed on 10 December 2021). In addition, this learning should have personal relevance to connect to the worlds of the learner, as well as cultural relevance, and it should be student-centered to allow students to generate and explore situations themselves.

Teachers have striven to create a bridge into the 'real world' in the classroom by developing scenarios, often with the use of role play, to bring the learning 'to life' and engage students for deeper understanding. However, scenarios are only as good as their approximation to real conditions or cases and subject to a range of criteria. Many authors have described ways to develop meaningful scenarios and case studies. In the training of teachers in professional learning for differentiation in gifted education, Weber, Behrens and Boswell [8] have presented a wide range of case studies that examine multiple themes, topics and issues in gifted education. These relate to how to provide differentiation across different contexts for students with individual needs, aiming for authentic learning to improve appropriate placements, services and curricula for gifted students. How to bridge the 'pretense' through case studies with the reality of teaching in a diverse school with all its complexity remains a challenge.

4. Scenario-Based Learning

Several authors have clarified the ways that scenarios can be used for learning across a of range of disciplines and subjects. Stewart [9] has developed a set of guidelines that clarify the process: a storyline is presented around a complex problem that students need to solve, then they provide a written or oral reflection and self-assessment on the process. This author presents beginning steps: identify the learning outcomes; decide on format; choose a topic; identify the trigger event or situation; peer review the scenario. Taking the use of case studies to another level, Scenario-Based Learning (SBL) is clarified in a curriculum by Sheppard and Schar [10] at the Design Education Lab at Stanford University in a four-module pedagogical process: the scenario or story description of the situation (case study) in which protagonists struggle with a real-world problem with information and instruction; a lab activity in teams (hands-on lab); team discussions to explore ways to complete the tasks (reflections and observations); a homework assignment in which students synthesize their learning. In an introduction to teaching using scenarios, Ada Lovelace Day [11] describes what should be included: an introduction with facts behind the scenario; desired learning outcomes; a fictional scenario; the situation, key questions, fictional stakeholders; the task set; activities; resources (this includes examples of how core issues such as gender can be presented in several possible scenarios).

5. 'TeachLivE' Technology—From Pretense to Belief

TeachLivE is a project developed through the University of Central Florida Center for Research in Education Simulation Technology, under the Synthetic Reality Lab (SREAL) at the Institute of Simulation and Training at UCF. As stated on their website:

> "*TLE TeachLivE™ is a mixed-reality classroom with simulated students that provides teachers the opportunity to develop their pedagogical practice in a safe environment without placing real students at risk. To our knowledge, this lab is currently the only one in the country using a mixed-reality environment to prepare or retrain pre-service and in-service teachers. The use of TLE TeachLivE™ Lab has also been instrumental in developing transition skills for students with significant disabilities, providing immediate feedback through bug-in-ear technology to pre-service teachers, developing discrete trial skills in pre-service and in-service teachers and preparing teachers in the use of STEM-related instructional strategies.*" (https://sites.google.com/view/teachlive/history; accessed 10 July 2022)

Stemming from the use of virtual puppetry in teacher training in 2005, the UCF College of Education and College of Engineering and Computer Science initiated remote, virtual avatar-mediated, human-to-human communication initiated by 'interactors'. Extensive research has since emerged with the development of augmented reality (AR) and the Teach-LivE virtual environment of classrooms of avatars from 2010 that shows the wide range of applications of this technology to training teachers, especially those from exceptional education. Hayes and colleagues [12] examined the concept of "presence, engagement and ludus" in the Mixed Reality Environment (MRE) that included emerging technologies in

their research on exploring TLE TeachLivE on effective teacher training. The simulated classroom includes a 'suspension of disbelief' that goes beyond the 'pretense' of the scenario into presence and immersion. As they state:

> "*The TLE TeachLivE™ technology allows the virtual classroom to be populated with students who represent a range of ages, cultures, backgrounds, abilities and behaviors, enabling teachers to practice with students that reflect their target population.*" [12]

These authors [12] expand on the role of playfulness without generating real consequences or negative impact in a classroom or school; teachers can explore a range of strategies, activities and communication with students as avatars in a safe environment, resulting in a pleasurable learning experience. While they are interacting with these avatars in the simulation, they go through a process that moves from playfulness or 'pretense' to a learning experience that 'suspends their disbelief'. Teachers begin to relate to these case studies as real students and generalize their understandings and insights to their own students, gaining a depth of knowledge of diverse gifted students from other cultures and countries. This is dependent on the virtual students being presented with fidelity through extensive interactor training to portray the behavior, motivations and reactions of students they present. Research conducted by Dieker, Grillo, Ramlakhan and Eriksson [13] demonstrated the impact of using virtual and simulated environments in a science, technology, engineering and mathematics (STEM) summer camp of targeted diverse secondary science students from low socioeconomic backgrounds who were considered gifted with strong potential in these future STEM fields.

6. Demonstration of the Use of Scenarios in a Virtual Classroom: Project ELEVATE

Project ELEVATE, 'English Language Excellence eVolving through Advanced Teacher Education', a USDOE Jacob K. Javits Grant (2015–2021), set about addressing core questions and objectives, as stated on their website in the mission:

> "*The goal of PROJECT ELEVATE is to scale up the percentage of English Learners (ELL) and Economically Disadvantaged (ED or Title I) students who are identified for gifted services and to infuse the curriculum for developing intercultural excellence for diverse learners. Centered on best practices in gifted education, the project will present all students in treatment schools with alternative methods for identification of giftedness and ensure the foundation for developing excellence*". (https://assistelevateucf.wixsite.com/giftedatucf/project-elevate; accessed 10 July 2022)

Implemented in collaboration with a school district in Florida, the UCF Project ELEVATE team focused on the professional development of teachers across ten elementary (K-5 grades) and two middle (6–8 grades) schools (low-income Title I). The goal was to 'elevate' the knowledge and understanding of **all teachers** in treatment schools about the learning ability of students who are classified as English Language Learners (ELL) and Educationally Disadvantaged (ED) through professional development experiences to transform deficit views and overcome misconceptions, specifically related to language skills and challenges in low-income populations. The district used the Florida Department of Education (2013) [14] guidelines for determining eligibility for gifted services in addition to an extended matrix of multiple measures used to identify students from low-income populations and English Learners (termed Plan B), but this has not addressed the underrepresentation of diverse gifted learners in urban schools [15]. In Project ELEVATE, each school selected teams of teachers to receive specialized training after school and on weekends as **Teacher Leaders** across three treatments. Year 1 and 2 (2015–2017) included high-needs populations from the five lowest income level urban schools (Treatment 1). Year 3 and 4 (2018–2019) included low-income schools with high percentages of English Language Learners (Treatment 2). Year 5 and extension 6 (2020–2021) included two low-income middle schools with high percentages of ELL (Treatment 3).

As the recognition of high ability in learners who **need advanced challenges in curricula** plays such an important role in referral for assessment, identification and talent

development, this key objective took priority in training these teacher leaders in the treatment groups as well as the school-based training of all the teachers in all 12 schools (based on the Florida State and district guidelines for identification). This extensive program of specialized professional development included presentations and workshops from the UCF faculty team on 'Diversity in Gifted Education', 'Schoolwide Enrichment and Acceleration', 'Innovative Methodology' and 'Multi-faceted Identification' and also science, technology, engineering, art and math (STEAM). An important part of this training included the use of scenarios, case studies and virtual simulations in order to meet project objectives. To achieve this within each school, the UCF team trained **all teachers** in the treatment schools in differentiation, the Schoolwide Enrichment Model [16] and acceleration and how to identify gifted learners from marginalized populations. An innovative approach was designed using a virtual simulated classroom of gifted avatars developed with technology from the TeachLivE program.

7. Developing the Simulated Gifted Classroom

The UCF Project ELEVATE team collaborated with the UCF Center for Research in Education Simulation Technology (CREST) and the Synthetic Reality Lab (SREAL) at the Institute for Simulation and Training in 2015 to design a virtual interactive classroom to 'bring to life' five diverse gifted students from low-income backgrounds and different cultures, four of whom were immigrants with varying levels of English competence. In the design, real data stemming from gifted students were abstracted and provided by the district (anonymous, confidential) and formed the basis for generating case studies to represent five cultural backgrounds and five countries of origin (Mexico, Brazil, Ireland, South Africa and Korea), each with a range of diverse needs and levels of giftedness. These were further added to by an expansion of scenarios, which included an elaboration of the places, schools, cultures and countries where they originated and also specific lifestyles, interests, hobbies and levels of achievement and challenges faced when transitioning to schools in the USA. The students were also assigned personality profiles with unique motivations, behaviors, mannerisms, interests, concerns and cultural references. The avatars that had already been used previously in training for ELL were selected to represent four cases. A unique avatar was created using a real gifted student whose parents gave permission and supplied photographs and videos to draw and develop for the avatar from South Korea (an educational experience for this student, who found the experience both entertaining and stimulating). After the scenarios were created and the 'interactors' trained to present these avatars with fidelity, the scenarios were reviewed and tested and presented to individuals from these actual countries to check for authenticity to prevent misconceptions and stereotypes. Pilot studies were completed to ensure the relevance of the immersive experience with teams of teachers. The simulations took place in both the teacher leadership training for each teacher leader and within every school in grade-level teams. Stages of professional development included three forums that addressed: 'Gifted versus High-Achiever'; 'Underachievement and Overachievement'; and 'Levels of Giftedness'. Stage 1 included a presentation of key issues; Stage 2 was the live interaction in the 'ELEVATE Gifted Simulated Classroom'; Stage 3 included discussions and debates; Stage 4 was consensus building in each grade level team in response to questions; Stage 5 was a posting to the *'ecampus'* (learning management) website and review of the responses of all other grade level teams (60 elementary school and 12 middle school grade level teams across 12 schools or 72 teams). This was followed by a workshop on 'Designing Educational Plans and Differentiated Curricula for Individual Case Studies'.

The use of this discussion board allowed any school team to view the responses of the other teams and their reflections, and to develop their own perspectives and curriculum planning in relation to each of the interactions with these avatars. The use of consensus allows each participant to question their own assumptions about diverse students from different cultures and to observe the characteristics displayed in relation to levels of achievement and giftedness in the case studies. This process facilitates the transition from the

'pretense' or playfulness in the simulation to making this directly relevant to their actual students, a process known as "suspension of disbelief" [10], as stated above.

The website shows the original avatar case studies and includes details of the profiles and activities that can be used for training teachers (https://assistelevateucf.wixsite.com/giftedatucf/project-elevate; accessed 10 July 2022). To examine the impact of the simulation, a content analysis of the grade level team posts was analyzed in relation to core issues: misconceptions and stereotypes about diverse, underserved gifted students; levels of achievement and underachievement of the case studies; levels of giftedness; and the individual educational planning of services and a curriculum for each case study. The content analysis of the forum postings shows the move from 'pretense' to 'presence' to 'belief', whereby the case studies were discussed as if they were real students and awareness of their needs was developed.

One group wrote that:

> **"Eudora displays many indicators of an underachieving gifted student.** She struggles to find the motivation to want to succeed in the classroom. She shares about the content not being 'important for real life'. However, she does share her interest in plants that show she can be curious when it comes to certain topics. She also appears to be struggling with the transition to the American classroom. **It's possible she may have been viewed as highly intelligent in her native country, but not so much here. Therefore, it might be easier for her not to put herself out there for fear of confirming this lesser image of her."**

One group recognized Marta's talents, sharing that:

> "Marta shows her highly gifted abilities through her empathy for other countries and their experiences. She is very focused on communication and how her ability to communicate can be perceived. She has strong problem solving and interest to share how to solve issues through research and writing".

Similarly, another group noted that:

> "Ji-Ho also displays some of the characteristics of the profoundly gifted learner. He shares that he has skipped multiple grade levels and that the current course load still isn't near as challenging for him. He also described his advanced musical ability which has developed much faster than his peers".

8. Impact of Project ELEVATE

A mixed methods approach was used to determine the effectiveness of the professional development training. Subjects included groups of teacher leaders selected from the 12 treatment schools (29 in Treatment 1; 36 in Treatment 2; 11 in Treatment 3), with a control group of 100 teachers in matched schools in the district. In addition, teachers in all schools received training in the ELEVATE TeachLivE Gifted Simulated classroom in grade level teams (511 in Treatment 1; 462 in Treatment 2; 500 in Treatment 3). Research on the impact of this training showed the percentage growth in numbers of students being identified from these diverse populations who previously would have been ignored: overall gifted +/−30%; English Language Learner (ELL) gifted +/−148%; Economically Disadvantaged (ED) gifted +/−113% [17,18]. In addition, research on the impact of the professional learning of the teacher leaders across pre-post testing showed significant gains on measures of self-efficacy as a teacher of the gifted (p = 0.003) and their knowledge of the Culturally, Linguistically, Educationally Disadvantaged (CLED) gifted (p = 0.013) amongst a range of measures. Project ELEVATE has demonstrated that specific training of teacher leaders in understanding the nature of giftedness through case studies of diverse learners and knowledge about a broadened approach to identifying giftedness has had a very significant impact on the numbers of students identified. These were students who were previously overlooked and did not receive appropriate services. This research and approach have demonstrated that the project has led to a closing of the gaps for underserved gifted learners in this district and state. In addition, a greater impact also took

place whereby English learners were recognized and identified using a matrix of multiple measures specifically developed for this population. The core objective of overcoming deficits in teacher awareness, knowledge and skills has been demonstrated in this project. As the simulation developed for this specific purpose included the use of case studies from within the parameters of this specific district, the use of these avatars and their abstracted profiles may not be generalized to other populations of diverse students. Further research is needed to determine the impact of this TeachLivE technology across districts and in other states or contexts.

9. Relevance for Training Teachers—Scripting Meaningful Scenarios

Beyond the use of this Mixed-Reality Environment (MRE), the case studies and this approach can still be used without the technology to address training and professional learning. The Project ELEVATE website contains each case study and scenario with individual profiles for exploration and discussion with corresponding questions and activities.

When scripting scenarios that include case studies of students who are immigrants and ELL, it is essential to use reviewers from their country of origin to ensure accuracy in presenting the unique education systems and expectations, the language accuracy and diversity, the cultural context and family expectations, and the type of curriculum used in that country. In addition, caution must be taken not to use a single case study to stereotype an entire country or culture and to ensure that the multiple perspectives are well-represented.

There are several ways to create meaningful scenarios, as suggested in the following strategies and guidelines. These can also be used to formulate criteria to determine the authenticity of the scenarios and simulations (Table 1).

Table 1. Criteria to determine 'authentic' scenarios and simulations.

Gather Data and Perspectives:
Research actual cases of students and examine the complex interplay of factors in their profiles.
Research the places related to their culture and linguistic heritage.
Research literature, virtual field trips and resources that would provide a background of knowledge about their cultures.
Read stories, diaries or letters written by someone with a similar background.
Examine the assumptions about gender roles and family expectations.
Learn some basic greetings and gestures from their linguistic background.
Visit, virtually or in field, the actual places and spaces that impacted their knowledge base.
Where possible, attend cultural events that would highlight lifestyles and celebrations.
Examine their schools and educational systems with ways that they were assessed and how achievement is defined.
Engage directly either in-person or online with individuals from their background to compare cultures, classrooms and learning experiences.
Talk to teachers from their background who share their cultural and class expectations.
Develop a set of objectives and infuse issues
Create a system to tabulate or chart the complex range of perspectives that infuse:
Abilities—infuse the levels of giftedness.
Achievements—infuse underachievers, selective consumers and high achievers.
Personality—infuse socio-emotional issues.
Gender roles and non-binary or heterosexual assumptions.
Cultural and religious traditions and family.
Language—the range of ELL levels or cultural linguistic perspectives and heritage.
Script the context and place:
Choose a specific location—the town/city/region/climate—make it as real as possible to develop a virtual field trip.
Choose a specific school and describe what it looks like, etc.
Choose a specific curriculum and describe it—need for research on what already exists.
Choose a place of residence.
Develop a side-by-side comparison of the scenario context with the local school setting or school district.

Table 1. *Cont.*

Script the personal scenario:
Examine a real profile and create a student with a similar set of abilities, achievements and motivations while maintaining complete confidentiality (abiding by FERPA rules).
Choose a specific personality to distinguish ability from personality (you may want to consult personality inventories).
Develop a range of their classwork—some writing examples, essays they may have written, even handwriting, their answers to introductory activities, etc.
You can choose a specific cursive font for each case study.
Ensure that some of the nuances of language use are infused (e.g., British English versus Standard American English).
Complete an interest inventory for your case study.
Infuse core issues, conflicts, incidents and challenges into the scenario that would generate a discussion on what may have impacted them.
Craft an image—select a range of possible images of the case study from online photographs and then create a unique visual image—this could also be a drawing or graphic compilation.
Script a possible interview:
Set the stage—describe where or when this first meeting with the case will take place.
Write some core questions that teachers often use to get to know their students.
Present an activity to engage the case study—fictitious ice-breakers, etc.
Script a meeting with family members or ask the case to describe their family and heritage.
Test the Scenario:
Engage someone from the same background to review the script and the scenario.
Check for errors, misconceptions, limited perspectives and stereotypes.
Ask for corrections and contributions to make this more authentic.
Ask for a review from a teacher from their background, culture or country.
Field test the scenario in a forum with a group of teachers.
Implement the training using the scenario:
Use a collaborative lesson study approach [19] in which teachers work together to clarify core objectives before completing the training, and then reflect after the training.
Invite the teachers to add to this checklist or develop a set of guidelines.

Adapted from Eriksson [20,21].

10. The Future—Infusing Simulation and Reality

We already live in a world in which what we think, do and achieve is monitored, documented and managed, often covertly. Many devices are already on our wrists for monitoring health, exercise and medical status or are implanted for living effectively, such as hearing implants and prosthetics. Research continues on how learning takes place, examining eye focus, levels of attention, motivations and behaviors—observations well-known and manipulated by social media. As this blending continues, so will the blending of what is considered 'pretense' merge with 'belief' to create new ways of knowing, experiencing and learning—a thrilling but intimidating prospect, where authenticity and altruism need to come together.

Funding: This research was funded by the United States Department of Education JACOB K JAVITS grant #5206A150014.

Institutional Review Board Statement: The study was approved as human participant research that is exempt from regulation by the Institutional Review Board of the Office of Research, The University of Central Florida (#IRB00001138 Research ID #105960, 29 November 2016).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Eriksson, G.I.; Bai, H.; Sanguiliano-Lonski, J. *Research Report and Impact of Project ELEVATE*; Jacob K. Javits Grant, United States Department of Education, #5206A150014 (2015–2021). Office of Research, University of Central Florida #105960. 2021.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Galindo, J.H. Authentic Learning (Simulations, Lab, Field) Harvard Graduate School of Education. 2021. Available online: https://ablconnect.harvard.edu/authentic-learning (accessed on 10 December 2021).
2. Gentry, M.; Gray, A.; Whiting, G.W.; Maeda, Y.; Pereira, N. *System Failure Access Denied. Gifted Education in the United States. Executive Summary*; Gifted Education Research & Resource Institute, Purdue University: West Lafayette, IN, USA, 2021. Available online: https://www.education.purdue.edu/geri/new-publications/gifted-education-in-the-united-states/ (accessed on 1 July 2022).
3. Dewey, J. *Experience and Education. Reprint Edition*; Free Press, Simon and Schuster: New York, NY, USA, 1997. Available online: https://www.freepress.net (accessed on 10 July 2022).
4. Dewey, J. *Democracy and Education: An Introduction to the Philosophy of Education*; CreateSpace Independent Publishing Platform: Scotts Valley, CA., USA, 2013. Available online: https://www.createspace.com (accessed on 10 July 2022).
5. Leder, S. *Forest Kindergartens: A Multicultural Perspective. National Start Alliance*; North American Association for Environmental Education: Washington, DC, USA, 2019.
6. Kaplan, S.N. Differentiating with Depth and Complexity. In *Fundamentals of Gifted Education: Considering Multiple Perspectives*; Callahan, C.M., Hertberg-Davis, H.L., Eds.; Routledge Taylor & Francis: New York, NY, USA, 2017.
7. Chalmers, D.J. *Reality+: Virtual Worlds and the Problems of Philosophy*; W.W. Norton & Company: New York, NY, USA, 2022.
8. Weber, C.; Behrens, W.; Boswell, C. *Differentiating Instruction for Gifted Learners*; A Case Study Approach; Routledge, Taylor & Francis: Oxfordshire, UK, 2016.
9. Stewart, T.; Scenario Based Learning. Massey University, New Zealand. Available online: https://www.massey.ac.nz/massey/fms/AVCAcademic/TeachingandLearningCenrtres/Scenario-based-learning.pdf (accessed on 1 December 2021).
10. Sheppard, S.; Schar, M. *Scenario-Based Learning (SBL)*; The Design Education Lab at Stanford University: Stanford, CA, USA, 2015. Available online: https://del.stanford.edu/curricular-tools/scenario-based-learning (accessed on 10 December 2021).
11. Ada Lovelace Day Foundation. Introduction to Teaching Scenarios—Education Pack. 2021. Available online: http://findingada.com/wp-content/uploads/2015/10/Ada-Lovelace-Day-Scenarios-Introduction.pdf (accessed on 1 December 2021).
12. Hayes, A.T.; Straub, C.L.; Dieker, L.; Hughes, C.E.; Hynes, M.C. Exploration of TLE TeachLivE and Effective Teacher Training. *Int. J. Gaming Comput. -Mediat. Simul.* **2013**, *5*, 20–33. [CrossRef]
13. Dieker, L.; Grillo, K.; Ramlakhan, N.; Wallace, B.; Eriksson, G. The use of virtual and simulated teaching and learning environments: Inviting gifted students into science, technology, engineering, and mathematics careers (STEM) through summer partnerships. *Gift. Educ. Int.* **2012**, *28*, 96–102. [CrossRef]
14. Florida Department of Education. Florida's Plan for K-12 Gifted Education. *Bureau of Curriculum and Instruction*. 2013. Available online: https://www.fldoe.org/core/fileparse.php/7567/urlt/stategiftedplan.pdf (accessed on 1 July 2022).
15. Eriksson, G.I.; Lukens, J. *Shining a Light on a Talent Development for English Language Learners and Students Impacted by Poverty*; National Association for Gifted Children: Charlotte, NC, USA, 2017.
16. Renzulli, J.S.; Reis, S.M. *The Schoolwide Enrichment Model: A Comprehensive Plan for Educational Excellence*; Creative Learning Press: Mansfield Center, CT, USA, 1985.
17. Eriksson, G.I.; Capoverdi, T. *Transcend Traps into Triumphs for Underserved Title I, ELL, Immigrant Gifted Students*; National Association for Gifted Children 68th Annual Convention: Denver, CO, USA, 2021.
18. Eriksson, G.I.; Bai, H.; Sanguiliano-Lonski, J. *Research Report and Impact of Project ELEVATE*, Jacob, K., Ed.; Javits Grant, United States Department of Education, #5206A150014 (2015–2021). Office of Research, University of Central Florida #105960. 2021. Unpublished work.
19. Collet, V.C.; Keene, E.O. *Collaborative Lesson Study: ReVisioning Teacher Professional Development*; Teachers College Press: New York, NY, USA, 2019.
20. Eriksson, G.I. Engaging Teachers in Professional Growth to Generate Excellence in Underserved Gifted through Advanced Teacher Education. In Proceedings of the World Conference on Gifted and Talented Children (WCGTC), Virtual Conference, 7–8 August 2021.
21. Eriksson, G.I.; Ingraham, K.; Sanguiliano-Lonski, J. Learning Environments of the Future: Using Authentic and Virtual Reality to Examine Misconceptions about the Identification of Gifted Underserved Students and Design Curriculum for Diverse Gifted Students Using Real Case Studies. In Proceedings of the National Association for Gifted Children 67th Annual Convention, Virtual Conference, 3–5 November 2020.

education sciences

MDPI

Article

Factors Affecting the Perceptions and Practices of Differentiated Curricula and Pedagogies for Gifted and Talented Students

Sandra N. Kaplan

Rossier School of Education, University of Southern California, Los Angeles, CA 90007, USA; skaplan@usc.edu

Abstract: The definitions and implementation of differentiated curricula and instruction for gifted and talented students have been affected by a myriad of philosophical and institutional factors defined by educators, community members, and gifted and talented students. The ramifications of these factors affect the focus and subsequent objectives and outcomes of differentiated curricula and instruction for gifted and talented students. A set of questions regarding the structure and implications of differentiated curricula and instruction for gifted and talented students are presented. Concepts such as specificity versus generalization, transfer of training, and conflict of interests are discussed and exemplified theoretically, philosophically, and pragmatically to respond to these questions.

Keywords: differentiation; gifted; perceptions; curriculum; instruction

Citation: Kaplan, S.N. Factors Affecting the Perceptions and Practices of Differentiated Curricula and Pedagogies for Gifted and Talented Students. *Educ. Sci.* **2022**, *12*, 41. https://doi.org/10.3390/educsci12010041

Academic Editors: Dorothy Sisk and Jacobus G. Maree

Received: 18 October 2021
Accepted: 7 January 2022
Published: 11 January 2022

1. Introduction

Tyler identified four basic questions that needed to be addressed in his seminal work regarding principles of curriculum and instruction [1]:

1. What educational purposes should the school seek to attain?
2. What educational experiences should be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organized?
4. How can we determine whether these purposes are being attained?

"Challenging", "enrichment", "complexity", "individualized and personalized", "accelerated", "creative and critical thinking", and "process and product" are some of the common terms associated with the concept of differentiation. How and why these terms are included in or excluded from the definition and implementation of differentiated curricula for gifted and talented students will be addressed in relation to the implications of Tyler's questions, as well as questions derived from examining the philosophy and practices that promote or deter differentiation, which are as follows:

1. What are the primary and multiple purposes related to differentiating curricula and instruction for gifted and talented students?
2. How can the acceptance and implementation of differentiated curricula and instruction for gifted and talented students facilitate and compliment the basic or rudimentary curriculum defined for all students across subjects and grade levels?
3. How can teachers be educated to affectively and effectively develop the expertise needed to implement a differentiated curriculum?
4. How can the academic, personal, and social responses and outcomes of gifted and talented students as participants in differentiated curricular and instructional experiences be clearly understood and communicated to students, educators, and the community?

Some of the significant factors affecting differentiation for gifted and talented students are the political, social, cultural, and economic perspectives that consistently affect and shape general education. The consequences of these perspectives have far-reaching implications for both educators and gifted and talented students. These perspectives have the

potential to define and redefine the dimensions that collectively impact and subsequently affect the policies, funding, anticipated goals or outcomes, and appropriate curricular and pedagogical practices responsive to gifted and talented students. However, the political, social, cultural, and economic factors that shape perceptions appear to affect verbiage more easily than they impact classroom curricular and pedagogical practices. The effect of these perceptions on changes in a district's curricular and pedagogical rhetoric are noted in the form of mission statements, policies, and the calendar of professional activities. It appears that the contemporary perspectives regarding the education of the gifted and talented are more readily accepted in print and professional discussions by educational institutions than as features impacting gifted and talented students in the classroom.

Grants and projects, research-based dissemination, journal articles, books, and general and topic-specific conferences affect the perceptions of educators about curricula and pedagogy that impact the gifted and talented. While the receptivity to the rhetoric appears to change perceptions, the same rhetoric is slower to affect changes in practice within the context of the classroom, or in services rendered to gifted and talented students across subjects and grade levels. The factors that possibly inhibit the translation from rhetoric to practice can be examined with regard to a set of conceptual factors such as specificity and generalizability, transfer of training, curricular and pedagogical equity, conflicts of interest, and the process of change.

2. Specificity versus Generalizability

The dissemination of a curriculum and pedagogy designed and researched to differentiate educational opportunities to meet the needs of gifted and talented students is often presented to teachers with an intensity of appropriateness for only gifted and talented students. The intensity of the curriculum's appropriateness for the gifted and talented can disassociate it from its potential application to other learners within the context of the same classroom. The perceived need to distinguish and separate the differentiated curriculum and pedagogy from all other students results in the hesitancy of teachers to fully translate the differentiated curriculum and pedagogy into practice in a heterogenous classroom. What about the other students' needs, interests, and abilities? One means to respond to a teacher's anxiety surrounding inclusion, rather than exclusion, regarding the implementation of the differentiated curriculum and pedagogy, is to discuss the "spill-over effect" [2], or the many and varied ways that the differentiated curriculum and pedagogy as a whole, or in segments, can be provided appropriately to students other than the gifted and talented within the classroom context. In addition, there is a need to amend the differentiated curriculum and pedagogy to meet the diversity of interests, needs, and abilities among gifted and talented students.

The decision to implement a differentiated curriculum and pedagogy, originally designed for gifted and talented students, to all students in a classroom as a means to provide the opportunity for every student to demonstrate their potential was examined in a research study conducted by the researcher in 2021 [3]. This method of applying a differentiated curriculum and pedagogy was used to uncover potential among students in the early years and was the primary objective of the study [3]. The project focused on distributing pedagogical tools and differentiated curricular lessons to teachers to give kindergarten to second grade students opportunities to show abilities that the core curriculum did not easily reveal [3]. The district's reliance on formal indicators of abilities such as achievement and intellectual scores were given more credibility to define a student's potential as gifted and talented than were the teacher's observations and acknowledgments of these abilities derived from the implementation of the project's differentiated curriculum and pedagogy. The lack of the translation of the teacher's curricular evidence of students' abilities into a formal indicator of these students as gifted and talented was a consequence of many issues. There are instances when evidence from a differentiated curriculum and pedagogy have not affected policies and procedures in time or over time. The development of policies that affect the acceptance and utilization of new and/or different curricular and pedagogical

practices has been delayed due to the layers of decision-making and institutional situations that are often not considered during the development and implementation of a new and innovative differentiated curriculum and pedagogy. The implementation of a differentiated curriculum and pedagogy as a non-traditional measure in the early years has become a feature of conversation and is practiced by teachers who were involved in the project. To date, the impact of the differentiated curriculum and pedagogy from this project has not been realized beyond the teachers who participated in the project. This project, which has not yet been translated into curricular change beyond its original context, highlights a broader problem in which differentiated curricular and pedagogical practices are sometimes only continued within the districts, schools, and classrooms in which they were practiced and researched. The dissemination of a differentiated curriculum and pedagogy should not depend only on identified teachers who willingly implement these practices. Teachers need to be taught the nature of advocacy and the role of an advocate in order to disseminate these curricular and pedagogical practices. The role of the advocate should include the nature of collegial interactions, language patterns and debate methodologies, and presentation skills.

3. Transfer of Training

Importantly, the gap that results from the translation of a differentiated curriculum and pedagogy into classroom practices can be a result of the many and varied professional development opportunities that rival rather than support or reinforce each other. For example, a 2010 project that focused on the use of an array of different models of teaching to affect new forms of differentiated curricula and pedagogies was presented to teachers without commensurately demonstrating how these practices are aligned to other varied mandatory practices presented during professional development meetings [4]. In some cases, the professional development experiences compete or conflict with rather than complement each other. Teachers have either implemented the ideas gleaned from professional development meetings in isolation or have placed these ideas "on hold", so to speak, until the teacher can determine how and when to connect or associate them with their current curriculum and pedagogy. The challenge posed by the lack of transfer from training experience to classroom practice can be resolved for districts and schools by providing professional development experiences that demonstrate where, when, how, and why the newly acquired curricula and pedagogies relate to and complement each other. Joyce VanTassel-Baska and her colleagues' observations of 329 classrooms revealed that teachers employed differentiated strategies with some effectiveness and that more work is necessary for teacher preparation and administrative support to ensure teachers meet gifted students needs through differentiated instruction [5]. The analysis of the work of VanTassel-Baska and her colleagues emphasizes the continuous need for professional development for teachers in order to consistently provide opportunities to develop expertise and to master the integration of sophisticated and differentiated instructional strategies into the curriculum.

Data collected from the participating second, third, and fourth grade teachers reflect their conflicting beliefs regarding the integration of a differentiated curriculum and pedagogy into existing core curricular lessons (Table 1). School and district sanctions related to academic performance indicators were a significant factor in determining where and when in the core lesson differentiation could take place [4]. The lack of congruence between the intent of the differentiated curriculum and pedagogy and the teacher's implementation of the curriculum and pedagogy could be the result of differences between the goals of the curriculum and the teacher's philosophical beliefs. A teacher whose educational belief is aligned to a child-centered, inquiry-based philosophy might respond differently to the features of a differentiated curriculum and pedagogy than a teacher who is aligned to a didactic, group-oriented teaching frame of reference. A necessary variable to consider in the design, development, and implementation of a differentiated curriculum and pedagogy is the clarity of the definition and comprehension of its dominant philosophical objective. Perceptions of a differentiated curriculum and pedagogy are often the result of a mismatch

between the philosophical approach of the curriculum and the philosophical belief of the educator.

Table 1. Teachers' Perceptions of When to Implement Differentiated Instruction.

Teachers' Perceptions of When to Implement Differentiated Instruction							
After a Basic Lesson		Within a Standards-Based Lesson		Replacement to a Core Lesson		Not Sure	
F	%	F	%	F	%	F	%
29	18%	78	48%	47	29%	10	6%

Note: F is the number of participant responses to each question in the survey. From "Using Models of Teaching to Improve Student Achievement" [4].

4. Conflicts of Interests

Teachers are often confronted by curricular decisions that result in a conflict of interest. Such conflicts are derived from determining the features that should be included and emphasized to formulate a differentiated curriculum for gifted and talented students. Susan Johnsen and her colleagues identified theoretical and empirical concepts such as context, rate, preference or choice, and environment as essential ingredients to differentiate a curriculum [6]. Other curriculum developers and researchers have identified models to formulate decisions to differentiate a curriculum. Renzulli presents the Triad Model to differentiate a curriculum, which emphasizes the presentation of general exploratory enrichment activities (Type 1), the development of cognitive skills such as critical thinking and research skills (Type 11), and individualized or group investigations (Type 111) [7]. Carol Tomlinson and her colleagues describe a Parallel Curriculum model that defines four pathways to differentiation: Core Curriculum; Curriculum of Connections, or identifying how skills and concepts from curricular subjects or disciplines can be integrated; Curriculum of Practice, which emphasizes learning centered on a discipline; and Curriculum of Identify, which enables the development of personal interests and abilities [8]. Common to each of these differentiated curricular concepts or models is their relationship to the core or basic curriculum to some degree. The alignment of a differentiated curriculum and differentiated instruction to the core curriculum promotes their acceptance and ensures that differentiation is acknowledged as an essential feature in the education of gifted and talented students.

A substantive conflict of interest is the teachers' different perceptions of the nature of giftedness, their intellectual goals for the gifted and talented, and the many and varied attitudes about what constitutes a "differentiated" curriculum and pedagogy. The conceptions that the gifted and talented deserve more sophisticated curricular experiences or are more inclined to work independently have altered the intentionality and implementation of differentiated curricula and pedagogies designed for the gifted and talented. The discrepancies between the intended presentations of a differentiated curriculum versus the actual implementations of this same curriculum can illustrate the teachers' perceptions of the meaning of giftedness. These potential discrepancies were noted in a project that asked teachers to underline the elements of a differentiated curriculum that were responsive to their definition of a gifted and talented learner [4]. Teachers noted in the final summary of the five-year project that "conflicting expectations of curricula and time allocations" stated by the district or school affected their fidelity to the project's curriculum and pedagogical expectations for gifted and talented students [4]. In the same study, accountability and state standards were the primary determinants in the teachers' decisions to select and implement the traditional versus newly designed differentiated curriculum and pedagogy [4]. The teacher's implementation of a differentiated curriculum and pedagogy can affect students' attitudinal reference toward the curriculum. It was noted that students in the project had already developed a predisposition towards certain types of curricular and pedagogical experiences that they deemed more amenable to them. For example, second to fifth grade

gifted and non-gifted students preferred a didactic curriculum and pedagogy for the teaching and learning of mathematics, while they preferred inquiry-based curricular methods for science and social studies [4]. The project substantiated the idea that students may be socialized to select certain types of pedagogy based on the frequency with which these are used by their teachers within the core or basic subject areas or disciplines.

Another conflict of interest that alters the perceptions of a differentiated curriculum and pedagogy derives from the teacher's understanding of the nature of giftedness, i.e., what gifted and talented students are and what they are not. An analogy regarding differentiated curricula and pedagogies is that these practices can be attributed to differing degrees of significance by different teachers implementing the same lesson or unit of study. For example, teachers exercise options to implement the same curriculum with different understandings of the importance of the features of the curriculum. Specifically, they place different emphases on sections or syntax of the same lesson. In the project, Models of Teaching, the researcher noted that teachers used different modes of presentation to teach the same lesson [4]. One teacher allocated a full period to the motivation feature of the lesson before introducing the demonstration section of the lesson. Another teacher in the same school and grade level introduced the motivation section of the lesson in 7 min and spent the remainder of the period focusing on the demonstration and application sections of the lesson [4]. Teachers' decisions regarding both their own and their students' relationships to the lesson comprise the decisions regarding the allocation of time and effort expended on the implementation of the curriculum. In addition, the choice of pedagogical emphasis was a differential feature among the teachers. Teachers' perceptions of themselves as teachers and of students as learners affect the integrity and impact of the differentiated curriculum and pedagogy. A teacher's perceptions and choices regarding the implementation of differentiated curricula and pedagogies have far-reaching effects on the teaching and learning process for gifted and talented students.

5. Students' Perceptions

An analysis of perceptions that students, both gifted and non-gifted, have about differentiated curricula and instruction is derived with respect to these basic areas of investigation: (1) differences in grade and subject area specification; (2) type and implementation of services that include either homogeneous or heterogeneous grouping that take place within or outside of the assigned or regular classroom; (3) implementation by the basic classroom teacher or specifically designated specialist such as a "teacher of the gifted", coach, or resource teacher. Underlying all these areas that can potentially shape students' responses to a differentiated curriculum and pedagogy are the following: the prevailing district or school's definition of giftedness; the needs, interests, and/or abilities that are defined as the traits or characteristics that each student uniquely manifests as a gifted or advanced learner; the instruments and systems of identification. This range of considerations needs to be acknowledged as educators seek to answer the question: "What are the multiple and contemporary factors that shape and define the perceptions of students about being identified as gifted?"

Students' perceptions concerning differentiated curricula and pedagogies are dependent on their understanding of the definition and the implications of the term "gifted" and the personal, social, and academic responsibilities that that are believed (by students, parents, and educators) to accompany the formal identification of being "gifted". This interpretation is often influenced and contradicted by a variety of factors: teacher and parent expectations, peer responses, and curriculum and instructional experiences that thwart rather than facilitate the students' opportunities to utilize and demonstrate their abilities. The perceived "loss of self" can be a consequence of misinterpretation or exaggerated expectations of the meaning of either "advanced" or "gifted" as a prerequisite to being a student or learner [9]. Being familiarized with the nature of scholarliness (habits and qualities of learning) versus scholarship (professional assessed practices) has abated some of the misconceptions regarding the nature of giftedness for students. Within the

teaching and learning of the concepts related to "scholarliness" or "scholarly behaviors" are the meanings of these attributes: ponder, willingness to participate, goal and vision, risk taking, curiosity, sticking to the task, practice, thirst for knowledge.

As noted in Table 2, students gave the highest rankings to the scholarly behaviors "Ponder", "Curiosity", and "Thirst for Knowledge". The three highest-ranked traits are perceived to be dominant features within discussions related to the expected norms of intellectual behaviors in a classroom. Teachers have been known to comment on how important it is to deliberate or "ponder" and to be "curious" or "thirsty for knowledge" before and during a lesson. The following is an important question to consider when discussing the scholarly behaviors of gifted and talented students: To what degree do students define their own scholarly behaviors or adopt and demonstrate the behaviors that have been presented and subsequently praised by their teachers?

Table 2. Prioritization of Scholarly Behaviors by Gifted and Non-Gifted (Elementary).

Prioritization of Scholarly Behaviors by Gifted and Non-Gifted (Elementary)		
Ranking	**Percentage**	**Scholarly Behavior**
1	32%	Ponder
2A	20%	Curiosity
2B	20%	Thirst for Knowledge
3	12%	Risk Taking
4	11%	Perseverance
5	5%	Goal Setting

Note: From "Using Models of Teaching to Improve Student Achievement" [4].

Four different categories appear to identify the potential outcomes of differentiated curricular and pedagogical experiences for gifted and talented students: institutional, educational, social, and personal. Institutional outcomes appear to include the merits and notoriety that districts and schools derive from the accomplishments of advanced and gifted and talented students. Educational outcomes can be described as the goals that students and teachers meet to achieve the benchmarks set for either a grade level or subject area. In addition, as stated previously, teachers earn reputations for their prowess as instructors from the accomplishments of their gifted and advanced learners. Social outcomes, often expressed by family members as well as the gifted or advanced learner, are the benefits and recognition derived from the label "gifted" and the subsequent differentiated experiences afforded to the student. Personal outcomes are often associated with the affirmation of the definition of giftedness and the short- and long-term individual plans to attend higher education and pursue a selected profession.

One of the immediate and long-term outcomes of a differentiated curriculum and pedagogy for gifted and advanced learners should be "learning-to-learn." The learning-to-learn concept can shift the outcomes of a differentiated curriculum and pedagogy from an emphasis on the content or "what" is to be learned to the "how" or methods of learning. This emphasis is predicated on the understanding that teaching students how to learn provides the foundation for learning and applying the pedagogical tools that enable students to learn independently within and outside the classroom and school contexts. Learning-to-learn includes the processes that enable the learner to understand that learning is dependent on the individual's ability to activate the procedural knowledge that directs the behaviors of learning. Gifted and non-gifted students were introduced to learning-to-learn strips that outlined the sequence of actions to learn a skill or content. The learning-to-learn strips were based on the didactic (direct instruction) and inquiry (advanced organizer and group investigation) models of teaching [4]. Table 3 illustrates the results of gifted and non-gifted students' perceptions of learning-to-learn skills and processes. Based on student's responses, inquiry and the ability to think and inquire

independently were the most important learning-to-learn skills. This information supports more open-ended learning as a feature of a differentiated curriculum and pedagogy.

Table 3. Student's Perceptions of Learning-to-Learn Skills and Processes.

Students' Perceptions of Learning-to-Learn Skills and Processes							
Observe or study how to do something	Ask my own questions	Think how to apply it	Meet an unclear idea and think what I already know	Research for information	Watch somebody else do it	Practice many times	Discuss with others
10%	12%	17%	21%	12%	7%	4%	17%

Note: From "Using Models of Teaching to Improve Student Achievement" [4].

6. Defining Educational Activities That Impact and Change Teachers' Perceptions of Differentiated Curricula and Pedagogies

Issues concerning why changes in teachers' perceptions regarding differentiated curricula and pedagogies have been discussed, investigated, reported, and implemented. However, suggestions are affected by multiple issues that either facilitate or hamper perceptions regarding differentiated curricula and pedagogies. A review of the issues that hamper the clarity of the perceptions of differentiated curricula and pedagogies reveals information that has the potential to shift, correct, and align teachers' perceptions with the intentionality of a differentiated curriculum and pedagogy's comprehension and implementation.

6.1. Orientation

A differentiated curriculum and pedagogy is most often introduced via some form of professional development that includes the rationale, content, and methods of differentiation. The usual centerpiece of an orientation to the topic of differentiation is a description of the negative consequences of not providing differentiation and the resulting academic, personal, and social ramifications. Differentiation of curricula and pedagogies needs to be introduced as a universal concept that is relevant to all students and should stress the need to recognize individual differences in all learners. The need to orient educators to the general as well as the specific nature of differentiation is fundamental to its acceptance at the outset of any orientation during professional development. Generalizing the intent of the term can generalize the implications of the process of differentiation.

The orientation to differentiation should also include exemplars of differentiated curricula and pedagogies in action. Whether the "in action" concept is presented virtually or in-person, viewing the ramifications of the act of differentiating a curriculum and pedagogy provides a reality to verbiage or visual cues provided by technology. It has been stated by some educators that demonstrations can create models that evoke "intimidation of replication"; however, if educators are aided in developing their skills of "observing", rather than assessing, while engaging in observation, the fear of imitation can be mitigated, if not eradicated. An additional aid to facilitating observational learning is to direct the observer's attention to specific features of the differentiated curriculum and pedagogy being taught to the gifted and talented students that they are observing. Learning from observation is an integral feature of acquiring skills that translate into a more knowledgeable performance by teachers. Observing art, observing dance, observing sports, and observing culinary chefs have contributed to becoming more aware of the skills that lead to proficiency. The results of observing teachers implementing a differentiated curriculum and pedagogy for gifted and talented students can facilitate educational expertise in these areas.

6.2. Immersion

The orientation or professional development experience should include immersion, or the modeling of multiple acts of a differentiated curriculum and pedagogy. The most frequent and often labeled the most difficult expectation from orientation or professional

development appears to be the transfer of learning from orientation into classroom implementation. This transfer is often curtailed by the simple issue of time, or comprehending when to enact the differentiated curriculum and pedagogy within a teacher's own classroom schedule and curricular demands. The designation of time to differentiate for gifted and talented students should not be dependent solely on the teacher's schedule. Differentiation of a curriculum and pedagogy should be dependent on the developmental needs, interests, and abilities of the gifted and talented student and should include collaborative decision-making by the teacher and the gifted and talented student. The question that needs to be addressed is how to determine the appropriate time for the introduction and/or intersection of differentiation for gifted and talented students into the core curriculum. Is differentiation best introduced as the entry to the implementation of the basic curriculum, as a concurrent feature, or as the terminal assignment? The immersion of a differentiated curriculum and pedagogy for gifted and talented students also includes being able to justify the concept that differentiation is an integral feature of classroom practices and not an activity that is ancillary to the core or basic curriculum. Teachers' perceptions that differentiation is an addendum to, rather than an extension of, the basic or core curriculum has created misunderstandings of the value and significance of differentiation for gifted and talented students and the teacher who provides the experience to these students. The perceptions of a differentiated curriculum and pedagogy for the gifted and talented as a supplement rather than a rudimentary element of the curriculum will continue to allow differentiation to be misunderstood and easily and consistently subjected to the question of "why"?

6.3. Contribution

Teachers' positive perceptions towards a differentiated curriculum and pedagogy can be established when teachers are actively engaged in modifying and not merely implementing a differentiated curriculum and pedagogy. Most often teachers are led to believe that they are expected to replicate with fidelity the differentiated curriculum and pedagogy they have been introduced to in an orientation or professional development experience. Providing teachers with the understanding that they can employ changes to the implementation of a differentiated curriculum and pedagogy to meet the individual needs of their gifted and talented students is essential. This action could facilitate a different and more significant bond between teachers and the implementation of a differentiated curriculum and pedagogy within the classroom. Assisting teachers to develop the skills, resources, instructional strategies, and unique features that they perceive align with their students can provide them with the "ownership" and longevity essential to implementing a differentiated curriculum and pedagogy. Essential to the teachers' understanding of contributions is the knowledge of what features are amendable without affecting the integrity of the objectives of differentiation. Contributions to a differentiated curriculum and pedagogy are recognized as enhancing rather than distracting from the intent of differentiation and tend to encourage, not discourage, professional alignment to a differentiated curriculum and pedagogy for gifted and talented students.

7. Summary

Changes in the perceptions of differentiated curricula and pedagogies are inevitable, just as changes in the core or rudimentary curriculum are anticipated and accepted over time. Changes in differentiated curricula and pedagogies need to be developed and presented on a foundation inclusive of clear goals for the gifted and talented, the many and varied factors that shape teachers' receptivity to change, and the issues at stake in implementing a differentiated curriculum and pedagogy in tandem with other existing curricular and pedagogical demands.

Discussions and decisions about differentiated curricula and pedagogies are most often a consequence of the responses of key educational decision makers. While their perceptions of differentiated curricula and pedagogies for the gifted and talented affect teachers and

gifted and talented students, it is interesting to note that gifted and talented students are omitted from the decision-making process. The concept of student involvement in curricular and instructional decisions could be a variable that may provide new insights into the perceptions and practices of differentiated curricula and pedagogies. Changing teachers' perceptions of differentiated curricula and pedagogies might be affected to a greater degree by their understanding of gifted and talented students' responses to differentiation. An analysis of gifted and talented students' perceptions of the intended and implemented differentiated curriculum and pedagogy designed to meet the very attributes that identify them as gifted and talented learners could be an integral feature of, or at least an adjunct to, developing the perceptions of teachers regarding the issues surrounding differentiated curricula and pedagogies.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Tyler, R. *Basic Principles of Curriculum and Instruction*; University of Chicago Press: Chicago, IL, USA; London, UK, 1949.
2. Kaplan, S.N. The Spill-Over Effect: An Advocacy Strategy. *Gifted Child Today* **2004**, *27*, 48–49. [CrossRef]
3. Kaplan, S.N. Project CHANGE (S206A140036) Final Performance Report. Department of Education, Jacob Javits Grant. 2021. Available online: https://spark.uconn.edu/other-2014-javits-grant-awardees/ (accessed on 24 September 2021).
4. Kaplan, S.N. Using Models of Teaching to Improve Student Achievement (S206A040072-07) Final Performance Report. Department of Education, Jacob Javits Grant. 2010. Available online: https://rossier.usc.edu/kaplan-study-receives-grant-from-the-u-s-department-of-education/ (accessed on 12 October 2021).
5. Van Tassel-Baska, J.; Hubbard, G.F.; Robbins, J.I. Differentiation of Instruction for Gifted Learners: Collated Evaluative Studies of Teacher Classroom Practices. *Roeper Rev.* **2020**, *42*, 153–164. [CrossRef]
6. Johnsen, S.K.; Fearon-Drake, D.; Wisely, L.W. A Formative Evaluation of Differentiation Practices in Elementary Cluster Classrooms. *Roeper Rev.* **2020**, *42*, 206–218. [CrossRef]
7. Reis, S.M.; Renzulli, S.J.; Renzulli, J.S. Enrichment and Gifted Education Pedagogy to Develop Talents, Gifts, and Creative Productivity. *Educ. Sci.* **2021**, *11*, 615. [CrossRef]
8. Tomlinson, C.; Kaplan, S.N.; Renzulli, J.S.; Purcell, J.H.; Leppien, J.H.; Burns, D.E.; Strickland, C.A.; Imbeau, M.B. *The Parallel Curriculum*, 2nd ed.; Corwin Press: Thousand Oaks, CA, USA, 2009.
9. Joyce, B.R.; Weil, M.; Calhoun, E. *Models of Teaching*, 9th ed.; Pearson: Upper Saddle River, NJ, USA, 2015.

education sciences

MDPI

Article

Using Integrative Career Construction Counselling to Promote Autobiographicity and Transform Tension into Intention and Action

Jacobus G. Maree

Department of Educational Psychology, University of Pretoria, Pretoria 0001, South Africa; kobus.maree@up.ac.za

Abstract: This article reports on the use of integrative career counselling to promote autobiographical reasoning in a purposively sampled gifted 16-year-old female learner with moratorium career identity status. I implemented an explanatory, mixed-methods (QUALITATIVE-quantitative; uppercase denoting the bigger weighting given to the qualitative aspect) research design and used qualitative and quantitative career construction counselling techniques and methods and quantitative career construction counselling techniques and methods and strategies to construct data. The *Maree Career Matrix* (*MCM*) was used to gather the participant's career interests ("scores") quantitatively, and the *Career Interest Profile* (*CIP*) was used to elicit her micro-narratives ("stories") qualitatively. An adapted version of thematic data analysis was used to analyse the data. The intervention promoted the participant's (self-)reflection and reflexivity, transformed her tension into intention, led to an increase in her career options, and helped her revitalise her sense of meaning, purpose, and positivity. While the findings are encouraging, future (longitudinal) research is needed to establish the long-term influence of the intervention espoused here.

Keywords: integrative career construction counselling; gifted and talented; intervention study; moratorium career identity status; *Career Interest Profile*; *Maree Career Matrix*

Citation: Maree, J.G. Using Integrative Career Construction Counselling to Promote Autobiographicity and Transform Tension into Intention and Action. *Educ. Sci.* **2022**, *12*, 72. https://doi.org/10.3390/educsci12020072

Academic Editors: James Albright and Dorothy Sisk

Received: 17 August 2021
Accepted: 20 January 2022
Published: 23 January 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

1. Introduction

The need to respond innovatively to fundamental changes in the occupational world (including the effect of the COVID-19 pandemic) has never been greater. Factors, such as substantial job losses, increasing insecurity in the workplace, as well as disruption in educational programmes, have led to a generalised feeling of uncertainty about the future among learners. Accordingly, the need exists to help learners navigate many work-related transitions. In the prevailing atmosphere of turmoil, people need assistance to take advantage of the changes taking place and to convert challenges into opportunities [1]. Moreover, the pandemic is changing the way we think, our dreams and our imaginations. Every crisis creates an opportunity, and it behoves us to explore the "silver linings" [2]. The COVID-19 pandemic has uncovered and increased global inequalities.

To negotiate the impact of uncertainty regarding their occupational future, and especially their future career choices, young people need to acquire the twin meta-competencies of: (i) becoming increasingly adaptable, and (ii) attaining an enhanced sense of personal and career identity [3]. Enacting these metacompetencies helps them to "address restraints that may both precede and exceed them" [4]. Above all, people's responses to change and uncertainty in the workplace should augment their career- and self-identities. If the "storyline" that runs through their career- and self-identities is clear, if they know who they are, where they are headed, why they are living and working, what life means to them, and what the sense of purpose in their career-lives is, their chances of dealing successfully with change and its impact are bolstered [5]. Career construction counselling enhances constructing the self as an internal compass that guides people in their efforts to navigate multiple transitions in their private and career environment, make meaning in their career-lives, and

increase their sense of purpose. This notion lies at the heart of life design counselling [6]. Gifted children often express their concerns about "deep" issues, such as the meaning of life, the purpose of work, and injustice in society [7].

All of this confirms the need for the constant updating and revamping of career counselling.

1.1. Need to Innovate Career Construction Counselling for Gifted and Talented Learners

Since 1992, the value of drawing on one-on-one career construction counselling to help people "build" and utilise (auto-)biographical bridges to (re-)write and enact their life stories in a changing occupational world has been shown in numerous studies in countries in the Global North, especially. Researchers have demonstrated the usefulness of one-on-one career construction counselling in individual contexts, especially [8,9], as well as in "matters pertaining to motivation, performance, stress, and overall life satisfaction" [10]. Little research on career construction counselling has, however, been conducted in developing countries, with only a small number of researchers showing the value of the approach in Global South contexts [11–13]. Individually and collectively, they have demonstrated how self- and career construction in life design counselling can promote career adaptability and sound career choice decision making in (South) Africa, especially in group contexts. As indicated in earlier publications, very few people in Global South countries can afford expensive one-on-one assessments [14].

Given the variety and magnitude of the changes in the world of work globally, many learners today are experiencing career decision-making difficulties, including gifted and talented learners. Some people believe that these learners do not require career counselling because they generally know automatically what careers they want to venture into [15]. However, ample evidence suggests that this is often not the case.

1.2. Decision-Making Difficulties of Gifted Learners

The following four challenges impact most career choice decisions [16]: (i) dealing with the need to compromise in career-decision making; (ii) accepting a satisfying course of action; (iii) managing indecision and uncertainty; and (iv) considering people's conscious and as well as subconscious career decision-making processes. More than ever before, there is today ongoing speculation about the uncertain future of work, the large number of "traditional" jobs that are disappearing, and the possibility of robots and artificial intelligence taking over people's jobs. School learners especially lack the knowledge and preparation needed to make appropriate career choices, and are thus calling on career counsellors to rethink their counselling praxis in this regard.

Researchers have listed five different kinds of career decision challenges to help career counsellors to: (i) explain and (ii) plan interventions to deal with such challenges. These are:

i. inadequate career choice information;
ii. inadequate sense of career and self-identity;
iii. un- or underdeveloped career decision-making capacity;
iv. anxiety about choosing a career;
v. incongruity between people's views and significant others' views regarding their career choices [17,18].

Here, four career identity statuses or styles young people use to contend with age and life phase-related identity issues have been identified [19]. These statuses range from high to low: (i) commitment (to work roles) and (ii) exploration (of the nature of work roles) [20]. The four statuses are:

a. identity achievement (high commitment and exploration);
b. foreclosure (high commitment but low exploration);
c. identity diffusion (low commitment and exploration); and
d. moratorium (low commitment but high exploration).

This current article focuses on moratorium identity status. For the reasons spelled out above, I have drawn on career construction counselling in all my research-related

endeavours to understand vocational and career behaviour intervention strategies fully and to help people write their idiosyncratic life stories and subsequently execute or enact these stories.

2. Theoretical Framework: Career Construction Theory (CCT)

Savickas' career construction theory (CCT) was used in this study as the theoretical framework for constructing (gathering), analysing, and interpreting data. CCT is predicated on the belief that people construct their careers by making meaning in and through their careers and using their careers to integrate themselves into society and make social contributions [21]. CCT merges personal (private) meanings relating to earlier memories, present experiences, and future intentions into ever-evolving, key life themes [22]. It advances the idea that the subjective career can promote critical (self-)reflection and biographical reflexivity or metacommunication, uncovered through conversation and implemented through work behaviour [23].

I chose CCT as my theoretical and conceptual framework as career construction can help people to articulate their life stories (autobiographies). These micro-stories can then be unpacked (deconstructed), clarified, revised, and interwoven (reconstructed) by counsellors and their clients (co-constructed) to enhance clients' sense of meaning, purpose, and hope in their lives. Career construction counselling thus reinforces clients' self-construction [5]. Accordingly, clients learn to accept ongoing change in the workplace and also in their private lives as the 'new normal'. From this perspective, accepting and even welcoming change can help to realise the twin aims of choosing and constructing careers and designing successful lives. These two aims are achieved by eliciting people's micro-life stories and merging them into an intelligible, grand, macro-life story filled with meaning and hope [8,24].

Tailoring career theories to meet the distinctive needs of gifted people can facilitate understanding the particular needs of this population [25]. The following section should be read in this light.

Some key dimensions of career construction counselling are discussed briefly below.

2.1. Key Dimensions of Career Construction Counselling

People increasingly have to design themselves and choose and construct careers in 'post-traditional' societies [6]. Work environments are becoming more uncertain. Staying with corporations for a lifetime and retiring with sufficient funds to see them through for the rest of their days is becoming a thing of the past. As a result, many people now have to construct their career-life trajectories by recognizing and addressing opportunities and restrictions in their career-life identities and social contexts. A "decent" income is no longer guaranteed, thereby undermining people's emotional-social, psychological, and physical wellbeing. To remain relevant and valuable in these new circumstances, career counsellors need to help people attain the meta-competencies of (career) adaptability and a good sense of identity [26]. These competencies should enable people to deal with real or perceived limitations or barriers and help them to create the circumstances needed to improve their chances to transcend such challenges and barriers successfully.

It is therefore clear that the future of the career counselling profession depends on the ability of career counselling researchers, practitioners, and policy-makers to design innovative models and strategies to enable their clients to manage an increasingly less predictable, less regulated, and less stable work environment. Clients have to be helped to fit their work into their lives, rather than their lives into their work.

2.1.1. Narratability

This word refers to people's coherent narrating or recounting of their career-life stories. People's micro-life stories are unique texts articulated by people and then read back to them by career counsellors [27]. By not only hearing but actually listening carefully to themselves, their "advice" to themselves becomes manifest; accurate advice comes only

from within [28]. Career counsellors need to facilitate a safe or "sacred" space or holding environment for people to recount their micro-stories in an atmosphere of reciprocal trust and respect. This enhances the breadth and depth of the career counsellor-client working alliance and encourages people to share their "deepest secrets" (content or stories they will not otherwise share with others) with their counsellors [29,30]. The telling of micro-stories (*petit récites*) enables people's key life themes to surface and facilitates the subsequent connecting of their conscious knowledge about themselves with their subconscious insights into their innermost desires and strivings. In a sense, narratability relates to the issue of "languaging", which is the negotiation and production of meaningful outcomes. Stated differently, it refers to meaning-making and knowledge-shaping and enhancing experiences through language [31].

2.1.2. Autobiographicity

This term refers to people's ability to turn to their autobiographies (life stories) when they face transitions in their career-lives. People draw on their autobiographies (autobiographicity) to provide themselves with a proven strategy and advice on managing current and future transitions in their workplace.

Acceptance of the value of subjective (qualitative) career counselling theory and interventions has grown markedly since 1990. Today, qualitative and quantitative approaches are widely recognised as equally important in career counselling [14].

2.1.3. Integrative QUALITATIVE-Quantitative Career Counselling

The integrative QUALITATIVE-quantitative (uppercase denoting the more significant weighting given to the qualitative aspect) approach discussed in this article blends people's "subjective stories" (qualitative data) with their "objective" test scores (quantitative information). The approach thus includes considering both subjective and objective aspects of individuals' personality configurations during the career counselling and decision-making process. Many career counsellors emphasise drawing on people's sense of self and individuality rather than on their sense of similarity and on eliciting people's career-life themes rather than their interest patterns. In addition, greater emphasis is placed on interventions that promote not only intentionality (the intention to take specific actions) and on action and forward movement (turning tension into intention and into actual action) [3,6]. The approach has gained increased acknowledgement globally [14,26,32].

From the perspective of the current article, there is a great need for research on career counselling for gifted and talented people in particular. In my and others' view, learners who show promise in science, technology, engineering, and mathematics (STEM) subjects tend to be nudged towards following STEM-related fields of study and associated careers–without due consideration of the importance of "other" (subjective) factors in co-determining which fields of study they should follow [33]. This is a seriously under-researched topic. This silence in the literature is difficult to understand [34]. Whereas career construction counselling enhances the autobiographical author facet of the psychological self (PS) primarily, it also talks to the social actor and the motivated agent as critical facets of the PS. It shows how the three notions (social actorship, motivated agency, and autobiographical authorship) can be blended to bolster the construction, deconstruction, co-construction, and reconstruction of individuals' "grand" (career-)life stories [35].

2.2. Goals of the Study

For the reasons spelled out above, and my awareness that many gifted and talented learners struggle to deal with constructs such as the "deeper" meaning of their lives and the idea of having a "calling" for specific careers [36], I set out to determine the value of integrative QUALITATIVE-quantitative career counselling for a purposively selected gifted 16-year-old female learner with moratorium career-identity status. However, I did not attempt to compare the effectiveness of this intervention with other interventions in this regard. The following specific research questions were addressed:

a. What was the effect of the intervention on the participant's sense of career identity?
b. What was the effect of the intervention on the participant's moratorium career-identity status?

3. Materials and Methods

3.1. Participant and Context

The participant (Ashleigh, a pseudonym; a learner described as "gifted" by the school counselling team) was a purposely selected 16-year-old, white English-speaking young woman in Grade 11 from a higher socio-economic environment. Ashleigh (who attended a private school) approached me during the second part of 2020 for career counselling. She felt unsure about which fields of study and careers she should consider: "Teachers tell me I have the potential to become 'anything'. I would like to know what career options would suit me as a person, my ambition to travel and make a difference through my work, and my desire to make money, too. Give me all scope of possible careers I may pursue; even occupations I have not considered before. I want to be firm in my assurance of what field I am best suited for and thus be able to apply securely next year for 'varsity'." Ashleigh and her parents agreed that an integrative QUALITATIVE-quantitative career counselling intervention should be implemented; in other words, a qualitative and quantitative assessment was conducted. The outcomes (stories and scores) were later interpreted integratively (i.e., the qualitative and quantitative information were blended) to facilitate career construction. (The parents requested the inclusion of aptitude tests, to which Ashleigh agreed.)

3.2. Data-Gathering Instrument

3.2.1. Quantitative Data-Gathering

The *Maree Career Matrix* (*MCM*) [37] draws on (a) trait-and-factor theory [38], (b) developmental theory [39], and (c) social learning theory [40]. Developed in South Africa between 2002 and 2015, the *MCM* measures interests and self-estimates of confidence to follow specific careers. The psychometric properties of the *MCM* are considered good [37]. Scores on the *MCM* provide career counsellors and their clients with a starting point for clarifying and discussing career profiles in greater depth.

The Senior Aptitude Tests (Advanced) (*SAT-L*) has 10 subscales, namely, vocabulary, verbal reasoning, nonverbal reasoning, calculations, reading comprehension, comparison, price controlling, 3-D spatial visualisation, mechanical insight, and memory. Developed and standardised by the Human Sciences Research Council (HSRC), the *SAT-L* has good psychometric properties in terms of test reliability and construct validity [41].

3.2.2. Qualitative Data-Gathering

The *Career Interest Profile* (*CIP*, Version 6) can be used to construct qualitative data [42]. It is grounded in career construction theory and reflects the differential, developmental, and narrative traditions. It comprises four parts and contains several purposefully structured questions. In Part 1, assessees are asked to provide biographical details and family influences. In Part 2, assessees respond to career choice questions (e.g., "Which three specific careers would you like most and which three the least? Give the single most important reason why this is the case"). In Part 3, assessees answer questions on their career category preferences and dislikes. Lastly, in Part 4, assessees respond to 14 micro-life story questions.

The small quantitative part of the *CIP* (Part 2) has good psychometric properties [43].

Both the *CIP* and the *MCM* can be administered on an individual or group basis. Whereas I scored the two tests, an external coder with many years of experience in the field coded the qualitative data to enhance the trustworthiness of the process. Ashleigh was also asked to write an autobiographical narrative entitled "My life story" and bring it with her on the day of the intervention.

3.3. Design and Procedure

3.3.1. Mode of Inquiry

An integrative QUALITATIVE-quantitative approach to career counselling was implemented and an explorative, single, descriptive, instrumental case study design was used in a one-on-one research setting. Moreover, the inquiry was naturalistic and located in an interpretive paradigm.

3.3.2. Procedure

Ashleigh and her parents asked the counsellor to conclude the intervention and feedback on the same day (four and a half hours, including several breaks). In Session 1 (the initial assessment lasted for two and a half hours, including several breaks), Ashleigh's career-life story was elicited (she completed the *Career Interest Profile* (*CIP*) while I interviewed her parents). The *Maree Career Matrix* was then administered, followed by the *Senior Aptitude Tests*. The outcomes were integrated after the assessment. Session 2 (authorisation—60 min) was devoted to the 'validation' of Ashleigh's story. After she and I had clarified and integrated the assessment outcomes, in Session 3 (facilitating forward movement—60 min), a feedback interview was held with Ashleigh and her parents. The session ended with a discussion of how action and forward movement could be planned and executed. We discussed the general, psychosocial, psychoeducational, and career choice information I had provided. The interview included a discussion of Ashleigh's key life themes (uncovered by her earliest recollections and her responses to questions about the most significant challenges she had faced early in life) [44]. I stressed that Ashleigh knew herself better than anyone else, that only she could advise herself, and that she should follow her own advice. Each time she asked for advice, I read her own words (responses) back to her and requested her to reflect carefully on what she had said. Throughout the assessment, she was reminded that her (perceived) areas or opportunities for development and growth could be converted into strengths and that any "pain" she had experienced could be converted into hope and social contribution.

Rigour of the Study: Enhancing Credibility and Trustworthiness

A chain of evidence was provided based on constant comparison methods [45] that bolstered trustworthiness and credibility. I also drew on crystallisation to promote the study's validity by asking different qualitative questions [46,47]. Crystallisation gives researchers a better grasp of a research topic. Peer debriefing was facilitated by discussing the outcomes and inferences with a knowledgeable colleague. Peer validation was achieved by repeatedly requesting Ashleigh to reflect on and review all matters related to the research at all stages. I also asked her to 'authorise' (validate or confirm) my interpretation of her responses or, when she disagreed with my interpretation, to de-authorise my interpretation. (Ashleigh was asked to reflect on her answers to questions and the career counsellor's interpretations on several occasions.) She was assessed in English (her mother tongue). Triangulation was achieved by implementing qualitative and quantitative assessments and interventions.

3.4. Data Analysis

3.4.1. Qualitative Data

Ashleigh's comments and the "reflective conversations" or dialogues between Ashleigh and me were audiotaped and transcribed verbatim. I then used an adapted version of thematic analysis [48] to allow themes and subthemes to emerge from the data obtained from the open-ended questions of the *CIP*. In addition, I drew on consensual qualitative research (CQR) to facilitate achievement of consensus decisions [49]. All findings were carefully checked against original data for purposes of verification. Specific actions that promoted sound data analysis are listed below [6]:

a. Asking Ashleigh what her responses to questions about, for instance, her role models meant to her;

b. Carefully noting repeated words and expressions;
c. Reading Ashleigh's words and expressions to her and clarifying their meaning. Ashleigh was also asked to say certain words and phrases out loud (to promote the authenticity of the experience);
d. Her responses to the three earliest recollections question and the CIP questions about her greatest challenges when she was young were analysed to reveal her central career-life themes, relating these themes to possible fields of study (co-construction).

3.4.2. Quantitative Data

I drew on the quantitative inventories' results to identify interest patterns (themes and subthemes). Identified patterns were clarified with Ashleigh to establish how well (or not) they aligned with her perceptions of her interest configuration profile. We then triangulated interest patterns with the *CIP* interest patterns.

3.4.3. Integrating Qualitative and Quantitative Outcomes

Qualitative as well as quantitative data were gathered to allow both data types and their associated designs to add to the richness of the research findings and to indicate (or not indicate) their complementarity [50]. Triangulating findings can help researchers uncover data for further analysis and resolve areas of disagreement, thereby yielding more profound insight into the phenomenon under investigation than unconnected analyses. Moreover, whereas quantitative information ("scores") can uncover objective data (participants' "conscious" knowledge about themselves), a qualitative approach can elicit participants' "stories" and uncover subjective data (participants' "subconscious" knowledge about themselves) that can facilitate the identification of their key life themes. Ashleigh's responses to the *CIP* questions (together with her meta-reflections on these responses) clarified her interests and personality traits, her career preferences, her key life themes, and how meaning-making manifested in her life. The responses also shed light on her sense of purpose and hope [6]. We integrated and used the integrated data (co-construction) to identify fields of study that would help her "find a job", improve her employability, and give her a sense of hope and purpose in her life.

3.5. Ethical Issues

The research was approved by the University of Pretoria's Institutional Review Board (ethical clearance number: UP 06/09/03). I obtained written informed assent and consent from Ashleigh and her parents for the research's analysis and (anonymous) reporting. To differentiate my roles of researcher and practitioner [51], I carefully planned the different facets of my dual roles. I maintained an open relationship with Ashleigh, discussed all aspects of the intervention with her, and explained in detail the questionnaires used [52]. Lastly, I remained aware that Ashleigh's wish to "please" me may (either consciously or subconsciously) have affected what she told me, and, to obviate this, I clarified all of her responses with her [53].

4. Findings

4.1. Quantitative Outcomes

a. The *SAT*(*L*): The exceptional results obtained in these aptitude tests confirmed Ashleigh's giftedness and were in line with her outstanding academic achievements as well as the comments of her teachers and parents.
b. According to the *MCM*, Ashleigh's highest preferred interest and confidence categories were medical and paramedical services, research, word artistry, and musical.

4.2. Qualitative Outcomes

Ashleigh's preferred interest categories corresponded strongly positively with her quantitative outcomes:

1. Medical and paramedical services; 2. research; 3. word artistry; 4. musical; 5. adventure, plants and animals and the environment; 6. legal practice and security services; and 7. executive and management practice.

Only selected responses to questions in the last part of the *CIP* are discussed below. The numbers given here do not reflect the actual numbers in the *CIP*.

1. "How can I be of value, use, or help to you?" [8].

"I was told that I have the potential to become 'anything' but I am not sure what to study. I want to know (and be firm in my assurance of) what career options would suit me best as a person, address my ambition to travel and make a difference through my work, and help me make money, too. My parents and I do not agree 100% on what I should study" (Ashleigh's responses are verbatim with only light editing to preserve their authenticity.) (She gives clear evidence of career confidence, concern, and curiosity.)

2. "What are your greatest strengths?"

"I am intelligent, loyal, determined, strong-willed, confident, honest, and a seeker of knowledge."

Areas for growth?

"I am impatient, prefer logic over sympathy, can be quite serious and reserved, am overly indecisive, can be too cautious and mistrusting, am an anxious over-thinker, and am very highly strung."

3. "Whom did you admire or who were your role models when you were young? Why?"

"Jesus Christ because He lived the perfect life and sacrificed His life to save the world. I admire His love, faith, compassion, and goodness."

"Jeremy Camp. He is a Christian singer who lost his wife to cancer. I look up to him as he suffered a lot, yet he only grew in his faith and never gave up. He still believes despite the tribulations he faced."

"Bethany Hamilton. She is a Hawaiian surfer who lost her arm to a shark attack when she was 13 years old. I admire her for her motivation and hard work despite the loss of her arm. She is still a professional surfer and she never gave up despite the suffering. She is now happily married and has started a family too." (Many of the traits listed here are "typical" of gifted learners' traits in general [54].)

4. "What are your favourite quotations?" (Ashleigh's advice to herself.)

"Live life to the fullest."
"Rather regret having done something than not having done it at all."
"Let go and let God."

5. The three things that hurt me most when I was young and that I do not want others to suffer: "First, being bullied and being injured physically (and emotionally) by friends. Second, being forced into challenging activities that I could not yet do and so felt inferior or got injured. Third, trying to fit in amongst those of my age, as I preferred the company of older children or adults."

These responses are consistent with those elicited from her three earliest recollections (see below). Recurring themes included: (i) her hatred of being bullied; (ii) her being misunderstood; (iii) her realisation that well-meaning people sometimes have unrealistic expectations about (significant) others; (iv) her realisation that trying to meet such expectations could have serious negative consequences and hurt deeply; and (v) her realisation and acceptance that being "different" and somewhat "smarter" than others could result in isolation from her peer group.

6. Ashleigh's earliest recollections.
Brave new "friend" comforts distraught toddler.
   a. "At the age of two, my parents and I flew to London. A week before our departure, I lost my best friend. She no longer wanted to be my friend because

she believed I was 'different'. I felt sad and reluctant to travel to London. On our second day in London, walking around in the city, we discovered a 'toy shop'. My parents took me inside and bought me a gift. I chose a Spiderman doll (to me, Spiderman was brave and selfless and possessed extraordinary power). Finding a replacement for my best friend relieved the sense of loss I was experiencing after I had lost my first Spiderman and then my close friend. (SMILES) Travelling to London turned out to be a rewarding experience despite my initial reluctance to travel there."

(Feelings associated with this recollection: a sense of rejection and loss but also of subsequent healing.)

Painful accident embarrasses curious, committed young girl.

b. "When I was seven years old, our class went on an adventure camp. I was curious to learn more about nature, animals, and the like and had looked forward very much to the experience. That evening, we were told to shower (quickly, because there were many of us but thoroughly). I did my best to follow the teacher's instructions but somehow slipped in the shower and cracked my scapula. I was in a great deal of pain and discomfort. I recall the entire bathroom group staring at me sobbing. I felt like a baby; very ashamed and incompetent. I was only trying my best to shower as fast as possible to make sure that I would not be late for supper."

(Feelings associated with this recollection: rejection, pain, humiliation, embarrassment, and disappointment.)

Unreasonable teacher chastises innocent little girl.

c. "At the age of six, at the end of my first day at school, we were waiting inside the classroom for our parents to fetch us. I was very keen to see my mother to share what had happened on my first day at school with her. I looked at the schoolyard intently through a window while the other children were playing and talking. When I saw my mother stop outside the school ground, get out, and walk towards our classroom, I quickly took my little backpack and tried to rush outside. However, our teacher shouted at me, told me to stop, sit down, and wait inside until my mother had arrived outside our classroom. I felt embarrassed because I didn't and still don't need anyone to reprimand me or shout at me."

(Feelings associated with this recollection: excitement, humiliation, treated unjustly, and disappointment.)

(Co-constructing her career-life story.)

Key Career-Life Themes

Ashleigh's central life themes were identified by scrutinizing the qualitative "data" (outcomes). The first recollection sets the backdrop for her life story. Having lost her favourite toy and her best friend, she felt insecure, disappointed, rejected, and afraid to fly to a foreign environment. Gifted people often experience feelings of not being accepted [55]. Visiting London co-shaped Ashleigh's life story. Having overcome her initial reluctance to fly, she discovered a brave new "friend" in the foreign environment (London). The new "friend" helped her deal with the pain of rejection. She realised the value of being brave and willing to dare (a key life theme).

Ashleigh's first verb is "travel". This action corroborates the theme conveyed by the second and third earliest recollections, namely her realisation that life is not fair and that being bold, courageous (she was initially unwilling and afraid to travel to a distant, foreign destination), and self-sufficient (self-aware and reliant) is of key importance in life. Likewise, she realised that paying too much attention to the hurtful or inappropriate actions of others served little purpose.

A careful perusal of the second and third recollections uncovered her keen sense of curiosity (a common trait of gifted children), her disappointment at having been embarrassed and treated unfairly, and her deep sense of commitment to tasks at hand. (The overlap between the themes that emerged from Ashleigh's responses to Questions 4 and 5 is clear.)

Lastly, I asked Ashleigh how she had experienced the intervention.

a. "What did you enjoy?"

"Seeing what I can achieve, my interests, and understanding myself and my deeper-seated 'strivings' better." (Reflexivity)

b. "What did you not enjoy?"

"Nothing really, but I was keen to shorten breaks between assessments."

c. "Is there anything else that I need to know about you?"

Asked if she had any further comments, she smiled and said: "Despite being serious and highly organised, I love adventure-related activities, trying out new things, and travelling." (This response confirms the key themes that had emerged from her earliest recollections and most significant challenges faced.)

Ashleigh and I discussed her responses to the *CIP* questions in depth. I pointed out the "unobvious" meaning of responses such as her responses to the question about role models "who portray tentative solutions to their main problems and dominant preoccupations" p. 170). The role models represented only possible solutions to her central life problems. Her repeated reflections revealed her personality traits, career preferences, central life themes, and purpose. Ashleigh and I jointly drew on the information (co-construction) to identify several possible fields of study and possible careers that would instil a sense of purpose in her life, give meaning to her work, and help her make meaningful social contributions. Ashleigh reflected carefully on the correspondence between the quantitative and qualitative outcomes (triangulation). Together, we used repeated words and phrases to help us identify themes and subthemes in the data.

Ashleigh and I drew up a table in which we placed the qualitative outcomes (the many "micro-stories") alongside the "results" ("scores"). I repeatedly asked Ashleigh to reflect on the correspondence between the "stories" and the "scores" to facilitate triangulation of the two data sets, which revealed a positive correlation between the two sets. Her "scores" helped her confirm several fields of study and associated careers for possible job analysis. Still, they did not add significantly to the study fields already identified through her "micro-stories".

Medicine
Dietetics
BSc (Biological Sciences, e.g., Biochemistry, Biotechnology, Food Science, and Microbiology)
BSc (Genetics)
BVSc (Veterinary Science)
BSc (Actuarial Sciences/Actuarial and Financial Sciences)
BA (Languages/Journalism)
BCom (Law)

Gifted learners should be exposed to a broad range of careers and associated fields of study. I recommended that Ashleigh examine a broader spectrum of careers than she had considered thus far in her life. In addition, I told her that she had the potential to reach the top at any academic institution, which would help her to realise her dream to travel the world, receive acclaim in her field of work, and (in Ashleigh's own words) "do something meaningful by expanding current knowledge in my field of study and make a difference in the lives of others".

5. Discussion

The goal of this study was to examine the value of integrative QUALITATIVE-quantitative career construction counselling for a gifted 16-year-old female learner with moratorium career-identity status. I addressed the following specific questions.

a. What was the effect of the intervention on the participant's sense of career identity?
b. What was the effect of the intervention on the participant's moratorium career-identity status? Below, I discuss two questions and briefly relate the research findings and the literature on the topic.

5.1. What Was the Effect of the Intervention on the Participant's Sense of Career Identity?

People's career identities deepen their experience of meaning and purpose in their lives [56]. The findings in this study support this view. After the intervention, the participant (Ashleigh) displayed an enhanced sense of career identity. She also realised that as much as she loved and respected her parents and their advice, she should instead enrol in a course that would more likely better meet her idiosyncratic career-choice needs. She showed a good understanding of how she could enact her key life themes and unique patterns of personal meaning in her work. In other words, she acquired an enhanced understanding of not only what she wanted to do in her 'job' but why she believed her job or career would help her actualise her authentic career identity by enabling her to "address [her] ambition to travel and make a difference through [her] work, and help [her] make money, too" [36]. Articulating her life story helped her use her autobiography for guidance (advice) concerning her career identity about possible future career decisions.

5.2. Acquiring a Sense of Purpose and Meaning

The findings in this research also support the view that addressing people's need to experience a sense of purpose and meaning in their career-lives is a prerequisite for their understanding the connection between their life purpose intentions and their actual career-related choices [57]. The participant's tension resulting from the incongruence between her parents' career choices for her and her own choices led her to seek greater clarity on the issue. She realised that choosing a career entailed more than merely finding an outlet for her interests and other personality traits but, instead, enacting her key life themes. Understanding that her future career could help her provide a holding environment for people who had experienced similar challenges prompted her to actualise her career-choice ideals. I reminded her that job analysis was essential and should not be taken lightly. A thorough job analysis would help her identify valuable educational and career opportunities [58]. The participant later completed a comprehensive work analysis, which strengthened her resolve to become a medical doctor and actualise her talents and make a difference in the lives of others.

5.3. What Was the Effect of the Intervention on the Participant's Moratorium Career-Identity Status?

The intervention reported on in this article helped the counsellor and the participant explore the roots of the participant's moratorium career-identity status. It highlighted the importance of listening carefully to the participant and allowing her to be in control of her career-choice decisions [7]. Consistent with the findings of earlier studies [59], the present research revealed the inseparability of career and personal counselling [60,61]. The study also confirmed the view that career counsellors should first endeavour to link gifted learners' reasons for requesting career counselling with their overall search for meaning and purposefulness. It testified to the usefulness of the career counselling style (using the *CIP* in conjunction with the *MCM*) in eliciting various micro-life stories of a young woman with moratorium career-identity status.

5.4. Limitations

Longitudinal research in diverse contexts is essential to confirm the value of the intervention in different (individual and group) settings. The participant's eagerness to seek career counselling and satisfaction with the approach may have influenced how the participant experienced the intervention. In addition, my personal convictions, my distinctive style, and my bias towards people from minority groups (including gifted people) may have influenced the success of the career counselling intervention described here. Lastly, the participant's unique contexts are not typical of the contexts of most gifted young women in (South) Africa.

6. Conclusions

This article shows that the career counselling approach described here helped a gifted young woman with moratorium career-identity status deal satisfactorily with career decision-making challenges and helped her turn tension into intention and action [1,3]. It also highlights the importance of linking gifted learners' rationale for seeking career counselling with their more profound quest for meaning and purposefulness. The intervention style discussed here can increase our insight into the impact of such an integrative QUALITATIVE-quantitative approach to career counselling on gifted learners. Such an approach may well limit the loss of many thousands of gifted and talented learners so badly needed to help solve the significant challenges the world is facing today. Such efforts can help gifted learners escape the trap in which they often find themselves [62]. It can also promote their sense of achieving symbolic immortality (leaving a timeless legacy and making a timeless contribution to humankind) [63–65].

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee) of the faculty of education, University of Pretoria. Protocol code UP 06/09/03; 3 November 2021.

Informed Consent Statement: Informed consent was obtained from the participant involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to South African POPI Act requirements.

Acknowledgments: I thank the participant for taking part in the research. I thank Tim Steward for his editing of the text. No financial support was received for the research.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Savickas, M.L. Career construction theory and counseling model. In *Career Development and Counseling: Putting Theory and Research into Work*, 3rd ed.; Lent, R.W., Brown, S.D., Eds.; Wiley: New York, NY, USA, 2020; pp. 165–200.
2. Goldin, I. COVID-19 Has Shown That Following the Same Road will Lead the World over a Precipice. 2021. Available online: https://www.outlookindia.com/newsscroll/covid19-has-shown-that-following-the-same-road-will-lead-the-world-over-a-precipice/2093773 (accessed on 18 June 2021).
3. Savickas, M.L. *Theories of Psychotherapy Series. Career Counseling*, 2nd ed.; American Psychological Association: New York, NY, USA, 2019.
4. Savickas, M.L.; Savickas, S. A history of career counselling. In *International Handbook of Career Guidance*, 2nd ed.; Athanasou, J.A., Perera, H.N., Eds.; Springer: Berlin/Heidelberg, Germany, 2019; pp. 25–44.
5. Guichard, J. Self-constructing. *J. Vocat. Behav.* **2009**, *75*, 251–258. [CrossRef]
6. Savickas, M.L. *Career Construction Theory: Life Portraits of Attachment, Adaptability, and Identity*; M. L. Savickas: Rootstown, OH, USA, 2019.
7. Silverman, L.K. Honoring the precious uniqueness of your gifted child. *Gift. Educ. Internat.* **2021**, *37*, 67–79. [CrossRef]
8. Del Corso, J.; Rehfuss, M.C.; Glavin, K. Striving to adapt: Addressing Adler's work task in the 21st century. *J. Individ. Psychol.* **2011**, *67*, 88–106.
9. Taber, B.J.; Briddick, W.C. Adlerian based career counseling in the age of Protean Careers. *J. Individ. Psychol.* **2011**, *67*, 107–121. [CrossRef]

10. Klehe, U.-C.; Fasbender, U.; Van der Horst, A. Going full circle: Integrating research on career adaptation and proactivity. *J. Vocat. Behav.* **2021**, *126*, 103526. [CrossRef]
11. Maree, J.G. Life design counselling. In *Career Psychology*, 3rd ed.; Stead, G., Watson, M., Eds.; Van Schaik: Pretoria, SA, USA, 2017; pp. 105–118.
12. Maree, J.G.; Gerryts, E.; Fletcher, L.; Jordaan, J. Using career counselling with life design principles to improve the employability of disadvantaged young adult. *J. Psychol. Afr.* **2019**, *29*, 110–120. [CrossRef]
13. Sethlare, R.; Wood, L.; Meyer, L. Exploring Group Life Design with teachers in the context of poverty related psychosocial challenges. *S. Afr. J. Educ.* **2017**, *37*, 1–8. [CrossRef]
14. Maree, J.G. *Innovating Counselling for Self- and Career Construction: Connecting Conscious Knowledge with Subconscious Insight*; Springer: New York, NY, USA, 2020.
15. Beerman, K.M.; Schultz, R.A.; Weber, C.L. Lack of awareness and emphasis in preservice teacher training: Preconceived beliefs about the gifted and talented. *Gift. Child Today* **2012**, *35*, 18–26. [CrossRef]
16. Gati, I.; Kulcsár, V. Making better career decisions: From challenges to opportunities. *J. Vocat. Behav.* **2021**, *126*, 103545. [CrossRef]
17. Gati, I.; Asher, I. Prescreening, in-depth exploration, and choice: From decision theory to career counseling practice. *Career Dev. Q.* **2001**, *50*, 140–157. [CrossRef]
18. Kelly, K.R.; Lee, W.C. Mapping the domain of career decision problems. *J. Vocat. Behav.* **2002**, *61*, 302–326. [CrossRef]
19. Marcia, J.E. Development and validation of ego identity status. *J. Pers. Soc. Psychol.* **1996**, *3*, 551. [CrossRef] [PubMed]
20. Marcia, J.E. Identity in Adolescence. In *Handbook of Adolescent Psychology*; Adelson, J., Ed.; Wiley: New York, NY, USA, 1980; pp. 159–187.
21. Staunton, T. Mark Savickas and Life Design—Theories Every Careers Adviser Should Know. 2015. Available online: https://runninginaforest.wordpress.com/2015/03/08/marksavickasandlifedesigntheorieseverycareersadvisershouldknow/ (accessed on 11 April 2021).
22. Savickas, M.L. Life Designing: A Paradigm for Career Construction. In Proceedings of the Keynote read at the 2nd Biennial African Congress of Career Practitioners, Pretoria, SA, USA, 19 March 2021.
23. Savickas, M.L. Career counselling paradigms: Guiding, developing, and designing. In *The APA Handbook of Career Intervention*; Hartung, P., Savickas, M.L., Walsh, W., Eds.; APA Books: Washington, DC, USA, 2015; Volume 1, pp. 129–143.
24. Maree, J.G. The psychosocial development theory of Erik Erikson: Critical overview. *Early Child Dev. Care* **2021**, *191*, 1107–1121. [CrossRef]
25. Chen, C.P.; Wong, J. Career counseling for gifted students. *Aust. J. Career Dev.* **2013**, *22*, 121–129. [CrossRef]
26. Rudolph, C.W.; Lavigne, K.N.; Zacher, H. Career adaptability: A meta-analysis of relationships with measures of adaptivity, adapting responses, and adaptation results. *J. Vocat. Behav.* **2017**, *98*, 17–34. [CrossRef]
27. Savickas, M.L.; Nota, L.; Rossier, J.; Dauwalder, J.-P.; Duarte, M.E.; Guichard, J.; Soresi, S.; Van Esbroeck, R.; Van Vianen, A.E.M. Life Designing: A paradigm for career construction in the 21th century. *J. Vocat. Behav.* **2009**, *75*, 239–250. [CrossRef]
28. Savickas, M.L. Career counselling in the post-modern era. *J. Cogn. Psychother. An Int. Q.* **1993**, *42*, 205–215. [CrossRef]
29. Savickas, M.L. Interactive Workshop on Life Design Counselling. In Proceedings of the XXXIXth International Congress of Psychology, Berlin, Germany; 2008.
30. Winnicott, D.W. *The Child, the Family and the Outside World*; Perseus: Cambridge, MA, USA, 1964.
31. Christison, M.-A.; Murray, D.E. An overview of multilingual learners' literacy needs for the 21st century. In *Handbook of Research on Cultivating Literacy in Diverse and Multilingual Classrooms*; Neokleous, G., Krulatz, A., Farrelly, R., Eds.; IGI Global: Hershey, PA, USA, 2020; pp. 1–21.
32. Hartung, P.J. Career Construction Counseling. In *Psychology of Career Counseling: New Challenges for a New Era*; Di Fabio, A., Maree, J.G., Eds.; Nova Science: New York, NY, USA, 2013; pp. 15–28.
33. Blustein, D.L.; Erby, W.; Meerkins, T.; Soldz, I.; Ezema, G.N. A critical exploration of assumptions underlying STEM career development. *J. Career Dev.* **2020**, *40*, 40–67. [CrossRef]
34. Hartung, P.J. Life design in childhood: Antecedents and advancement. In *Handbook of Life Design: From Practice to Theory, and from Theory to Practice*; Nota, L., Rossier, J., Eds.; Hogrefe: Göttingen, GE, USA, 2015; pp. 89–101.
35. McAdams, D.P. The psychological self as actor, agent, and author. *Perspect. Psychol. Sci.* **2013**, *8*, 272–295. [CrossRef]
36. Hall, A.S.; Kelly, K.K. Identity and Career Development in Gifted Students. In *The Handbook of Secondary Education*; Dixon, F.A., Moon, S.M., Eds.; Prufrock Press: Waco, TX, USA, 2014; pp. 352–364.
37. Maree, J.G.; Taylor, N. Development of the *Maree Career Matrix*: A new interest inventory. *S. Afr. J. Psychol.* **2016**, *46*, 462–476. [CrossRef]
38. Parsons, F. *Choosing a Vocation*; Houghton Mifflin: Boston, MA, USA, 1909.
39. Erikson, E.H. *Identity, Youth, and Crisis*; Norton: London, UK, 1968.
40. Mitchell, L.K.; Krumboltz, J.D. Social learning approach to career decision-making: Krumboltz's theory. In *Career Choice and Development: Applying Contemporary Theories to Practice*, 2nd ed.; Brown, D., Brooks, D., Associates, L., Eds.; Jossey Bass: San Francisco, CA, USA, 1990; pp. 145–196.
41. Owen, K.; Vosloo, H.N. *Differential Aptitude Tests Form S*; HSRC: Pretoria, SA, USA, 2000.
42. Maree, J.G. *The Career Interest Profile*; Version 6; JvR Psychometrics: Randburg, SA, USA, 2017.

43. Maree, J.G.; Sommerville, J. Development of a post-modern career interest questionnaire. *J. Psychol. Afr.* **2008**, *17*, 125–130. [CrossRef]
44. Maree, J.G. *Counselling for Career Construction: Connecting Life Themes to Construct Life Portraits. Turning Pain into Hope*; Sense: Rotterdam, NL, USA, 2013.
45. Yin, R.K. *Qualitative Research from Start to Finish*; Guildford Press: New York, NY, USA, 2011.
46. Janesick, V.J. The Choreography of Qualitative Research. In *Handbook of Qualitative Research*, 2nd ed.; Denzin, N.K., Lincoln, Y.S., Eds.; Sage: London, UK, 2013; pp. 390–396.
47. Richardson, L. New writing practices in qualitative research. *Sociol. Sport. J.* **2000**, *17*, 5–20. [CrossRef]
48. Braun, V.; Clarke, V. Using thematic analysis in psychology. *Qual. Res. Psychol.* **2006**, *3*, 77–101. [CrossRef]
49. Hill, C.E.; Knox, S.; Thompson, B.J.; Williams, E.N.; Hess, S.A.; Ladany, N. Consensual qualitative research: An update. *J. Couns. Psychol.* **2005**, *52*, 196–205. [CrossRef]
50. Tonkin-Crine, S.; Anthierens, S.; Hood, K.; Yardley, L.; Cals, J.W.L.; Francis, N.A.; Coenen, S.; van der Gelden, A.W.; Godycki-Cwirko, M.; Llor, C.; et al. Discrepancies between qualitative and quantitative evaluation of randomised controlled trial results: Achieving clarity through mixed methods triangulation. *Implement. Sci.* **2015**, *11*, 66. [CrossRef]
51. Hay-Smith, E.J.C.; Brown, M.; Anderson, L.; Treharne, G.J. Once a clinician, always a clinician: A systematic review to develop a typology of clinician-researcher dual-role experiences in health research with patient-participants. *Med. Res. Methodol.* **2016**, *16*, 1–17. [CrossRef]
52. Kewley, E.P. *The Dual Role of Psychologist-Researcher: Using Psychological Assessments for Research Purposes*; University of Lethbridge, Faculty of Education: Leithbridge, CN, USA, 2006.
53. Sieck, B.C. Obtaining clinical writing informed consent versus using client disguise and recommendations for practice. *Psychotherapy* **2012**, *49*, 3–11. [CrossRef]
54. Wood, S.M.; Klose Smith, S.; Duys, D.K. Career counselling and the gifted individual. In *APA Handbook of Giftedness and Talent*; Pfeiffer, S., Ed.; American Psychological Association: New York, NY, USA, 2018; pp. 629–644.
55. Plucker, J.; Rinn, A. *From Giftedness to Gifted Education: Reflecting Theory in Practice*; Prufrock Press: Waco, TX, USA, 2017.
56. Ricoeur, P. *Time and Narrative*; University of Chicago Press: Chicago, IL, USA, 1988; Volume 3.
57. Duffy, R.D.; Dik, B.J. Beyond the self: External influences in the career development process. *Career Dev. Q.* **2009**, *58*, 29–43. [CrossRef]
58. Harlow, T.B. *Helping Gifted Kids Thrive*; Guidingbright: Steamboat Springs, CO, USA, 2018. Available online: https://guidingbright.lpages.co/expertebook (accessed on 23 May 2021).
59. Maree, J.G. Career construction counseling: A thematic analysis of outcomes for four clients. *J. Vocat. Behav.* **2015**, *86*, 1–9. [CrossRef]
60. Miller, M.J. Brief reflections on a career in careers. *J. Employ. Couns.* **2009**, *46*, 47–48. [CrossRef]
61. Sharf, R.S. *Applying Career Development Theory to Counseling*, 6th ed.; Brooks/Cole: Pacific Grove, CA, USA, 2013.
62. Bar-On, R. The relationship between emotional intelligence and giftedness. *Gift. Educ. Internat.* **2007**, *23*, 136–150. [CrossRef]
63. Drolet, J.-L. Transcending death during early adulthood: Symbolic immortality, death anxiety, and purpose in life. *J. Clin. Psychol.* **1990**, *46*, 148–160. [CrossRef]
64. Huta, V.; Zuroff, D.C. Examining mediators of the link between generativity and well-being. *J. Adult Dev.* **2007**, *14*, 47–52. [CrossRef]
65. Pfeiffer, S.I. *Essentials of Gifted Assessment*; Wiley: New York, NY, USA, 2015.

education sciences

MDPI

Article

Managing the Emotional Intensities of Gifted Students with Mindfulness Practices

Dorothy Sisk

College of Education and Human Development, Lamar University, Beaumont, TX 77705, USA; siskda@lamar.edu

Abstract: The emotional intensities of gifted students affect not only their learning, but also the way they live and see the world. This article examines the Theory of Positive Disintegration of Dabrowski to explore the inner world of the gifted. The five levels of development and five overexcitabilities of Dabrowski represent an abundance of physical, sensual, creative, intellectual, and emotional energy that cause inner turmoil but can result in creative endeavors. The benefits of mindfulness practices to meeting the emotional needs of gifted students are presented with examples of deep listening, gratitude, and storytelling as mindfulness practices. A culminating activity of storytelling illustrates the integration of deep listening and gratitude and its effect on the sense of identity of gifted students.

Keywords: gifted; emotion; Dabrowski; intensities; mindfulness; gratitude; deep listening; storytelling

Citation: Sisk, D. Managing the Emotional Intensities of Gifted Students with Mindfulness Practices. *Educ. Sci.* **2021**, *11*, 731. https://doi.org/10.3390/educsci11110731

Academic Editor: Eleni Andreou

Received: 21 September 2021
Accepted: 25 October 2021
Published: 13 November 2021

1. Introduction

In the education of gifted students, there is a tendency of educators to focus on the intellectual growth of these students; yet giftedness has a complex emotional component that needs to be addressed. The emotional intensities of gifted students go far beyond feeling deeply about situations; they experience the world vividly, which affects not only their learning, but also the way in which they live and see the world [1,2]. In a presentation in Oviedo, Spain, in 2017, Linda Silverman described how advanced thought processes and complex emotions are held in a delicate balance in gifted students, and that idealism, self-doubt, perceptiveness, excruciating sensitivity, moral imperatives, a desperate need for understanding, acceptance, and love—all impinge simultaneously [3]. This inner world of the gifted can be explored by examining the Theory of Positive Disintegration of the Polish psychologist Kazimierz Dabrowski [4]. His work adds essential information about the emotional needs of the gifted.

2. The Theory of Positive Disintegration: Kazimierz Dabrowski

In 1979, Michael Piechowski [5] introduced and translated the Theory of Positive Disintegration to the Anglo-Saxon world and to the study of giftedness in his chapter in *New Voices in Counseling the Gifted* [6]. Dabrowski said the growth and evolution of civilization and culture create more complex problems, which can only be handled by people with correspondingly advanced levels of psychic complexity, and that giftedness is characterized by greater intensity and complexity [7].

The theory of Dabrowski has five levels of development, and people with greater emotional intensity are those who have easier access to the more advanced levels of individual development. These emotional intensities are called overexcitabilities. The overexcitabilities provide a greater innate capacity to respond to stimuli. The five overexcitabilities represent an abundance of physical, sensual, creative, intellectual, and emotional energy, which cause inner turmoil but can result in creative endeavors as well as advanced emotional and ethical development. The five overexcitabilities of Dabrowski are listed with their defining characteristics.

Five Overexcitabilities

i. Physical or Psychomotor (OE)
   - Rapid speech
   - Marked enthusiasm
   - Pressure for action
   - Enjoyment of fast sports and games [8]

ii. Sensual (OE)
   - Enhanced sensory pleasure
   - Keen seeing, smelling, tasting, touching, and hearing
   - Appreciation of beautiful objects
   - Appreciation of writing styles and words [8]

iii. Imaginational (OE)
   - Facility for invention
   - Facility with fantasy
   - Detailed visualization
   - Animistic
   - Magical thinking
   - Frequent use of image and metaphor [8]

iv. Intellectual (OE)
   - Curiosity
   - Concentration
   - Sustained intellectual effort
   - Avid reading
   - Love of theory and analysis
   - Moral thinking
   - Development of a hierarchy of values
   - Conceptual and intuitive integration [8]

v. Emotional (OE)
   - Intensity of feelings
   - Extremes of emotion
   - Complex emotions and feelings
   - Identification with feelings of others
   - Concern for others
   - Empathy and sensitivity in relationships [8]

Dabrowski said emotional OE was the most important of all the OEs because empathic, altruistic people are the ones who could make this world a better place [7].

3. Levels of Development

There are five levels of development in the theory of Dabrowski, including primary integration, uni-level disintegration, spontaneous multi-level disintegration, organized multi-level disintegration, and secondary integration. Nelson (2000) [9] claimed that in Level I primary integration egocentrism prevails, and individuals lack empathy and self-examination, and when things go awry they blame others. In their desire for power, they can be ruthless. Level II individuals are influenced by their social group and have no clear set of self-determined values. In Level III individuals have developed a hierarchical sense of values, and their inner conflict concerns how to live up to these higher standards. They can become depressed and anxious when they perceive they are not living up to the goals they have established for themselves. They can feel inferior to others and dissatisfied.

Level IV individuals are well on the way to self-actualization. They have figured out how to reach their ideal goals, and they are self-aware and autonomous in thought and action. Level V individuals have mastered their personal struggle regarding self and disintegration by the integration of values and ideals. They live in service to humanity

according to the highest universal principles of love and compassion for the worth of other individuals.

The challenge for education is how to provide opportunities for gifted students to engage in meaningful activities that provide academic challenge and stimulation as well as meet their emotional needs. One strategy to meet this challenge is the use of mindfulness practices, which have considerable potential to meet both the academic and the emotional needs of gifted students.

4. What Are the Benefits of Mindfulness Practices?

The benefits of mindfulness for children and students are substantial, particularly for young children. Pre-K programs using mindfulness reported increases in attention and concentration, improved classroom participation by developing impulse control, and enhanced academic performance. Benefits for middle school students included reduced anxiety before testing and increased readiness to learn, as well as pro-social behavior. In addition, teachers reported that mindfulness strategies enhanced their classroom climate and increased their responsiveness to their students [10].

In addition, research has shown that practicing mindfulness can actually change the brain [11]. These changes vary from increased density of gray matter to cortical thickness of the hippocampus, a decrease in cell volume in the amygdala, and enhanced connectivity between brain regions.

Mindfulness practices have positive effects on the executive functioning of gifted students, enabling them to manage themselves and their resources in order to achieve their goals. The executive functioning skills include working memory, flexible thinking, and self-control, and these skills are controlled by the frontal lobe of the brain. One mindfulness strategy that has been successfully used to help gifted students to build executive functioning and feel a sense of connectedness is deep listening.

5. Deep Listening

According to Otto Scharmer (2009) [12] in *Leading from the future as it emerges,* there are four levels of listening, with generative listening described as deep listening. The four levels are: (1) Downloading, in which the listener hears the content and ideas and confirms what the listener already knows; (2) Factual listening, in which the listener listens for facts from the speaker's perspective; (3) Empathic listening, in which the listener listens from the perspective of the speaker; and (4) Generative, in which the listener listens with deep attention to the speaker's behavior, opinions, beliefs, and actions to allow something new to emerge. Level 4 describes deep listening as interactional between the speaker and the one who is listening.

Gifted students with their desperate need for understanding and acceptance and excruciating sensitivity [3] have shared that they often feel their parents and teachers do not listen to them; yet conversely, gifted students often demonstrate what Doell (2003) [13] identified as the two types of listening: listening to understand and listening to respond. Too often gifted students enact the second type of listening, waiting for an opportunity to respond and sometimes missing the speaker's content in their eagerness to share their own ideas.

6. Research on Deep Listening

Heather Plett (2017) [14], a writer, coach, facilitator, and speaker, conducted research by posing a series of questions on Facebook about deep listening. What do you think are the best indicators that someone is genuinely listening to you? What do you think are the indicators that someone is not genuinely listening to you? When do you find it most challenging to listen to another person? She received numerous responses and summarized their answers to her questions in six generalizations.

a. **Genuine listening cannot be faked**. Outward signals that someone is listening include eye contact, bodily engagement, and good questions, and the speaker needs to have a genuine sense that the person listening is fully present.
b. **Culture and context matter**. Some cultures do not value eye contact, it can be a sign of disrespect, and when the speaker has a lot of shame or trauma, this requires genuine listening by focusing full attention on the speaker.
c. **Ultimately a good listener allows the person to whom they are listening to hear themselves**. When we interject questions, interruptions, and too much body language in the act of listening, we pull the person away from the depth and openheartedness of their own story.
d. **Genuine listening involves stilling your body and mind so that you can be fully present.** Indicators of someone not listening include fidgeting, checking devices, not making eye contact, looking past the speaker, and nodding too much.
e. **The behavior of the person speaking strongly impacts our ability to listen to them**. People found it most challenging to listen to another person when the speaker was self-righteous, condescending, and not willing to be open-minded.
f. **Genuine listening requires self-awareness and good self-care**. It is important to pay attention to our own triggers and take time to listen to ourselves first; then we are in a better position to listen to others. Plett (2017) [14] summarized her own thoughts on listening by stressing that learning to listen is a lifelong journey and to be a better listener, you need to start listening to yourself.

7. Benefits of Deep Listening

Roger Allen (2020) [15] in the *Power of Deep Listening* reported ten benefits of deep listening, including:

- Establishing rapport with others
- Building trust and good will
- Deepening our understanding of others
- Learning new ideas and perspectives
- Making it safe for others to open up to deal with deep and not surface issues
- Gaining accurate information for better decision making and problem solving
- Overcoming friction and working through conflict
- Developing shared understanding and consensus
- Affirming, motivating, and empowering others
- Promoting personal and relationship healing

Allen (2020) [15] noted that as you improve your listening skills, people will notice that you are more present and attuned.

8. Deep Listening with College Students

As a professor in the Educational Psychology Department at the University of South Florida, I taught a Group Dynamics class and used the *Circle Way* strategy in which students are seated in a circle and use a talking stick to indicate who is speaking. There were no interruptions or cross talk while the speaker was talking, and the speaker spoke with intention as the group practiced deep listening. The students were enthusiastic about the use of the *Circle Way* and said it created a sense of well-being in their group. They learned to be better listeners with practice in each of the class meetings. The students said the *Circle Way* and deep listening encouraged them to connect, empathize, and truly hear what their fellow students were feeling and meaning. Each week there was growth in the students' ability to use deep listening skills. A list of deep listening skills used in the Group Dynamics class included:

- Making eye contact with the individual speaking
- Putting aside judgmental thinking
- Nodding to indicate you are listening
- Noticing the feelings or emotions accompanying the words

- Paying attention to the speaker's tone and inflection of the speaker
- Listening for meaning
- Empathizing with the speaker

Several of the students were identified as gifted in their K–12 schooling, and they said they would have benefited from having deep listening skills introduced to them, particularly as they moved into middle school with its anti-intellectualization and their feelings of being misunderstood and devalued. Several students in the class were parents of gifted children, and they said they planned to introduce deep listening to their children and to make sure they practiced deep listening with them.

9. Oscar Trimboli

The growing interest in deep listening is magnified in the quest of Oscar Trimboli (2018) [16], the former marketing director of Vodafone and Microsoft, who claimed that although 55% of our time in business is spent listening, it is a skill only 2% really grasp, despite the astonishing costs of failing to do so, ranging from miscommunication to job turnover to loss of sales. He noted the importance of silence and how it is used in high context cultures like Japan, Korea, and China. He said that people ask you to listen, but what they really crave is to be heard. Trimboli has a remarkable quest, he wants to create 100 million deep listeners in the world by 2030.

Deep listening is a powerful mindfulness practice for gifted students, and another mindfulness practice that is essential to meet their emotional needs is gratitude. With gratitude we acknowledge the goodness in our lives, and as a result it helps us connect to something larger than ourselves. As gifted students move from Level III in the Dabrowski theory they can become overwhelmed by not meeting the hierarchy of values and goals they are establishing. Gratitude can be considered to be a social emotion to signal our recognition of what others have done for us [17]. This reminds us that we are not alone in our struggles.

10. Gratitude

Gratitude has been conceptualized as an emotion, a virtue, a moral sentient, a motive, a coping response, a skill, and an attitude, and it is all these and more. Robert Emmons (2010) [18], one of the key researchers in the psychology of gratitude, described gratitude as an emotional response to a gift. It is the appreciation felt after one has been the beneficiary of an altruistic act [18]. Later, Emmons and Sterns (2013) [19] introduced a definition of gratitude that is both worldly and transcendent. In a worldly sense, gratitude is a feeling that occurs in interpersonal exchanges, when one person acknowledges receiving a valuable benefit from another. The transcendent notion is that one has received a personal benefit that was not intentionally sought after, deserved, or earned, but rather because of the good intentions of another person [19]. Emmons (2013) [20] also developed a 21-day program to create emotional propensity.

Ackerman (2020) [21], a prolific writer for PositivePsychology.com, has published four books, including a *Guidebook for Gratitude*. She stated that, with gratitude, we acknowledge the goodness in our lives, and as a result it helps us connect to something larger than ourselves as individuals, whether to other people, nature, or a higher power. Connecting to something larger than one's self is very important for gifted students who value moral imperatives as a characteristic as well as idealism, and they can relate to the practice of gratitude as they connect with others. The positive effects of practicing gratitude can provide the emotional armor gifted students need to meet the challenges of being gifted in a world that does not always ease their path.

11. Two Stages of Gratitude

According to Emmons (2013) [20] there are two stages of gratitude: (1) the acknowledgment of goodness in our life. In a state of gratitude, we say yes to life. We affirm that overall, life is good and has elements that make it worth living. Acknowledging we

have received something gratifies us, both by its presence and by the effort the giver put into choosing it. (2) Gratitude is recognizing that some of the sources of this goodness lie outside the self. You can be grateful to other people, to animals, and to the world, but not to yourself. In this stage, you recognize the goodness in your life, who to thank for it and who made sacrifices so that you could be happy.

12. Practices of Gratitude

Keeping a journal is one way to keep a daily account of gratitude, reflecting on the good things that happen in your daily life and then identifying their cause. Did someone inspire you or provide you with an opportunity to be involved? The reflection on what might have happened in your life had you not received the gift of a positive event is a powerful strategy to understand the power of gratitude. The writing of thank you notes to individuals who have given you time, effort, help, and inspiration is another way to express gratitude and quiet your mind. The benefits of gratitude include the release of dopamine in the brain, making the connection that practicing gratitude also makes you feel good.

13. Research on Showing Gratitude

Emmons (2010) [18] in a *Greater Good* article reported on his research with more than 1000 individuals ages 8 to 80. They reported the benefits of gratitude, including physical, psychological, and social benefits. They included:

i. Physical
   - Strong immune system
   - Less bothered by aches and pains
   - Lower blood pressure
   - Exercised more and took better care of their health
   - Slept longer and felt more refreshed upon waking

ii. Psychological
   - Higher levels of positive emotion
   - More alert, alive, and awake
   - More joy and pleasure
   - More optimism and happiness

iii. Social
   - More helpful, generous, and compassionate
   - More forgiving
   - More outgoing
   - Felt less lonely and isolated [18] p. 2

Emmons (2013) [20] in his book *Gratitude Works* commented on the myriad benefits to the body from evidence-based research on the use of techniques to cultivate gratitude. He said, "Gratitude has one of the strongest links to mental health and satisfaction with life than any personality trait, more than optimism, hope or compassion" [20] p. 9, Wong and Brown (2019) [22], in their research on gratitude, assigned students to three groups. Group one wrote thank you letters to another person every week for 3 weeks. Group two recorded their thoughts and feelings about negative experiences. Group three did not write anything. All three groups received counseling services. Group one reported significantly better mental health in week 4 and even in week 12. Wong and Brown suggested that a combination of gratitude practice and counseling is more beneficial than counseling alone.

Giacomo Bono (2020) [23] and his colleagues conducted research on 2 urban high schools with 6 classrooms containing 152 students who had lessons and activities to instruct them about the science of gratitude. The students were given access to a gratitude web app called *Give'Thx* to express thanks to their classmates and teachers. A control group of 9 comparable classrooms with 175 students did not receive the gratitude program. In addition, 6 more classrooms of 82 students had access to the app during the 6 weeks. All

students filled out a well-being survey after the project ended. Results showed students who received the full program reported a stronger sense of gratitude. Learning about and practicing gratitude significantly improved their social and emotional well-being. The researchers reported that the students who received both components of the program gave thanks more often, more intensely, and to more people compared to students who only used the app. The Bono study provided evidence that when high school students are given opportunities to practice and express gratitude in ways that are compatible with their use of social media it helps them become happier and improves their mental health.

14. Gifted Students Reach Out to Other Students

In the 2021 Texas Governor's School secondary students (Grades 11 and 12) were introduced to the science of gratitude and to the app *Give'Thx* and asked to write three thank you notes each day to classmates and teachers [24]. In their self-reports they listed feelings of being humble, grateful, and caring and a sense of well-being. They suggested making a short list of activities other students could use to realize the benefits of giftedness, and they created a bookmark including suggestions for the students to distribute in their home schools. Their list included:

- Create visual reminders to practice gratitude with sticky notes
- At the end of the day, write down three things for which you are grateful
- Practice saying thank you in a real and meaningful way
- Be mindful of your five senses and be grateful when you use them
- Write one handwritten thank you note each week

Gratitude is good for your body, your mind, and your relationships. Gratitude practices, including gratitude journals that provide feedback on what is being expressed through the practice of gratitude, block toxic, negative emotions and allow you to celebrate the present.

Emmons (2013) [20] said you can cultivate gratitude by making a commitment to simple daily or weekly gratitude practices. Gratitude increases optimism and changes in your brain, and research has shown the benefit of expressing gratitude and its value to gifted students. Another mindfulness practice that is most valuable for gifted students is storytelling, which impacts the identity and self-concept of gifted students.

15. Storytelling

We live events in our lives at least twice, once when the events happen, and the second time when we review those events and organize them into some sort of narrative or storytelling [25]. McAdams stated that people are natural storytellers, ranging from folk tales to reality television, and stories are told or performed in every known human culture. McAdams, a professor at Northwestern University in Evanston, Illinois, has spent over 30 years conducting research on storytelling and narrative identity, and he said through narrative identify, we convey to ourselves and to others who we are now, how we came to be, and where we think our lives may be going in the future. He called this internalized story our own personal myth.

Miraca Gross (2011) [26], a noted educator in gifted education from Australia, claimed that the process of identity development in intellectually gifted children and adolescents is complicated by their innate and acquired differences from age peers. To be valued within a peer culture, gifted students may mask their giftedness and develop alternative identities that are perceived as more socially acceptable. Gross called this a protective mask.

In recent studies, narrative identity researchers have focused on psychological adaptation and development. Research into the relationship between life stories and adaptation has shown that narrators who find redemptive meanings in suffering and adversity construct life stories that feature themes of personal agency and explorations and tend to enjoy higher levels of mental health, well-being, and maturity. These research findings align well with the theory of Dabrowski and the struggle to integrate values and ideals.

16. Stories Can Influence the Self-Concept

Beliefs we hold about ourselves are part of our self-concept, and these beliefs are relatively stable. However, the beliefs we hold as part of self-concept can be altered by self-reflection. In addition, there is research indicating that reading stories of fictional protagonists and their struggles provoke changes in self-ratings. Djikic, Oatley, Zoeterman and Peterson (2009) [27] asked one group of students to read a short story and a second group to view a documentary with the same content, and then both groups completed the Big Five Personality Inventory before and after reading. Students who read the short story showed a greater change in their ratings in the five personality traits of extraversion, conscientiousness, agreeableness, emotional stability, neuroticism, and openness to experiences, than the students who read the documentary control story. Other researchers have found that being mentally involved in stories with visual imagery and emotional affect motivates students to take a mental journey into the world of a narrative, which helps to explain the positive impact of stories [28,29].

17. Techniques to Merge Storytelling and Mindfulness

Marusya Price (2019) [30], an English teacher, shared techniques in *Thrive Global* on ways teachers and parents can merge storytelling and mindfulness. She stated that storytelling is a powerful tool to connect with others, to look deep inside our self and heal. Price used storytelling in her classroom to help students embrace their creativity and imagine themselves beyond this reality. Price used several techniques, including visualization, mindful walks, personification, and hidden smells. Sometimes she would display a beach *visualization* and then ask the students to write a story about a beach trip they may have experienced, expressing their feelings about the trip: what they saw, heard, smelled, felt, or tasted. Then she would ask them to bring a pencil and paper for mindful walking. Before the mindful walk, the students would close their eyes and take five deep mindful breaths, and then walk around a nearby park jotting down what they saw, felt, or smelled and their feelings on the walk. Price invited them to share their notes or to write a story about the trip. In *Personification*, the students bring a favorite toy or object to school, and then close their eyes and ponder questions such as: What material is the object made from? How does it feel? Is it soft or rough? Does it have a particular smell? If this object could speak, how would it sound? When the students open their eyes, they then write a narrative story from the point of view of the object. The students keep connected to the object by holding it as they write their story.

In *Hidden Smells*, each student brings an envelope to school with a hidden smell in it, cinnamon, pepper, ground ginger, lavender, etc. The envelopes are mixed up and each student takes an envelope and smells the envelope without opening it and ponders these questions: What could the smell be? Does it bring certain memories? What people are involved in that memory? What sensations are you feeling? They can touch what is in the envelope and respond to how it feels. Then the students are asked to write a narrative inspired by this smell. Price said storytelling improved self-awareness, sharpened visual imagery, and developed a sense of community in the class.

18. Research on Storytelling

Mello (2001) [31] conducted a meta-analysis of eight studies regarding the use of storytelling as an educational strategy. The studies demonstrated that the literacy of the participants was enhanced in the academic areas of fluency, vocabulary, writing, and recall. In addition, she found self-awareness, visual imagery, and cultural knowledge of others increased.

Marc Kuby (2015) [32] from Winnipeg, Manitoba, described storytelling as a common language that facilitated communication with his students as they heard and understood each other's stories and recognized themselves in the stories of others, no matter how varied the cultural backgrounds. Kuby shared a storytelling experience in which Winnipeg high school students from Newcomer, First Nations, and Settler backgrounds were brought

together to share stories. As they told each other stories, the students came to understand the common challenge of being recognized as individuals with unique identities within their school. This problem was particularly noted in the case of Newcomer and First Nations students. Their stories revealed discriminating practices within the school and community. Having discovered a common challenge, the students wanted to act. They formed into groups of Settlers, Newcomers, and First Nations students, and together chose to act by telling stories to their teachers.

As teachers honored the students' stories, the students began to think and act differently. Kuby summarized the storytelling experience by saying that when we look at the world through the eyes of our students, we can find the way to build classroom communities that turn into healthy, robust, and just places where students can develop their talents. He stressed the importance of placing the cultivation of empathy, mutual concern, and understanding at the top of any list of educational outcomes, and the path to achieving those outcomes can be advanced by the incorporation of storytelling into our practices.

19. Digital Storytelling

Digital storytelling uses multimedia tools including graphics, audio, video, and animation to tell a story. Students of today grew up surrounded by digital technology and are routinely exposed to computers, electronic games, digital music players, video cameras, and mobile phones. They are immersed in instant messaging, emails, web browsing, log, wiki tools, portable music, social networks, and video sites, so digital storytelling is a natural practice for them. Smeda, Dakich and Sharda (2014) [33] conducted a multi-site study in Australia at the primary and secondary levels to see if digital storytelling would provide students opportunities to engage in innovative learning experiences. They found digital storytelling to be a meaningful approach to creating a constructivist learning environment and that digital storytelling had the potential to enhance student engagement and provide better educational outcomes for students.

20. How Mindfulness and Storytelling Help Students Heal and Learn

Reach Academy in Oakland, California, represents a great success story of the use of mindfulness and storytelling. Mason Musumeci, a literacy teacher at Reach Academy, was concerned that so many of their students had witnessed high levels of conflict. He described the students as having bodies knotted with feelings of worry and fear, emotions that he knew propelled them into the fight or flight mode. Many had witnessed the death of a parent, experienced emotional neglect and even homelessness. These issues were preventing them from feeling safe enough to focus on class. The faculty reached out to Laurie Grossman (2016) [34], a teacher and founder of Mindful Schools. She came to the Academy and asked the students to close their eyes, and not one of them did so. They just stared at her. Over a period of time the students eventually became comfortable with the mindful breathing and practices, and they loved practicing these mindfulness skills.

The students asked to lead the mindfulness practices themselves. One student took his fellow students through the mindfulness activities and gave them the traditional instructions, "Close your eyes add focus on the breath, see if you can feel your breath in your belly".

The teachers reported that a sense of serenity entered their classrooms after the mindfulness training, and the administrators recognized that mindfulness changed the school climate. The students wanted to write a book sharing their stories, and they worked with Laurie Grossman [34] to create their book. *Master of Mindfulness (2014)* was published, and the students shared their book with another school in Oakland and in classes in their own school. Mindfulness taught the students that they are all connected by way of the breath, and this awareness helped them to feel calmer while strengthening their sense of self and sense of community.

21. The Power of Storytelling to Build Community and Heal Emotional Pain

Storytelling was one of the evening activities of the Texas Governor's School and this year the counselors were amazed at the depth of the stories the students shared with one another. Selected stories included:

I came to the United States with my mother from Mexico and she enrolled me in Liberty elementary school. They placed me in a class with other students who all spoke English and I only knew Spanish. I tried to do the work and even though I didn't speak English, I did my best. I was good at Math and it seemed like the class work in Math was really easy. When they tested us on a State test, I tested at the 90% in Math and they moved me to the Gifted program. It was only then I realized they had placed me in a Special Education class because they thought I was retarded. This hurts me so much to think about it even now and how unfair it was to me.

As she shared her story, a silent tear crept down her face and the other students spontaneously embraced her. The irony is that she was 18 years old and the incident happened when she was 8 years old. However, by sharing her story and receiving compassion from her fellow students, the pain was put aside for the moment. At this point, another student wanted to share her story. She said:

In my first-grade class the teacher asked me to read in front of the class. I told her I could not do that, you see I stuttered really bad. She took my hand and pushed me in front of the group and said, "Now read", I started but stuttered, the words just wouldn't come out. She had me start again, and again I stuttered. She raised her voice and said again. Again, I stuttered and she told me to go sit down. The class laughed at me and I will never forget that day and I wet myself right there in class.

The students all sat quietly, listening deeply to the story, then they hugged her, and the first student who shared her story said, "You were so young just like me to be made to feel so bad". Then one of the girls asked if she could read her story. She shared:

Everyone always refers to my cerebral palsy, what I can do and what I can't do! But my cp is not me, and here I have found no one mentions my cp and I do what everyone else does. I am me and it is ok. I think of my cp as a backpack and I want to put it down. Her voice quivered and the girls hugged her saying we never even thought about your cp. One said, "I thought you just needed extra time to walk to class and I enjoyed walking with you and having time to talk about stuff".

Each evening the girls met with their counselor, and they wrote stories in their journals that they could share with one another, if they chose to do so, or keep their story private. The sense of trust and compassion the students expressed for one another was remarkable. In their self-reports of their experiences in the summer program, storytelling was listed as a high point in their evaluation of the mindfulness practices. The students said they were grateful to share their experiences of pain and humiliation with one another, and then let them go. The deep listening they demonstrated for one another helped them to heal, as well as to form a strong supportive community. Each counselor worked with 15 girls and the groups were called a "family", and storytelling made their families a safe haven for the students [24].

22. Discussion

The emotional intensities of gifted students affect not only their learning, but also the way they live and see the world [3]. The Theory of Positive Disintegration with its five levels and five overexcitabilities, representing an abundance of physical, sensual, creative, intellectual, and emotional energy, help to provide an understanding of the inner world of gifted students and the need to address their emotional needs.

Silverman (2017) [3] described how advanced thought processes and complex emotions are held in a delicate balance in gifted students. The emotional needs of the gifted, including idealism, self-doubt, perceptiveness, excruciating sensitivity, moral imperatives, desperate need of understanding, acceptance, and love, all impinge on them simultaneously. As a result, it is essential that educators and parents find ways to help the gifted

deal with their emotional needs, and research has shown that mindfulness practices of deep listening, gratitude, and storytelling yield positive results in meeting their emotional needs. The three mindfulness practices of deep listening, gratitude, and storytelling can be integrated into discussions and activities with individuals and groups for positive results in self-awareness and understanding of self, which are essential to the full development of gifted children and youth.

23. Conclusions

The emotional needs of gifted students can be addressed by using mindfulness practices, including deep listening, gratitude, and storytelling. The research of Allen (2020) [15] on the effectiveness of deep listening, Ackerman (2020) [21] on positive outcomes of the use of gratitude, and Breen (2015) [35] on how storytelling impacts our identify indicate the positive impact that mindfulness practices have on gifted students by building a sense of identity and helping them to manage their emotions through reactivity, regulation, and reappraisal. Davidson and Goleman (2017) [11] also reported that using mindfulness practices actually changes the brain.

Mindfulness practices can assist gifted students who may be at Level III in the Dabrowski Theory of Positive Disintegration in establishing their hierarchy of values and encourage them to move on to Level IV of Dabrowski and positive integration of their values.

There is growing interest in the use of mindfulness practices to address the emotional needs of gifted students, evidenced by increases in the number of mindfulness presentations at educational conferences and the number of mindfulness publications. These increases demonstrate the recognition that gifted students need assistance in meeting the challenge of their emotional needs.

Students who experience mindfulness practices become strong advocates for mindfulness, as demonstrated by the 5th grade students of Musumeci at Reach Academy in Oakland, California, who published their book *Masters of Mindfulness: How to be your own superhero in times of stress* chronicling their positive experiences with mindfulness. The foreword to their book was provided by Jon Kabat-Zinn, an international leader in mindfulness as part of his life work.

We are living in a time in which there is daily stress and constant accessibility to what seems like an endless flow of news. This nonstop stream of information can be daunting to sensitive gifted students, who need to learn how to withstand the stresses of daily life, and mindfulness practices can become the "emotional armor" they need to successfully cope. Linda Silverman (2017) [3] described the movement through the levels of Dabrowski as a personal journey into higher realms of existence, a journey that enriches the self and the world.

Dabrowski (1972) [7] said that the growth and evolution of civilization and culture create more complex problems, which can only be handled by people with correspondingly advanced levels of psychic complexity, and that gifted people characterized by greater intensity and complexity can use their talents to make this world a better place.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Piechowski, M. A theoretical and empirical approach to the study of development. *Genet. Psychol. Monogr.* **1975**, *92*, 231–297. [PubMed]
2. Silverman, L. Personality development: The pursuit of excellence. *J. Educ. Gift.* **1983**, *6*, 5–19.

3. Silverman, L. Emotional Development of Gifted Children: A Theory of Positive Disintegration. 2017. Available online: https://enolsuperdotacion.com/emotional-development-of-gifted-children-linda-silverman/ (accessed on 21 August 2021).
4. Dabrowski, K. *Positive Disintegration*; Little & Brown: Boston, MA, USA, 1964.
5. Piechowski, M.; Wells, C. Reexamining Overexcitability: A Framework for Understanding Intense Experience. In *Handbook for Counselors Serving Students with Gifts & Talents*; Routledge: Abingdon-on-Thames, Oxfordshire, UK, 2021.
6. Piechowski, M. Developmental Potential. In *New Voices in Counseling the Gifted*; Colangelo, N., Zaffrann, T., Eds.; Kendall Hunt: Dubuque, IA, USA, 1979; pp. 25–27.
7. Dabrowski, K. *Psychoneurosis Is Not an Illness*; Gryf Publications: London, UK, 1972.
8. Sisk, D.; Torrance, P. *Spiritual Intelligence: Developing Higher Consciousness*; Creative, Ed.; Foundation Press: Buffalo, NY, USA, 2001.
9. Nelson, K. Dabrowski's Theory of positive disintegration. *Adv. Dev.* **2000**, *1*, 1–14.
10. Sisk, D.; Kane, M. *Planting Seeds of Mindfulness*; Royal Fireworks Press: Markham, NY, USA, 2018.
11. Davidson, R.; Goleman, D. Emotional Intelligence in Gifted Students. 2017. Available online: https://www.researchgate.net/publication/316925232 (accessed on 21 August 2021).
12. Scharmer, C.O. *Theory U: Learning from the Future as It Emerges*; Berrett-Koehler Publishers: Oakland, CA, USA, 2009.
13. Doell. The Empowerment Diary. 2003. Available online: https://www.psychologytoday.com/us/blog/the-emowerment-diary/201708/deep-listening-in-personal-relationships (accessed on 21 August 2021).
14. Plett, H. How to Truly Hear from the Heart. 2017. Available online: https://upliftconnect.com/the.powe.of.deep.listening (accessed on 8 June 2020).
15. Allen, R. The Power of Deep Listening. 2020. Available online: https://www.rogerkallen.com/products/listening-skills-online-course/ (accessed on 21 August 2021).
16. Trimboli, O. Deep Listening: Impact Beyond Words. 2018. Available online: https://leadersotransformation.com/podcast/business/oscar-trimboli-deep-listening (accessed on 9 June 2020).
17. Fox, G.; Kaplan, J.; Damasio, H.; Damasio, A. Neural correlates of gratitude. *Front. Psychol.* **2015**, *6*, 408. [CrossRef]
18. Emmons, R.; Why Gratitude Is Good. Greater Good. 2010. Available online: https://greatergood.Berkeley.Edu/article/item/why_gratitude_is_good (accessed on 21 August 2021).
19. Emmons, R.; Sterns, R. Gratitude as a psychotherapeutic intervention. *J. Clin. Psychol.* **2013**, *69*, 846–855. [CrossRef] [PubMed]
20. Emmons, R. A twenty-one-day program in creating emotional propensity. In *Gratitude Works!* Jossey-Bass: San Francisco, CA, USA, 2013.
21. Ackerman, C. What Is Gratitude and Why Is It So Important? *Positive Psychology Tools*. 2020. Available online: https://positivepsychology.com/gratitude-appreciation/ (accessed on 21 August 2021).
22. Wong, J.; Brown, J. How Gratitude Changes You and Your Brain. 2019. Available online: https://greatergood.berkeley.edu/article/item/how_gratitude_changes_you_and_your_brain (accessed on 21 August 2021).
23. Bono, G. The Mindful Emotion Management Framework: How Mindfulness Helps Employees Manage Emotions through Reactivity, Regulation and Reappraisal. 2020. Available online: https://www.researchgate.net/publication/342549029_The_Mindful_Emotion_Management_Framework_How_Mindfulness_Helps_Employees_Manage_Emotions_through_Reactivity_Regulation_and_Reappraisal (accessed on 21 August 2021).
24. Sisk, D. *Texas Governor's School Final Report*; Lamar University: Beaumont, TX, USA, 2021.
25. McAdams, D. Narrative Identity. In *Handbook of Identity Theory and Research*; Schwartz, S.J., Luyckx, K., Vignoles, V., Eds.; Springer Science & Business Media: Berlin/Heidelberg, Germany, 2011; pp. 99–115.
26. Gross, M. The "me" behind the mask: Intellectually gifted students and the search for identity. *Roeper Rev.* **2011**, *20*, 167–174. [CrossRef]
27. Djikic, M.; Oatley, K.; Zoeterman, S.; Peterson, J. On being moved by Art: How reading fiction transforms the self. *Creat. Res. J.* **2009**, *21*, 24–29. [CrossRef]
28. Appel, M.; Maleckar, B. The influence of para text on narrative persuasion: Fact, fiction or fake. *Hum. Commun. Res.* **2012**, *38*, 459–484. [CrossRef]
29. Green, M.; Kaufman, G.; Block, T. Understanding media enjoyment: The role of transportation in a narrative. *Commun. Theory* **2015**, *14*, 311–327. [CrossRef]
30. Price, M. *Techniques to Merge Storytelling and Mindfulness*; Thrive Global: New York, NY, USA, 2019.
31. Mello, M. Building bridges: How storytelling influences teacher and student relationships. In *Proceedings and Storytelling in the American Conference*; Rrooks University Press: St. Catherine, ON, Canada, 2001.
32. Kuby, M. Crossing the divide storytelling as a bridge to student teacher connection. In *Acceleration and Extending Literacy for Diverse Students Edited by Dorothy Sisk*; Roman and Littlefield: New York, NY, USA, 2015.
33. Smeda, N.; Dakich, E.; Sharda, N. The effectiveness of digital storytelling in the classrooms: A comprehensive study. *Smart Learn. Environ.* **2014**, *1*, 1–21. [CrossRef]
34. Grossman, L.; Alvarez, A. *Master of Mindfulness: How to Be Your Own Superhero in Times of Stress*; New Harbinger Publications: Oakland, CA, USA, 2016.
35. Breen, A. How story telling Impacts our identity. In *The Guardian*; University of Guleph: Guelph, ON, Canada, 2015.

education sciences

MDPI

Concept Paper

Enrichment and Gifted Education Pedagogy to Develop Talents, Gifts, and Creative Productivity

Sally M. Reis *, Sara Jane Renzulli and Joseph S. Renzulli

Department of Educational Psychology, Neag School of Education, University of Connecticut, Storrs, CT 06269, USA; sara.renzulli@uconn.edu (S.J.R.); joseph.renzulli@uconn.edu (J.S.R.)
* Correspondence: Sally.reis@uconn.edu

Abstract: Providing challenging and engaging learning opportunities is one way to motivate students to learn. In this article, we discuss the contributions of the gifted education field to the development of enrichment pedagogy and identify several different types of these engaging instructional strategies, including interest-based learning pedagogy, differentiation and curriculum compacting, project-based learning, open-ended choice, and the application of creative productivity to students learning. We identify this specialized pedagogy and give examples of how these exciting pedagogical strategies can be implemented in classrooms and by enrichment specialists and school counselors, both for academically talented and for all students. We conclude with a brief overview of research that demonstrates longitudinal benefits for students who are exposed to this type of teaching, suggesting positive outcomes.

Keywords: interdisciplinary teaching; enrichment pedagogy; differentiation; curriculum compacting; schoolwide enrichment model-reading; SEM-R

Citation: Reis, S.M.; Renzulli, S.J.; Renzulli, J.S. Enrichment and Gifted Education Pedagogy to Develop Talents, Gifts, and Creative Productivity. *Educ. Sci.* **2021**, *11*, 615. https://doi.org/10.3390/educsci11100615

Academic Editors: Dorothy Sisk and James Albright

Received: 2 September 2021
Accepted: 29 September 2021
Published: 8 October 2021

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

1. Introduction

Many different enrichment theories have been proposed, developed, and some have been studied in the field of gifted education and enrichment during the last few decades. Our own theoretical work on the development of the Schoolwide Enrichment Model (SEM) [1–3] and its broad implementation across the globe, is testimony to the fact that gifted education has served a true laboratory for the enrichment innovations that have subsequently become mainstays of talent development opportunities [4]. This movement has been fueled in part by frustrations over the types of teaching that has been in the past and is currently being asked of teachers in many classrooms across the world. Too often we have heard numerous testimonials from creative teachers about administrative insistence on scripted lessons, the need to teach the same lesson on the same day in the same format to every student in a grade level across the district, and diminished opportunities to teach creatively, accompanied by a loss of creative opportunities for talent development and enrichment.

In this article, we discuss various forms of enrichment pedagogy, including strategies for increasing student effort, enjoyment, and performance, and for integrating a range of advanced-level learning experiences and thinking skills into all curricular areas. Enrichment pedagogy enable students to experience advanced-level learning, critical and creative thinking and problem solving, and the motivation to pursue rigorous and rewarding work. Although an in-depth discussion of specific enrichment models is beyond the scope of this article, a comprehensive overview of systems and models in gifted education is available in a volume of that name [5].

Enrichment and enrichment pedagogy theories relating to gifted education generally fall into two broad categories. The first is enrichment experiences constructed around the interests and talents of children, such as those we recommend in the SEM, and the second, theories in which enrichment is selected by teachers or curricular opportunities that are

selected for their appropriate content and curriculum for enrichment. Enrichment theories usually are interest-based; integrate advanced content, processes, and products; include broad interdisciplinary themes; foster effective independent and autonomous learning; provide compacted, individualized and differentiated curriculum and instruction; develop investigative creative problem solving abilities and creativity; and integrate the tools of the practicing professionals in the development of products.

As early as 1985, we advocated the use of and extension of some types of enrichment pedagogy for the talent development of all students. The seeds of this idea were cultivated in Renzulli's Enrichment Triad Model [6] with three types of enrichment, which serve as the pedagogical core of our SEM approach [1–3]. This model is often used as a theme for magnet schools, or as a whole school enrichment approach for schools that use the model for all students. It is also implemented as a program for gifted and academically talented students and has even been suggested as a social and emotional and counseling intervention [7]. The knowledge gained and research conducted on this approach over four decades demonstrates that the SEM is widely implemented as an enrichment program used with academically gifted and talented students and a magnet theme school for all students using talent development experiences [8]. The SEM provides enriched learning experiences and higher learning standards for all children through three goals; developing talents in all children, providing a broad range of advanced-level enrichment experiences for all students, and follow-up advanced learning for children based on interests and strong motivation to pursue a topic of special interest. The enrichment pedagogy included in our SEM pedagogy has resulted in increased engagement, higher achievement in multiple forms (both in standardized achievement tests and more important, in creative productivity) and the use of enjoyable and challenging learning experiences constructed around students' interests, learning styles, and product styles [8].

2. Enrichment Pedagogy

We define pedagogy as methods used by teachers to instruct and teach children and enrichment pedagogy as the teaching methods that respond to students' academic strengths and interests. Enrichment pedagogy refers to enriched, strength based instructional approaches that teachers use to engage learners. For over four decades, we have advocated the use of a systematic strength-based, talent-focused pedagogy based on acquired knowledge of students' academic strengths, learning preferences, interests, and talents. In our Schoolwide Enrichment Model, we specify the need to both identify and develop students' talents, strengths, and interests to provide opportunities for enrichment and talent development. In fact, our focus has been on what we call the concept of ORE, that is providing Resources, and Encouragement in areas of student interest, that will contribute to the development of their future areas of expertise, talents, or interests. These opportunities should be provided both within and outside of the curriculum to develop students' advanced abilities and interests.

Enrichment pedagogy is embedded within the Enrichment Triad Model [6], the pedagogical core of the SEM. The Triad includes two categories of general enrichment (Types I and II), which we recommend for all students, and a third category (Type III), a more advanced type of enrichment that is appropriate for students, with academic talents, as well as advanced abilities and interests and task commitment. These three types of enrichment are introduced briefly here for context and application of enrichment pedagogy. Type I Enrichment consists of general exploratory experiences that expose young people to new interests and potential areas of follow-up. Type II Enrichment consists of training activities in the following six categories: Cognitive Thinking Skills, Character Development Skills, Learning How-To-Learn Skills, Using Advanced Research and Reference Skills, Written, Oral, and Communication Skills, and Meta-Cognitive Technology Skills. Type III Enrichment includes individual and small group investigations of real problems; and it is with this type of enrichment pedagogy that we have seen the most innovative and creative examples of talent development.

We define some enrichment pedagogy strategies briefly in Table 1 below and in the sections that follow, illustrate how these types of pedagogies can be applied in both classrooms and enrichment programs.

Table 1. Enrichment Pedagogy Strategies.

Enrichment Pedagogy Strategy	Description
Strength-based Learning Opportunities	Using knowledge of students' academic strengths, learning preferences, interests, and talents to systematically create learning opportunities focusing on talent development opportunities to develop their talents, gifts, interests, and strengths
Critical/Creative Thinking and Problem Solving	Providing opportunities to use critical and creative thinking and problem solving (ability to interpret information critically and make a judgement, and using open-ended thinking resulting in multiple ideas and solutions)
Identification and Development of Interests (such as using Interest Development Centers)	Purposeful methods used to identify and develop student interests in class, such as using interest assessment instruments and interest development centers in the classroom.
Independent and Small Group Projects, Studies, and Explorations (Opportunities for Creative Productivity)	Enable the development of creative-productive gifted behaviors that enable students to work on problems and areas of study that have personal relevance to them. Work on these studies can often be used for solving problems and making a difference in society, either by individual or groups of students.
Open-ended and Choice Assignments and Other Choice Enrichment	Provide open-ended and choice in assignments, including homework and class assignments. Additionally, offering choices for enrichment learning, such as in enrichment clusters selected by students, in which the production of a product or service occurs.
Differentiated Instruction (Curriculum Compacting) Targeted to Student Needs	Make instructional and curricular modifications and differentiated instruction to ensure that instruction and content are more challenging and advanced, as needed.
Integrating Depth and Complexity	Infuse the curriculum with depth and promoting in students a desire for complexities beyond the requirements of the standard curriculum to stimulate student inquiry or questioning and/or student responses
Embracing Affective Differences and Support for Social Emotional Needs and Development	Use pedagogy that addresses the multifaceted characteristics of diverse groups of students, also focusing on their social and emotional needs, and ways of supporting their social and affective growth through academic engagement and strength-based pedagogy

In the sections below, we describe some of the ways that teachers can integrate some or a combination of the gifted education pedagogy strategies suggested in Table I into teaching and instructional strategies that work. Examples include strategies that can be implemented either in one content area, such as reading, as well as in multiple content areas and across grade levels.

3. Curriculum Compacting

To maximize instructional time, enrichment pedagogy also incorporates rigor into the differentiated and compacted curriculum to eliminate work that students have already mastered. Compacting is one differentiation strategy used to document which work within content areas has been compacted and alternative work that has been substituted. Compacting can include content acceleration for students who can cover regular curriculum material faster, as well as accelerated content necessary for an advanced project or additional depth or complexity in content. In this way, compacting is compatible with acceleration best-practices and models [9]. Curriculum Compacting integrates several of the pedagogy strategies outlined in Table 1. For example, it is a strategy focusing on students' curricular strengths and interests, and also focuses on increasing depth and complexity. It enables students to pursue these interests and encourages involvement and completion of Type III enrichment studies. In addition, it exposes students to advanced thinking and problem-solving skills and strategies, as well as ways of embracing greater challenge. When teachers compact curriculum, they also provide affective support for more advanced

work and help to reduce the likelihood of underachievement through the substitution of more engaging work leading to social and emotional support for advanced students.

Curriculum compacting is one of the most well-researched and practiced methods of differentiation [10]. It is traditionally offered and provided to all eligible above average students. Compacting enables classroom teachers to modify the regular curriculum by eliminating portions of previously mastered content when students demonstrate content strengths in a particular area (s). Research on compacting has demonstrated that academically talented students can have up to 50–75% of their regular curriculum eliminated or streamlined to avoid repetition of previously mastered work while guaranteeing mastery and simultaneously substituting more appropriately challenging activities [11,12]. Research shows a huge range of reading achievement and fluency across both heterogeneous, as well as homogeneous classrooms [13]. Firmender and colleagues found wide ranges in reading comprehension across five diverse schools (including a gifted magnet school), with a range of nine grade levels for Grade 3 students and over eleven grades levels for Grade 5 students. A similar wide range of oral reading fluency scores was found across each of the five elementary schools, as students scored from below the 10th percentile to above the 90th percentile. These results demonstrate the wide range of reading achievement in diverse populations of students, including gifted students, and the need for teachers to differentiate and compact reading content and instruction to enable all students to make continuous progress in reading. Compacting enables teachers to document the content areas that have been compacted and substitute them with alternative work that is more interesting, challenging, and engaging. In a certain sense, compacting allows students to "buy time" that can then be devoted to talent development activities, such as advanced projects or independent or small group Type III investigations.

4. Integrating Depth and Content into Student Learning

Integrating depth and complexity into student learning enables students to experience complexity of content, enabling them to understand, appreciate, and think critically about the content matter of what they are reading [14]. A focus on depth and complexity with content leads to higher engagement for academically talented and high potential learners. Specifically, for gifted students, the emphasis on depth should enable students to acquire a deep understanding of the content in a particular field. An emphasis on complexity should enable students to gain insights into connections across disciplines. Kaplan found that deep understanding occurs when students can investigate content and she has provided icons that enable deeper discussions to occur about details, patterns, rules, trends, unanswered questions, ethics and big ideas [14]. She has found that more complex understanding of disciplines is gained when students can investigate how fields have changed over time, the different perspectives that are held and also, how disciplines connect with each other. Kaplan also developed icons to serve as learning tools/prompts to accompany these more challenging discussions for teachers to use.

5. Interest Centers

Another method for integrating enrichment pedagogy into a classroom is by assembling a variety of enrichment choices into an interest center that can be used spark the curiosity of students within or across disciplines. Teachers can organize the materials using a space in a classroom, such as a bulletin board or table in such a manner as to invite students to peruse the resources and begin to pursue interdisciplinary or content-specific enrichment. These centers can include many high interest resources including fiction, nonfiction, picture books, websites and virtual tours to entice students into an historical, artistic, and investigative journeys about topics of interest. Interest Centers are recommended as an interdisciplinary enrichment experience in the SEM, where content can be delivered through Interest Centers can include exciting and innovative Type I experiences such as video clips of interesting expert speakers, exposure to internet sites, as well as a variety of books at varying levels of difficulty and disciplines. Students can pursue interests, find

interdisciplinary connections, and then decide to begin engaging Type III studies. An Interest Center about biology, for example, can include various books about biology (either non-fiction and fiction); magazines, journals, some that can be cut up by students; a model of the human skeleton; an old stethoscope; additional charts, posters, and diagrams of body organs; a measuring tape, timer; X-rays of bones; writing and art supplies; stamp pads, glue, chalk; poster board, and construction paper; as well as a computer with internet access; a model of human skin. These types of interest center enable students to explore their interests by reading about a subject, holding and touching objects relating to biology, viewing films, reading books, and even listening to blogs or TED talks about this topic.

6. Independent and Small Group Projects: Type III Studies

Type III Enrichment is the most advanced level in the Enrichment Triad Model. Types I and II Enrichment, as well as curriculum compacting, can and should be provided on a regular basis to students, but the ability to revolve into Type III Enrichment depends on an individual's interests, motivation, and desire to pursue advanced level study. Type III Enrichment can be defined as investigative activities and artistic productions in which the learner assumes the role of a first-hand inquirer thinking, feeling, and doing like a practicing professional, with involvement pursued at as advanced or professional level as possible given the student's level of development and age. The most important feature of the model is the "flow" or connection among the experiences. Each type of enrichment is viewed as a component part of a holistic process that blends present or newly developed interests (Type I) and advanced level thinking and research skills (Type II) with application situations based on the modus operandi of the first-hand inquirer (Type III). For example, students with interests and passions in the arts can pursue Type III's in school, spending hours drawing, painting, animating, and illustrating.

In a Type III experience, individual or small groups of students can also conduct research, pursue intense interests, and create original products to address personally relevant real problems, which do not have preexisting or unique solutions. These projects are usually intended to cause change or to make new contributions in the relevant field (s), and are of interest to a real audience [6]. Type III projects include examples of students transforming interests into investigative activities. The benefits of participating in Type III enrichment include reversing underachievement [15,16]. These researchers all described how students who completed Type III projects believed that the projects supported their career decision-making through interest exploration and clarification.

Type III enrichment can be pursued when students who become interested in learning more about a self-selected area and become willing to commit the time necessary for advanced content acquisition and process training. This is the period in which they assume the role of a first-hand inquirer, supported by a teacher or adult mentor who understands the goal of enrichment pedagogy. The goals of Type III enrichment include the following:

- opportunities for applying interests, knowledge, creative ideas and task commitment to a self-selected problem or area of study;
- advanced level understanding of the knowledge (content) and methodology (process) that are used within particular disciplines, artistic areas of expression and interdisciplinary studies;
- authentic products that are primarily directed toward bringing about a desired impact upon a specified audience;
- self-directed learning skills in the areas of planning, organization, resource utilization, time management, decision making and self-evaluation, and,
- development of task commitment, self-confidence, and feelings of creative accomplishment.

Type III products are always based on students' interests. A book written by a fifth grade student named Gretchen provides one example of a Type III study. Gretchen had two passionate interests as a fifth grader: the literature of Louisa May Alcott and cooking. Gretchen had read all of Louisa May Alcott's books and identified, in each book,

any specific food mentioned. She researched the recipes of the time that would have been used to make the food (such as buckwheat cakes), field-tested each recipe (including making substitutions for ingredients no longer available), and created an original cookbook. Gretchen spent a year and a half working on a cookbook that combined vignettes of scenes from *Little Women* and *Little Men* with many authentic 19th century recipes for making the foods described in the novels. *The Louisa May Alcott Cookbook* was accepted and became the first book contracted by Little Brown with a child author. In Gretchen's Type III, both the process she used and the final product involved high levels of creative engagement and clear evidence of creative work. Using this advanced enrichment pedagogy also enables teachers to address students' social and emotional needs, and to support their social and affective growth through this advanced academic engagement and strength-based pursuit of interests. Type III studies that engage students often offer the opportunity for teachers to get to know students well, helping them deal with the challenges associated with advanced content and also ensuring that they understand how to cope with rigor, which, in turns leads to less of a chance that these students will underachieve in the future, as suggested by research conducted by Baum and colleagues [15].

7. Enrichment Clusters

Enrichment clusters, a component of the Schoolwide Enrichment Model, are non-graded, often multi-age groups of students who share common interests and who are grouped together during specially designated time blocks to work with an adult who shares their interests and who has some degree of advanced knowledge and expertise in the area [17]. This type of enrichment pedagogy can be provided to the entire school population, as all students benefit from the interests they are able to develop and pursue in clusters. In many schools, enrichment clusters provide an introduction to enrichment pedagogy that then can be transferred into other regular classroom teaching experiences [18]. A series of clusters can be planned and implemented for all students in a school, for example, in both fall and the spring semester. Students complete an interest inventory to assess their interests, and an enrichment coordinator tallies all of the major families of interests (or uses technology to do so automatically). Teachers and parents who want to facilitate clusters also complete an interest questionnaire to help them decide which interest areas to offer as clusters. Parents and other school personnel such as counselors can also participate in planning and coordinating enrichment clusters, thereby enabling these important groups to be a part of providing strength-based enrichment opportunities [19].

SEM schools offer enrichment clusters in the areas of high student interest as well as talent development opportunities, such as the arts, drama, history, creative writing, drawing, music, science, inventions, archeology, and other areas. Training is provided to the facilitators who agree to offer the clusters, and a brochure is developed and sent to all parents and students with descriptions of enrichment clusters. Students select their top three choices for the clusters and scheduling is completed to place all children into their first, or in some cases, second choice. All teachers (including music, art, physical education, etc.) are involved in facilitating the clusters; and their involvement in any particular cluster is based on the same type of interest assessment that is used for students in selecting clusters of choice. Students also have choice in products or services that are completed in enrichment clusters, guided and facilitated by teachers or adult volunteers with advanced knowledge of the area. Some of the introductory products that are completed lead to more advanced level Type III projects.

Titles of enrichment clusters can be exciting but also give important information about the advanced content introduced in the cluster. For example, titles such as *Lights, Camera Action: Techniques of Video Production; Dear Mr. Shakespeare: Play Writing for Young Authors* point out specific skills in the arts. Titles can also define the type of work that might be completed in a cluster. Examples are: *The Desktop Publishing Company; The Local History Research Team; and The Creative Furniture Design Guild*. In every cluster, students have a choice of completing a product or some kind of service.

Reis, Gentry and Maxfield [18] investigated the impact of providing enrichment clusters in two urban elementary schools, finding positive effects on differentiated teaching practices. After classroom teachers facilitated clusters, they introduced more challenging content, as well as more authentic methodologies, advanced thinking, and problem-solving strategies in their regular classroom teaching, suggesting that the use of enrichment pedagogy in clusters subsequently transfers to classroom teaching. Renzulli and Gelbar [7] also suggest that school counselors also have opportunities to serve as advocates and leaders for students identified as twice exceptional including by organizing enrichment opportunities to enable them to participante in strength-based learning and to work with other students with whom they may not regularly interact.

8. The Schoolwide Enrichment Model in Reading (SEM-R)

The SEM-R [20] is an enrichment approach to differentiation in reading based upon the constructivist theories of Renzulli [6] and Renzulli and Reis [1–3] and integrating the theories of Kaplan's [14] depth and complexity approach to gifted education content and pedagogy. The SEM-R provides a broad range of structured enrichment experiences for all students and follow-up advanced learning for those with high levels of achievement and interest. In the SEM-R, teachers strive to build interdisciplinary understandings about literature, both fiction and non-fiction, and enable important connections to emerge across content areas. This enriched, interest-based reading approach exposes students to the interdisciplinary nature of literature, as well as to books both within and outside of their areas of interest. A focus of SEM-R is matching students with self-selected reading books that are slightly above their current reading levels and to ensure that their books are both challenging and interesting to them.

The goals of the SEM-R approach are to encourage children to enjoy reading by giving them access to the choice of high-interest, self-selected books that they can read for periods of time both at school and home; to develop independence and self-regulation in reading through the selection of these books as well as the opportunity to have individualized reading instruction; and, finally, to enable all students to improve in reading fluency and comprehension. Based on almost a decade of research, the SEM-R has been effective at enabling teachers to implement the use of enrichment pedagogy to increase achievement in reading and encourage talented readers to read more enjoyable and challenging material for longer periods of time. Results of randomized studies suggest it is especially effective for diverse groups of talented students [21–24].

9. Conclusions

As noted earlier, we believe that gifted education has served a true laboratory for the development of enrichment pedagogy and innovative teaching strategies. When teachers are trained in how to deliver and apply enrichment pedagogy to students' learning, they can use more creative teaching pedagogy that has benefits for all students. For example, in one research study, the majority of classroom teachers who facilitated enrichment clusters integrated advanced content, teaching specific investigative methodologies, use of advanced vocabulary and authentic methods, such as developing surveys and using instruments for scientific projects, as well as the use of creative thinking and problem-solving strategies in their classrooms [8].

Enrichment experiences constructed around the interests and talents of children, such as those recommended in this article, can lead students to identify their interests and pursue them in secondary school and college, leading to the selection of majors and careers in these areas of interest. Using the Enrichment Triad Model as an intervention with twice exceptional students, for example, has shown positive outcomes about academic achievement and identification of strengths [15]. Longitudinal research on the use of this enrichment approach has also demonstrated that students who completed Type III projects, both in and out of school, maintained their interests and had corresponding career aspirations both in college and graduate school [25–27]. Research on the use of the Triad

Model in college has also been conducted, with positive findings related to student creative productivity and engagement [27].

Researchers have also conducted longitudinal investigations on impact of project based work and Type III projects, suggesting that students who engage in Type III Enrichment have a positive relationship between their early interests and subsequent interests [27], postsecondary school plans [28], career choices [29,30], goal valuation [16], and self-regulation [27,30]. Baum and colleagues [15] reported that Type III enrichment was an effective approach to reverse underachievement. Brigandi et al. [16] also found that students who engaged in Type III Enrichment perceived their projects to be interesting and beneficial and believed they would contribute to their continued interest and perceptions of enjoyment in the future. More recently, Brigandi et al. [28] found that students who engaged in Type III enrichment benefitted from environmental supports, including exposure to challenging coursework and trusted relationships with project mentors and teachers and like-minded peers, which positively affected their ability to self-regulate their work and self-actualize their goals.

Teachers who use enrichment pedagogy offer their students interest-based opportunities to learn, the opportunity to experience advanced content, processes, and products, and exposure to new ideas and broad interdisciplinary themes. Teachers who use these strategies also foster effective independent and autonomous learning; provide compacted, individualized and differentiated curriculum and instruction, and contribute to the development of creative problem solving abilities and students' creativity productivity. We hope, in the future, more of these gifted education pedagogy strategies will be widely used by general education, as well as special education, teachers.

Author Contributions: All authors contributed to all sections of the manuscript. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Renzulli, J.S.; Reis, S.M. *The Schoolwide Enrichment Model: A Comprehensive Plan for Educational Excellence*; Creative Learning Press: Storrs, CT, USA, 1985.
2. Renzulli, J.S.; Reis, S.M. *The Schoolwide Enrichment Model: A How-To Guide for Educational Excellence*, 2nd ed.; Creative Learning Press: Storrs, CT, USA, 1997.
3. Renzulli, J.S.; Reis, S.M. *The Schoolwide Enrichment Model: A How-To Guide for Educational Excellence*, 3rd ed.; Prufrock Press: Waco, TX, USA, 2014.
4. Renzulli, J.S.; Reis, S.M. The Reform Movement and the Quiet Crisis in Gifted Education. *Gift. Child Q.* **1991**, *35*, 26–35. [CrossRef]
5. Renzulli, G.; Millen, M.; Eckert, L.; Vidergor, H. *Systems and Models for Developing Programs for the Gifted and Talented*; Prufrock: Waco, TX, USA, 2009.
6. Renzulli, J.S. The Enrichment Triad Model: A Guide for Developing Defensible Programs for the Gifted and Talented. *Gift. Child Q.* **1976**, *20*, 303–306. [CrossRef]
7. Renzulli, S.J.; Gelbar, N. Leadership Roles for School Counselors in Identifying and Supporting Twice-Exceptional (2E) Students. *Prof. Sch. Couns.* **2019**, *23*, 2156759X20940636. [CrossRef]
8. Reis, S.M.; Peters, P.M. Research on the Schoolwide Enrichment Model: Four decades of insights, innovation, and evolution. *Gift. Educ. Int.* **2021**, *37*, 109–141. [CrossRef]
9. Colangelo, N.; Assouline, S.G.; Gross, M.U.M. (Eds.) *A Nation Deceived: How Schools Hold Back America's Brightest Students*; The Connie Belin & Jacqueline N. Blank International Center for Gifted Education and Talent Development, The University of Iowa: Iowa City, IA, USA, 2004. Available online: https://files.eric.ed.gov/fulltext/ED535137.pdf (accessed on 7 August 2021).
10. Reis, S.M.; Renzulli, J.S.; Burns, D.E. *Curriculum Compacting: A Guide to Differentiating Curriculum and Instruction through Enrichment and Acceleration*, 2nd ed.; Prufrock Press: Waco, TX, USA, 2016.
11. Reis, S.M.; Purcell, J.H. An Analysis of Content Elimination and Strategies Used by Elementary Classroom Teachers in the Curriculum Compacting Process. *J. Educ. Gift.* **1993**, *16*, 147–170. [CrossRef]
12. Reis, S.M.; Westberg, K.L.; Kulikowich, J.M.; Purcell, J.H. Curriculum Compacting and Achievement Test Scores: What Does the Research Say? *Gift. Child Q.* **1998**, *42*, 123–129. [CrossRef]
13. Firmender, J.M.; Reis, S.M.; Sweeny, S.M. Reading Comprehension and Fluency Levels Ranges Across Diverse Classrooms: The need for differentiated reading instruction and content. *Gift. Child Q.* **2013**, *57*, 3–14. [CrossRef]

14. Kaplan, S.N. Depth and complexity for rural learners. In *Gifted Education in Rural Schools: Developing Place-Based Interventions*; Callahan, C.M., Azano, A., Eds.; Routledge: New York, NY, USA, 2020.
15. Baum, S.M.; Renzulli, J.S.; Hébert, T.P. Reversing underachievement: Creative productivity as a systematic intervention. *Gift. Child Q.* **1995**, *39*, 224–235. [CrossRef]
16. Brigandi, C.B.; Siegle, D.; Weiner, J.; Gubbins, E.J.; Little, C.A. Gifted Secondary School Students: The perceived relationship between enrichment and goal valuation. *J. Educ. Gift.* **2016**, *39*, 263–287. [CrossRef]
17. Renzulli, J.S.; Gentry, M.; Reis, S.M. *Enrichment Clusters: A Practical Plan for Real-World Student Driven Learning*, 2nd ed.; Prufrock Press: Waco, TX, USA, 2013.
18. Reis, S.M.; Gentry, M.; Maxfield, L.R. The Application of Enrichment Clusters to Teachers' Classroom Practices. *J. Educ. Gift.* **1998**, *21*, 310–334. [CrossRef]
19. Reis, S.M.; Renzulli, S.J. Parenting for strengths: Embracing the challenges of raising children identified as twice exceptional. *Gift. Educ. Int.* **2021**, *37*, 41–53. [CrossRef]
20. Reis, S.M.; Eckert, R.D.; Fogarty, E.A.; Little, C.A.; Housand, A.M.; Sweeny, S.M.; Housand, B.C.; Muller, L.M.; Sullivan, E.E. *Joyful Reading: Differentiation and Enrichment for Successful Literacy Learning*; Grades K-Jossey-Bass: San Francisco, CA, USA, 2009.
21. Reis, S.M.; Eckert, R.D.; McCoach, D.B.; Jacobs, J.K.; Coyne, M. Using Enrichment Reading Practices to Increase Reading Fluency, Comprehension, and Attitudes. *J. Educ. Res.* **2008**, *101*, 299–314. [CrossRef]
22. Reis, S.M.; McCoach, D.B.; Little, C.A.; Muller, L.M.; Kaniskan, R.B. The Effects of Differentiated Instruction and Enrichment Pedagogy on Reading Achievement in Five Elementary Schools. *Am. Educ. Res. J.* **2011**, *48*, 462–501. [CrossRef]
23. Reis, S.M.; McCoach, D.B.; Coyne, M.; Schreiber, F.J.; Eckert, R.D.; Gubbins, E.J. Using Planned Enrichment Strategies with Direct Instruction to Improve Reading Fluency, Comprehension, and Attitude toward Reading: An Evidence-Based Study. *Elem. Sch. J.* **2007**, *108*, 3–23. [CrossRef]
24. Reis, S.M.; Housand, A. The impact of gifted education pedagogy and enriched reading practices on reading achievement for urban students in bilingual and English-speaking classes. *J. Urban Educ.* **2009**, *6*, 72–86.
25. Renzulli, J.S.; De Wet, C.F. Developing creative productivity in young people through the pursuit if ideal acts of learning. In *Nurturing Creativity in the Classroom*; Beghetto, R.A., Kaufman, J.C., Eds.; Cambridge University Press: Cambridge, MA, USA, 2010; pp. 24–72.
26. Westberg, K.L. Young Creative Producers: Twenty-Five Years Later. *Gift. Educ. Int.* **2010**, *26*, 261–270. [CrossRef]
27. Brandon, L.; Reis, S.; McGuire, C. Perceptions of talented university students related to opportunities and autonomy for creative productivity. *Gift. Educ. Int.* **2021**, *37*, 217–240. [CrossRef]
28. Brigandi, C.; Weiner, J.; Siegle, D.; Gubbins, E.J.; Little, C.A. Environmental Perceptions of Gifted Secondary School Students Engaged in an Evidence-Based Enrichment Practice. *Gift. Child Q.* **2018**, *62*, 289–305. [CrossRef]
29. Delcourt, M.A.B. Creative Productivity Among Secondary School Students: Combining Energy, Interest, and Imagination. *Gift. Child Q.* **1993**, *37*, 23–31. [CrossRef]
30. Hébert, T.P. Lessons Learned from My Students: The Impact of SEM Teaching and Learning on Affective Development. *Gift. Educ. Int.* **2010**, *26*, 271–284. [CrossRef]

education sciences

MDPI

Article

Exploring Educator Leadership Practices in Gifted Education to Facilitate Online Learning Experiences for (Re)Engaging Gifted Students

Michelle Ronksley-Pavia [1,2,*] and Michelle M. Neumann [1,2]

[1] School of Education and Professional Studies, Griffith University, Southport 4222, Australia; m.neumann@griffith.edu.au
[2] Griffith Institute for Educational Research (GIER), Griffith University, Southport 4222, Australia
* Correspondence: m.ronksley-pavia@griffith.edu.au

Abstract: This article draws on case study findings of educator leadership in an online gifted education school, which emerged from a larger study exploring online engagement practices used by specialist gifted education teachers to (re)engage gifted learners. The gifted education teachers and their team leader were interviewed about leadership practices for supporting online engagement of gifted primary and high school students. Semi-structured interview data were transcribed, coded, and thematically analysed. Findings related to teachers voicing the importance of a passionate and committed team leader who understood giftedness and who acted as a facilitator in both the continuous development of teaching team skills and facilitation of online engagement practices for gifted students. Findings indicated five key themes related to transformational leadership practices: (1) understanding requirements of online practices for teaching gifted students; (2) supporting digital and online innovation and creativity for engaging gifted students; (3) leveraging the unique skills of the specialist teaching team for teaching gifted students in the online space; (4) actively facilitating and encouraging (re)engagement of gifted students through online participation; (5) follow-through to meet the needs and concerns of the specialist teaching team, gifted students, and their parents and/or carers. These leadership practices are of importance for actively supporting gifted education teachers and their students in online learning environments in order to achieve positive student engagement and learning outcomes commensurate with student potential.

Keywords: educator leadership in gifted education; gifted and talented education; gifted student engagement; online learning environment; leadership in gifted education

Citation: Ronksley-Pavia, M.; Neumann, M.M. Exploring Educator Leadership Practices in Gifted Education to Facilitate Online Learning Experiences for (Re)Engaging Gifted Students. *Educ. Sci.* **2022**, *12*, 99. https://doi.org/10.3390/educsci12020099

Academic Editors: Dorothy Sisk and Jacobus G. Maree

Received: 30 November 2021
Accepted: 28 January 2022
Published: 31 January 2022

1. Introduction

Significant research currently exists on leadership development for gifted students; similarly, there is a plethora of research on the characteristics of effective teachers of gifted students (e.g., teachers as passionate subject experts, strong achievement orientation, intuitive thinkers). However, there is little empirical research that specifically explores the leadership practices and characteristics that enable and empower teachers to support the learning and engagement of gifted students. This article draws on findings of transformational educator leadership in online gifted education, which emerged from a larger study exploring online engagement practices used by gifted education teachers to (re)engage gifted learners.

There are two common leadership styles—distributional and transformational—that are useful in understanding what 'quality' education leadership may look like. Distributed leadership purports that there is not just one traditional leader but multiple leaders who work collaboratively in reciprocal ways to achieve positive outcomes and change [1–3]. In other words, in educational contexts, every teacher is a leader. Studies have demonstrated that a distributed leadership approach enhances teacher morale and confidence where

sharing and collegiality occur [4,5]. However, opportunities for distributed leadership may be limited by systemic issues, such as entrenched rigid and formal hierarchies [6] (e.g., transactional leadership). Building on this view of distributional leadership, transformational leadership approaches rely on the team leader to exhibit characteristics such as trustworthiness, creativity, good communication and organisation skills [7,8], formal shared team goals [9], and support for innovative education practices [10]. It is essential that transformational leaders actively motivate, engage, and inspire their fellow teachers to achieve shared goals. It is important to note that distributed and transformational leadership are not separate concepts, nor are they opposed or exclusive, meaning that teachers and educators are also leaders in their fields, encompassing the qualities of both distributed and transformational leadership. Transformational educational leadership is a model that gifted education leaders can apply to lead by example in online learning environments, to foster student achievement and a model that values the creation of strong community relationships [9,11]. Transformational leadership includes the following key elements:

- Fostering divergent skills and abilities of self and team;
- Encouraging active participation by all in decision-making;
- Placing a strong emphasis on authenticity, communication, and morals;
- Encouraging student voice and choice through actively pursuing opportunities for student autonomy.

It is well recognised in the literature that transformational education leaders work towards improving the overall performance of their school, as well as student engagement and learning outcomes [9]. In turn, fostering the development of group goals and high performance of team members in working collaboratively towards common goals [9], along with school leadership qualities and skills, all have key roles in improving the learning experiences and outcomes of all students [12]. It is the actions of teachers who interact directly with students that play critical roles in implementing change and improving achievement of students [13]. The realisation that complementary leadership qualities of both teachers and team leaders are keys to success [14] is paramount, particularly in online learning environments where teachers often work in isolation, even though they may be part of an established network and teaching team.

A 2014 study by Kanjanaphoomin and Laksana [14] examined teacher leadership in gifted education in Thailand and found that school leadership, teacher leadership, and principles of learning were all key factors in successful leadership for gifted education teachers. From this study, teacher collaboration and collegial relationships signified solid leadership attributes for gifted education teachers. Leadership for gifted education teachers is an urgent topic of exploration, with DaVia Rubenstein [15] stating that for the field of gifted education to 'remain relevant, we need to foster deliberate leadership practices that contribute to a shared purpose' [15] (p. 131); transformational leadership may be one significant response to this call. Importantly, DaVia Rubenstein [15] emphasised that gifted education leaders can become more effective teachers by focusing on a shared purpose that underscores increased expectations and engagement for gifted students. In turn, encouraging educational leaders in gifted education to collaborate and learn with and from each other, as well as from leaders in other disciplines.

Furthermore, a qualitative study from Mexico [10], which explored the role of teachers as leaders in teaching gifted students, found that these teachers were highly innovative in their pedagogical practices and their use of technology. Importantly, the study reported that the educational institution's organisational culture actively promoted teaching leadership of gifted students through elements such as openness to new ideas, fostering of teacher initiatives, and autonomy in teaching practices. Moreover, these teacher leaders in gifted education were shown to motivate and engage their students using technology (e.g., specific software and university-level multimedia resources), empathy towards their students, and tailoring activities to specific student groups. By applying pedagogical practices specifically focusing on tailoring learning to their gifted students (e.g., through personalised

differentiation), the teacher leaders facilitated student engagement, and from the students' own perspectives, connected this to a model of 'continuous innovation . . . considering emotional empathy with students . . . [which] the students themselves [stated] generated greater confidence in their teachers' [10] (p. 32). Some inhibitors to educational leadership in gifted education were also identified and included teacher bias and systemic issues around sensitivities to potential loss of control and limited support for teacher initiative. Significantly, this study found a strong connection between teacher leadership and student outcomes, evinced by students graduating from the institute at a very early age and continuing to university [10].

Transformation educational leadership is used to frame the present study because it allows a deeper exploration of what can be leveraged from the perspectives of current practicing teachers working in the field of gifted education. This enables a scaffold for increasing understanding of the roles, relationships, and characteristics of quality gifted teacher leaders. This potentially will provide new ways to better resource, nurture, and support gifted education leadership that is transformational, especially in the new millennium and worldwide situations (e.g., COVID-19), where gifted students are increasingly learning in online environments.

Conceptualising Giftedness

In Australia, gifted students are frequently defined according to Gagné's Differentiating Model of Giftedness and Talent (DMGT) [16], embracing conceptualisations around differences between giftedness (as potential) and talent (evidenced by achievement). Gagné's DMGT designates the development of giftedness into talent, highlighting specific catalysis needed for talent development and defining gifted students as those whose potential is in the top 10% of age peers [16]. Gagné's model highlights one catalyst relevant to this study: 'Learning Environments', where teachers make explicit and deliberate efforts to engage gifted learners by means of differentiated curricula—in the present study, the online learning environment.

Some commonly listed characteristics of gifted students include their ability to learn rapidly, having varied interests, being easily disengaged (particularly in areas that are viewed as mundane/repetitive), perfectionistic, passionate, and curious. However, as Ronksley-Pavia and Neumann [17] suggest, disengagement (and underachievement) for gifted students can impact their actualisation of talent potential due to several factors, including limited opportunities to engage in areas of their interest, lack of voice and choice in learning, and lack of opportunities to work with like-minded peers. Gifted students need to be appropriately challenged and extended with opportunities to learn that are associated with their potential (and abilities) which facilitate behavioural, affective, social, and cognitive engagement [17,18].

2. The Study

This article describes findings of the leadership practices and qualities of gifted education leaders working in an online learning environment, which delivered courses specifically designed for gifted students. These findings emerged from a larger qualitative exploratory Australian case study, which explored the pedagogical practices of an online education context serving gifted students in Kindergarten to Year 10. The guiding research question about leadership practices was 'What are key educational leadership practices for supporting gifted and talented students in online learning environments?'

The Context

The educational context explored for this case study was an online gifted education 'school' (pseudonym of Lake Online School) in an Australian state jurisdiction, which supplemented classroom learning in government schools across the state for gifted students enrolled by their classroom teachers in the online school program from Kindergarten (5 to 6 years of age) to Year 10 (15 to 16 years of age).

Lake Online School (LOS) was an initiative of the state education directorate specifically aimed at providing free online courses for gifted learners in government schools. The primary purpose of LOS was to support regular classroom teachers across the state to meet the needs of gifted and talented students in their schools. The courses were delivered online by experienced educators of gifted students (Lake Online Delivery Teachers (LODTs) using a popular learning management system (LMS). The teachers were responsible for developing, designing, and delivering challenging learning experiences for their enrolled gifted students in their specialist subject areas. The teachers were supported by a team leader (LOS manager) who was responsible for the overall operations of LOS and for meeting the primary goal of supporting gifted students enrolled in government schools in the state education jurisdiction.

The online courses extended learning from the Australian Curriculum in terms of extension in one curriculum area, and/or integrated units of work across multiple curriculum areas, thus providing significant extension opportunities, as well as opportunities to cover breadth and depth in curriculum content. Specific core skills developed in the courses were literacy, numeracy, and ICT, as well as critical and creative thinking and problem-solving. The learning tasks included opportunities to work individually and with like-minded peers on projects designed to challenge thinking, extend understanding, and further develop students' skills and interests. Specific courses were dedicated to both curriculum connections and student interest and included Mathematical Methods, Creative Writing, Life Sciences, Visual Arts, Programming and Coding, Philosophy, Robotics, and enterprising and entreprenerial projects connected with local community action and student passion projects.

The way the courses were delivered varied across schools, but predominantly, classroom teachers were to provide time during the school day (minimum of one hour per week) for their enrolled students to engage with their LOS courses. Each school that had gifted students enrolled in LOS provided a school-based support teacher who worked in person with the gifted students during school hours to support them in goal setting, choosing learning activities, and ensuring effective online participation. Individual schools were responsible for resourcing the necessary technology, computer equipment, and internet access required for students to engage in the online learning environment. Gifted students were also able to access their courses outside school if they had internet access and the necessary equipment (e.g., laptop) to be able to engage in the course.

Each course was taught by a specific LODT and had an individual dedicated site in the LMS where students engaged with their course content and related learning activities. LODTs used the tools available via the online LMS (e.g., discussion forums, virtual classrooms) and email to communicate with students enrolled in their courses, to facilitate student learning, provide feedback on their learning, and give guidance when needed. Individual student engagement was monitored by each LODT, the LOS Manager, as well as classroom teachers, school-based support person, and, in some cases, parents/carers.

3. Materials and Methods

3.1. Participants

Participants in this study (Table 1) consisted of one gifted education team leader (LOS manager) and three specialist teachers (LODTs) ($N = 4$) working via the School LMS, which complemented state school classroom learning experiences for gifted students across the government school network. Participants were all female, between 40 and 49 years of age. All participants were qualified and registered teachers, with specialist qualifications in gifted education (see Table 1). The team leader was responsible for managing 14 LODTs across 26 different course offerings available through LOS.

Table 1. Overview of participants.

Pseudonym (Gender)	Role	Gifted Education Qualifications and Experience
Heather (Female)	Team leader (LOS * Manager)—responsible for 14 LODTs **	Certificate in Gifted Education, ongoing gifted education PD ^; Online educator; 10 years teaching gifted students.
Aria (Female)	LODT **	Certificate in Gifted Education, ongoing gifted education PD ^; Online educator; 11 years teaching gifted students.
Nubia (Female)	LODT **	Certificate in Gifted Education, ongoing gifted education PD ^; Extensive online teaching experience; science and mathematics specialist teacher; 6 years teaching gifted students.
Evelyn (Female)	LODT **	Master's Degree in Gifted Education, Certificate in Gifted Education, ongoing gifted education PD ^; Extensive online teaching experience; over 20 years teaching gifted students.

* Lake Online School. ** Lake Online Delivery Teacher. ^ Professional Development.

3.2. Methodology and Data Collection

Permission was granted from the University Ethics committee (GU ref No: 2020/949), the LOS education jurisdiction, and the LOS team leader for the conduct of this study. Each teacher provided informed consent to participate in the study and completed some demographic questions (e.g., age and highest education qualification).

LODTs and the team leader each participated in an individual, one-hour, online semi-structured interview at a time convenient to them. In contrast to more rigid structured interview methods, semi-structured interviews have the benefit of being flexible, allowing extension of discussion and providing greater opportunity for participants to express their perceptions, opinions, and experiences [19,20].

To guide the interviews in the current study, a set of focus questions was posed (Table 2). Each semi-structured interview was conducted online by a trained researcher and the audio was recorded using best practice in interviewing approaches [21]. Where appropriate, each interviewer probed further to follow up any responses allowing opportunities for extension of participant ideas and clarification of responses where needed. All audio data were transcribed for coding and thematic analysis. Through the process of collating, drafting potential themes, and reviewing [22], relevant themes were identified.

Table 2. Overview of interview questions and alignment with the research questions.

Example Interview Questions	Purpose
Could you please tell me a little about your role and responsibilities (as a team leader/teacher)?	Ascertain specific details of the role and leadership-specific practices
What key capabilities make a good team leader for teachers who are teaching gifted students online?	Explore key capabilities, with specific examples, of leaders for teaching gifted students in an online environment
How do you manage interactions/programs/courses?	Inquire about specific examples of leadership relationships; LOS; courses
What kind of accountability do you have for the courses that you teach?	Delve further into elements of leadership in LOS
Could you talk about key capabilities that teachers who are teaching gifted students online need to have?	Elucidate specifics about leadership capabilities of online educators of gifted
What do you think makes a good team leader for you as a teacher?	Explore characteristics and capabilities of what teachers considered a 'good' team leader

3.3. Data Analysis

A generalised, inductive approach was taken for the analysis of the qualitative transcript data. The data analysis procedure comprised transcript grouping for stakeholder groups to create sub-group datasets of (1) team leader (Heather, LOS manager) and (2) online gifted education teachers (LODTs—Aria, Nubia, and Evelyn). Next, the sub-group datasets were individually examined by each member of the research team. This examination involved an initial reading of each transcript, discussion, and noting of initial themes (i.e., eclectic coding). Each member of the research team then proceeded through a re-reading process culminating in in vivo coding directly from participants' own words. Encoding evolved to produce eclectic codes as initial responses to the guiding research question. Lastly, descriptive codes summarising and identifying the primary topic of specifically quoted excerpts emerged to respond to the research question.

4. Findings

Five key themes emerged from the data in relation to transformational educational leadership in online gifted education practices for supporting (re)engagement for gifted students. The LOS manager and LODTs expressed the importance of a team leader who understood the requirements of online practices for teaching gifted students; supported digital and online innovation and creativity; was able to leverage the unique skills of the specialist teaching team; could actively facilitate and encourage (re)engagement of gifted students through online participation; and, follow through to meet the needs and concerns of the specialist teaching team, gifted students, and their parents/carers. These elements were repeatedly acknowledged by the teacher participants as essential to any online gifted education program. In this section, we will briefly present each key theme and a sample participant quote to exemplify the respective theme.

4.1. Theme 1: Understanding Requirements of Online Practices for Teaching Gifted Students

This theme related to leadership practices that demonstrated an understanding of the uniqueness of both gifted students and the online learning environment where the students were being taught. Evelyn, a teacher with over 20 years of experience in teaching gifted students explained:

> *"We need a manager that understands what we do and why we do it . . . I need to be allowed to run really. I'm happy to share and help, and I'm fairly confident in what I do, because I've been doing it for a long time . . . I need support in terms of the system, that our manager doesn't let the system lock us down."*

4.2. Theme 2: Supporting Digital and Online Innovation and Creativity for Engaging Gifted Students

The importance of a team leader who supported innovation and creativity was a recurrent theme across the participants' experiences, principally openness to using and finding new technology and resources for engaging gifted students in the online space. This was evident in the openness to new ideas which Heather (as LOS manager) held for her teaching team:

> *"As a leader, you have to ask [when a teacher approaches with an idea]. You can't just say, no . . . 'Why have you got that idea?' Then, often, you'll get a really surprising answer [from the LODT]. You think, well, actually, yes, that's a worthwhile thing. So, we have a lot of negotiation in the team about how some people work this way, some people work another way. If you've got a proposal, come to me. We'll try and work it out. 'Make me understand why you think it's a good idea'."*

4.3. Theme 3: Leveraging the Unique Skills of the Specialist Teaching Team for Teaching Gifted Students

There was considerable agreement from participants that a key capability of a team leader for their context was around online teaching practices, developing different thinking

routines for gifted students, and being competent in recognising the unique expertise of the LODTs in their specialist teaching areas. Heather (LOS manager) exemplified this when she stated:

> *"Sometimes . . . we're looking within the team [for new ideas] . . . there's usually an answer there . . . There's a Team's chat, now. They're in there every day. Someone's [an LODT has] got a new problem. Then, other people [LODTs] are saying, 'Well, have you tried this?' 'Have you looked at that website?' . . . They're sharing. I don't go in there a lot, because I don't want to be checking on them. So, I just let the conversation run."*

4.4. Theme 4: Actively Facilitating and Encouraging (Re)Engagement of Gifted Students through Online Participation

Heather and the LODTs all emphasised the importance of student engagement, which emerged predominantly in the form of active participation in online class learning activities. Heather described how this was evident for courses offered by LOS as follows:

> *"We'd say healthy participation in the course is an hour to two hours a week . . . So, [students are] putting up [their] ideas and responding to someone else's idea. So, that would be healthy participation in that course. That you're on every week. You've been on for about an hour. You've left a comment yourself and commented against something a few other people have said. Some of the courses give reward badges for those things . . . We also ask students to review other students' work or comment on their work, like a peer review. Some courses show students the learning material. Then, they have to go offline and do some art or make something in a STEM challenge or code their robot to do something. So, their good online engagement might be sending in a video or uploading a photo of something they've done with some notes."*

4.5. Theme 5: Follow-through to Meet the Needs and Concerns of the Specialist Teaching Team, Gifted Students, and their Parents/Carers

Heather as team leader was often responsible for following up on student engagement (e.g., active participation), but individual teachers also took responsibility for this role. Engagement was also important to students in the online courses; for example, one student had contacted Heather to voice her concern that, although her classroom teacher had enrolled her in LOS, she had not been provided with time to engage with the course. This presented Heather with an opportunity to follow up and advocate with the classroom teacher on behalf of the gifted student. Other examples of monitoring engagement arose from the assigned school support teacher and parents/carers, as Heather explained:

> *"Sometimes I've been to schools where things are not going right. The parents got angry. But the parent didn't even know their child was in this course [at LOS]. That really came to light last year when kids went to learning from home [due to COVID]. Because the one thing they did have straight away, on day one, for being at home, was these [LOS] courses. The parents said, 'What's that? How often do you do that?' My staff were getting emails from parents saying, 'I've just discovered Jack's got coding. I can see he hasn't done very much'. So, it was really powerful. The parent needs to know, as well."*

5. Discussion

To date, little research has examined the leadership practices and characteristics that enable and empower teachers to support the learning and engagement of gifted students [14]. Even less is known about educator leadership practices for supporting teachers of gifted and talented students in an online learning environment. Therefore, the present study explored important key educator leadership practices needed for positively supporting and engaging gifted and talented students in online learning environments. Five key educator leadership practices for supporting specialist teachers and students in gifted online learning environments were identified. These practices offer promise for creating collaborative and collegial workplaces for teachers while resulting in engaging

online learning experiences for gifted students, therefore both teachers and students feel part of a learning community.

It is essential that a team leader of specialist educators of gifted students understands who gifted learners are, knows how they learn, and understands the evolving nature of online learning environments. It was critical that the team leader had the capability to carefully listen to and respond positively and seamlessly to the teaching team. Attentive listening practices are reported to help build the foundation of collegial relationships and the exchange of ideas between gifted teachers [23]. This was because the online gifted teachers needed to feel confident that any decisions that were being made by management were central to meeting the core needs of themselves as teachers and their gifted students.

Having a leader who is open to new ideas, application of innovative online learning tools, and creative resources allowed teachers to have an autonomous and flexible approach to their program planning and online course design and development. Trusting and offering members of the teaching team voice and agency to take academic risks and try out new online applications, interactive activities, and project-based learning activities was strongly emphasised by the teachers in the current study. Such an approach has also been highlighted in previous research (e.g., [10]).

The teachers in the gifted education team were selected for their roles because of their knowledge and passion about both their content area expertise and supporting the unique needs of gifted students. These passions were closely associated with specialist training and qualifications that all of the teachers brought to their roles. It was clear that the team leader strategically harnessed these unique skills so that there was diversity in teaching approaches, which, in turn facilitated greater sharing and collaboration of online teaching ideas and resources. The team leader placed a strong emphasis on capitalising on the strengths of each team member as active contributors to the gifted online education program. Such collaboration and collective leadership approaches have also been described by Harris and Muijs [1].

On occassion, the teachers experienced some barriers to student participation in the online activities due to reasons such as limited time provided to them in their school classroom and minimal support and guidance some students received from their regular classroom teachers. A team leader who is flexible and proactive in readily facilitating teachers and schools in supporting their gifted students was shown to be essential for student engagement, for example, by providing flexibility to fit in with a student's regular class timetable while ensuring time was allocated for students to participate in their online gifted courses; and following up when learning and engagement problems arose. Such an approach can also help and motivate gifted students to engage and participate more regularly in their online learning activities.

Indeed, within any educational system, complex networks, relationships, curriculum priorities, and various views from key stakeholders (e.g., parents/carers, teachers, and students) arise. Unsurprisingly, issues and concerns occur daily, and it is important for a team leader in gifted education to act as an empathetic problem solver who cares about people and is also able to build and maintain positive relationships. This finding concurs with other researchers [9,11,14]. Other elements of transformational leadership also emerged from the findings. This was evinced by how Heather as team leader was able to facilitate innovative and creative practices for her teachers working in the online context, where the teachers reported improved overall performance for LOS and educational outcomes for their gifted students. According to Anderson [9], transformational leadership in education stresses the importance of teacher learning, establishing new ways of thinking, and tackling established norms in educational contexts to transform school culture.

6. Limitations

The primary limitation of this case study relates to the small participant number which does not allow generalisations of the findings to be made. Nevertheless, the qualitative responses from the gifted educators provide an in-depth understanding of the phenomenon

under exploration, in this case, educational leadership for specialist teachers of gifted students in an online context. A further limitation is the study's focus on the leadership of specialist online gifted education teachers practicing in an online school and delivering courses solely online. This suggests that the findings may not be applicable in other educational contexts, such as face-to-face gifted education settings. Nonetheless, the findings may still have important implications for informing gifted education leadership practices in other contexts, especially within the ongoing COVID-19 landscape that is impacting greatly on educators around the world with school lockdowns and increasing use of online learning activities.

Additionally, prior research studies on the topic of educational leadership for gifted education teachers are limited. This presents a possible limitation in terms of the need to develop a novel research typology for this phenomenon in terms of connecting to descriptions of differing leadership behaviours and qualities. However, this study presents useful findings for moving the field forward and for highlighting that further research is required.

7. Recommendations and Implications for Theory, Practice, Future Research, and Policy

Recommendations from the current study relate quite specifically to how educational leaders (in online contexts in particular), need to work as a collaborative team, moving in the same direction to benefit their gifted students—a team in which collegiality and respect for teachers' expert knowledge are both recognised and valued. It is imperative that team leaders foster strong collegial connections with their teachers, between teachers, and between teachers and their gifted students. This is particularly important in online contexts, where teachers (and their gifted students) may be working in relative isolation.

The foundations to facilitating online learning experiences for engaging gifted students were found to be based on trust, provision of space and time for innovation and creativity, leveraging teacher skill, passion, and expertise, and following through on issues when and as they arose through open and responsive leadership practices. Developing and providing ongoing opportunities for building trust, as well as sharing skills, resources, and specific innovative practices, are strongly recommended in developing collaborative teaching teams for online gifted education environments.

As there is little empirical research that specifically explores the leadership practices and characteristics that enable and empower teachers to support the learning and engagement of gifted students, further research is needed. Effective engagement and learning depend greatly on how content is delivered, and how teachers are actually engaging and working with gifted students. This is difficult to explore in asynchronous learning contexts. However, differing methodologies could potentially be employed to explore what may be happening in classrooms where a number of students could conceivably be working synchronously in online gifted programs. For example, observing the delivery of online gifted classes in action over a longer time period (e.g., a school semester) and examining impacts on student learning outcomes and how teacher leadership practices may have impacted on these outcomes. This may assist in demonstrating how gifted students engage with, and respond to, the content, and how it is being taught, and furthermore, how specific leadership practices of teachers can have positive effects on gifted students actualising their potential. Future research that explores teacher leadership (e.g., transactional leadership) and the specific content areas of online courses could provide deeper insights for teachers about ways to further enhance gifted student learning and engagement.

Implications for policy from this study, relate to the need of mainstream classroom teachers to receive increased support in delivering engaging content and learning activities for gifted students. In Australia, in particular, there are no mandated requirements for teachers to be trained in understanding or supporting the needs of gifted students and as a result gifted eductation is not seen as a priority. This study suggests that there is an immense (relatively) unmet need at the ground level, for engaging learning opportunities

on a daily basis for gifted students, and that at present, teachers are struggling to meet in regular face to face classrooms. Therefore, we would strongly recommend that all classroom teachers engage in continued professional development in the field of gifted education. Also that support gifted students and the practices of online schools, such as Lake Online School, be expanded to support urban, regional, rural, and remote gifted students to have access to quality gifted education every day. Furthermore, we would strongly recommend that Australian education jurisdictions make it a key priority to mandate teacher training (and preservice teacher education) in gifted education, to support the obvious learning needs of both classroom teachers and their gifted students.

8. Conclusions

The findings of this study extend previous research to better understand ways to enhance gifted education leadership practices in online gifted education contexts for supporting and engaging gifted learners. Professional learning opportunities should be given to leaders for developing practices that deepen practioner understanding of the requirements of leading a gifted online school. As this study demonstrated, leadership qualities that promote teacher innovation and creativity for engaging gifted students are essential. Harnessing the multiple unique skills and expertise of passionate gifted education teachers will strengthen the engagement of gifted students, especially those at risk of underachieving and disengaging from their learning. During the ongoing disruptive landscape of the global COVID-19 pandemic, educators in gifted online schools and programs are best placed to listen and act through sensitive and thoughtful ways to address potential concerns of stakeholders (e.g., teachers, students, parents/carers). Genuine multi-way communication is key to building and maintaining strong relationships. These research findings related to transformational approaches to gifted education leadership will assist in ensuring that educators of gifted students feel confident to overcome challenges that arise, and ultimately, provide positive engaging learning experiences for gifted students to reach their full potential.

Author Contributions: Conceptualization, M.R.-P. and M.M.N.; Formal analysis, M.R.-P. and M.M.N.; Funding acquisition, M.R.-P. and M.M.N.; Investigation, M.R.-P. and M.M.N.; Methodology, M.R.-P. and M.M.N.; Project administration, M.R.-P.; Writing—original draft, M.R.-P. and M.M.N.; Writing—review & editing, M.R.-P. and M.M.N. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by a Griffith University, Arts, Education and Law Group Research Development Grant (ERC2020).

Institutional Review Board Statement: The study was conducted in accordance with the Australian National Statement on Ethical Conduct in Human Research (2007), and approved by the Griffith University Human Research Ethics Review Committee (GU Ref No: 2020/949, 27 April 2021).

Informed Consent Statement: Informed consent was obtained from all participants involved in the study.

Data Availability Statement: No publicly available datasets were analysed or generated during this study. These data are not publicly available due to authors'/researchers' use of the datasets for further analysis and dissemination. A summary of data presented in this study may be made available on request from the corresponding author.

Acknowledgments: The authors would like to acknowledge the support provided by the School of Education and Professional Studies, Griffith University; the Griffith Institute for Educational Research (GIER); and, also acknowledge the research grant support provided by the Arts, Education and Law Group, Griffith University, Australia. The authors would also like to acknowledge the participants from LOS for their generous time in participating in this tudy.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data, in the writing of the manuscript, or in the decision to publish the results.

References

1. Harris, A.; Muijs, D. *Improving Schools through Teacher Leadership*; Open University Press: Maidenhead, UK, 2005.
2. McGhan, B. A fundamental education reform: Teacher-led schools. *Phi Delta Kap.* **2002**, *83*, 538–540. [CrossRef]
3. Spillane, J.; Halverson, R.; Diamond, J.B. *Towards a Theory of Leadership Practice: A Distributed Perspective*; Institute for Policy Research Working Article; Northwestern University: Evanston, IL, USA, 2001.
4. MacBeath, J. *Effective School Leadership: Responding to Change*; Paul Chapman: London, UK, 1998.
5. Mitchell, C.; Sackney, L. *Profound Improvement: Building Capacity for a Learning Community*; Swets & Zeitlinger: Lisse, The Netherlands, 2001.
6. Harris, A.; Lambert, L. *Building Leadership Capacity for School Improvement*; Open University Press: Buckingham, UK, 2003.
7. Burns, J.M. *Leadership*; Harper & Row: New York, NY, USA, 1978.
8. Northouse, P.G. *Leadership. Theory and Practice*; Sage Publications: Thousand Oaks, CA, USA, 2010.
9. Anderson, M. Transformational Leadership in Education: A Review of Existing Literature. *Internat. Soc. Sci. Rev.* **2017**, *93*, 4. Available online: http://digitalcommons.northgeorgia.edu/issr/vol93/iss1/4 (accessed on 11 October 2021).
10. Almazán Anaya, A.A.; Illoldi Rangel, P.; del Pilar Valdes Ramírez, M. Educational leadership in the teaching of gifted children [El liderazgo docente en la enseñanza de niños con Sobrecapacidad Intelectual]. *Rev. Investig. Educ. Esc. Grad. Educ.* **2014**, *4*, 25–34.
11. White, S.K. What Is Transformational Leadership? A Model for Motivating Innovation. CIO from IDG Communications. 2018. Available online: https://www.cio.com/article/3257184/what-is-transformational-leadership-a-model-for-motivating-innovation.html (accessed on 11 October 2021).
12. Wallace, M. Modeling distributed leadership and management effectiveness: Primary school senior management teams in England and Wales, School Effectiveness and School Improvement. *Sch. Eff. Sch. Improv.* **2002**, *13*, 163–186. [CrossRef]
13. Leithwood, K.; Jantzi, D. The effects of transformational leadership on organizational conditions and stu-dent engagement. *J. Educ. Adm.* **2000**, *38*, 112–129. [CrossRef]
14. Kanjanaphoomin, J.; Sangob, L. A Development of a Teacher Leadership Framework for Gifted Education in Thailand. *Scholar* **2014**, *6*, 93–103.
15. DaVia Rubenstein, L. Transformational leadership using TED talks. *Gift. Child Today* **2013**, *36*, 124–132. [CrossRef]
16. Gagné, F. *Differentiating Giftedness from Talent: The DMGT Perspective on Talent Development*; Routledge: New York, NY, USA, 2021.
17. Ronksley-Pavia, M.; Neumann, M.M. Conceptualising Gifted Student (Dis)Engagement through the Lens of Learner (Re)Engagement. *Ed. Sci.* **2020**, *10*, 274. [CrossRef]
18. Neumann, M.M.; Ronksley-Pavia, M. Leveraging digital technologies for (re)engaging gifted and talented students in the middle years. *Aust. J. Mid. Sch.* **2020**, *20*, 22–36.
19. Li, Y.; Liu, X. Integrations of iPad-based M-learning into a creative engineering module in a secondary school in England. *Turk. Online J. Educ.* **2017**, *16*, 43–57.
20. Newby, P. *Research Methods for Education*; Pearson Education Ltd.: Essex, UK, 2010.
21. Ulin, P.R.; Robinson, E.Y.; Tolley, E.E. *Qualitative Methods in Public Health: A Field Guide for Applied Research*; Jossey-Bass: San Francisco, CA, USA, 2005.
22. Braun, V.; Clarke, V. Using thematic analysis in psychology. *Qual. Res. Psych.* **2006**, *3*, 77–101. [CrossRef]
23. Little, J.W. The persistence of privacy: Autonomy and initiative in teachers' professional relations. *Teach. Coll. Rec.* **1990**, *91*, 55–56.

education sciences

MDPI

Article

Context Matters in Gifted Education

Bruce M. Shore

Department of Educational and Counselling Psychology, McGill University, 3700 McTavish, Montreal, QC H3A 1Y2, Canada; bruce.m.shore@mcgill.ca

Abstract: Bruce M. Shore's research contributions in gifted education have focused on three contexts that impact how giftedness is understood and the instructional environments that serve gifted learners' educational needs. This article describes these contributions and provides selected examples plus a more complete Supplemental Online bibliography. First, giftedness benefits from being conceptualized in terms of theories that address the development of expertise. Featured expert–gifted parallels include interconnectedness of knowledge, metacognitive processes, perspective taking, active learner roles, affinity for novelty and complexity, and task representation and planning. Illustrative research is described from preschool age through higher education, including connections to creativity research. Second, gifted education benefits when guided by social-constructivist theory of education and its expression in inquiry-based instruction. Examples include building upon learner interests, question asking, collaborative inquiry, and active learner roles. Desirable specific instructional practices are framed by the above theories and by being considered in the contexts of widely recommended and best practices with their research support. Third, gifted education, at all levels including higher education and teacher education, needs to be an integral part of the context of general education. Most specific gifted education practices also work in general education, including learning high-level skills within subject matter. Nineteen examples are cited about how gifted education contributes to the quality of general education.

Keywords: giftedness; context; theory; expertise; social constructivism; inquiry; evidence; instruction

Citation: Shore, B.M. Context Matters in Gifted Education. *Educ. Sci.* **2021**, *11*, 424. https://doi.org/10.3390/educsci11080424

Academic Editor: Dorothy Sisk

Received: 9 July 2021
Accepted: 9 August 2021
Published: 11 August 2021

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Contributors to this Special Issue of *Education Sciences* were invited to describe how our work contributed to the theme, New Perspectives on Cultivating Creativity, Giftedness, and Leadership. My short reply, the focus of this article, is "context matters". I intentionally used the word "matters" as both verb and noun. Context is important and these are but a few examples.

With invaluable contributions by my graduate students and other collaborators, my research on giftedness has contributed to three contexts in which giftedness is addressed: (a) theories that guide our understanding of the cognitive and social-motivational nature of giftedness and provide an aligned overall instructional framework, (b) evidence-based specific instructional practices, and (c) situating gifted education within general education.

Isolating these three interrelated contexts is artificial but valuable to better understanding each. The details below include examples of evidence we contributed (see the Supplementary Materials for this article for a complete bibliography) and selections from that of others. In addition to these three contexts about which I take the position of an observer, the perspective from which I and my coresearchers have made these observations is relevant. I work in a Western country that is nonetheless highly multicultural both internally with multiple Indigenous nations and also has an official bilingual (English-French) and multicultural policy. The university at which this work was conducted enrolls students from over 170 countries. The initial psychological lens through which I have observed educational theory and practice is social-constructivist (as described below), and the assumptions explicit in this approach sometimes challenge norms elsewhere. Key examples arise in the roles of students and instructors. The assertion for example, that learning is more effective in active-learning situations in which learners explain key ideas to each

other as part of their own learning, that learners should ask questions beyond clarification (a challenge to accepted authority in some situations), and that learners' interests should play a part in curriculum design, can conflict with other views. Another potentially culture-related assertion might be that gifted learners do not necessarily prefer to work alone. At the same time, international comparisons to which this article refers briefly, found that jurisdictions in countries (or parts of countries) as diverse as Finland, Canada, China, and Singapore have implemented social-constructivist pedagogical regimes to positive effect. To explore these particular applications is beyond the scope of this article, but indeed the research reported has emerged from within its own context. In the bibliography are several works that are especially sensitive to this reality (e.g., [1–4]). Indeed, context matters.

1. Theory Context Matters

Two theories are essential to contemporary understanding of giftedness and providing appropriate curricular experiences: (a) expertise and (b) social-constructivist instruction theory, including inquiry-based teaching and learning. Neither theory is specifically about giftedness.

1.1. Contributions to the Context of Theories about the Nature of Abilities

Since the 1980s, several scholars have promoted the idea that giftedness should be regarded as evolving expertise (e.g., [5–9]). The underlying idea is that the highest levels of cognitive and creative performance are achieved by experts in various fields of endeavor. Like expertise, giftedness embraces a complex set of evolving cognitive, social, and motivational skills and dispositions. These abilities and dispositions can, to an important degree, be learned at home [1], school, and beyond. Creativity falls within this general framework; for example, practicing with intentional variation rather than reproducible perfection aids creative performance, the ability to recover seamlessly from an error [10], and perhaps flexibly invoking new strategies when challenged rather than floundering unsystematically [11–14]. Six ways experts think differently from others, and gifted persons' performance resembles that of experts, to which we have provided evidence include the following (see [15] for a longer list).

1.1.1. Nature of Knowledge

Experts have more extensive specialized knowledge, they better connect different parts of this knowledge and accurately explain these connections [16,17], as in concept maps. Experts and able students link more concepts and can explain the connections. They see less-obvious interconnections and, like experts who better categorize problems into meaningful groups that make suitable solutions more accessible, more able learners also create hierarchical clusters of related ideas [18].

1.1.2. Metacognition

Experts use metacognition in problem solving. They think ahead, evaluate their progress, and change approach if needed. Metacognition is an important part of Self-Regulated Learning [19]. In the classic task of combining different-sized jars of water to make a new volume, several examples in a row need three different-sized jars, but then a problem can be solved with two or three, then several only with two. More capable learners switched to the two-jar solution when it was optional and made fewer errors when it was required [20]. Children with dual exceptionalities also more often use expert-like cognitive skills when given the chance [21,22].

1.1.3. Perspective Taking

Experts can easily take another person's perspective. Even preschoolers can more readily tell that another child's view of a toy barnyard would be different from their own [23]. The ability extends to taking on another person's role in a learning situation [24] and friendship sustainability in adolescence [25].

1.1.4. Interests and Roles

Experts find and invent problems for themselves and others, another link to creativity. Type III activities in Renzulli's Enrichment Triad Model [26] are an example; individuals or small groups investigate real problems in which they are interested; adults can promote these interests. Evidence of classroom inquiry is students and teachers taking on new roles. One study reported three months of in-class observation of two groups of upper-elementary students engaged in collaborative inquiry [27]. Of almost 50 observed roles, only asking questions was universally shared by teachers and learners. Other frequent student roles included responding to others' questions, being an information finder, connecting knowledge, planning investigations, critical thinking, and being a source of knowledge. Key in all forms of active learning, including higher education [28], is students engaging in the role of explainer to the teacher and especially to other learners [29].

1.1.5. Novelty and Complexity

Experts know that important problems rarely have simple solutions. Like creative people [30–32], they enjoy novel and complex situations, adding complexity, and redefining problems to align with their own perspectives [33]. Gifted students asked to improve a computer game they were playing sought more difficulty levels and greater complexity [34].

1.1.6. Task Representation and Solution Planning

Experts can represent a problem in more than one way [35]. Gifted learners can also see multiple ways to approach a task [12]. We also found this strategy flexibility on a perceptual task [13,14]—students used their verbal or spatial strengths; able high school mathematics students did, too [15]. Gifted learners spend relatively more time exploring problems before carrying out the solution on which other learners take longer [36]; experts also take longer pauses when they gather relevant information they need to work on a problem.

1.2. Contributions to the Context of Theories about Instruction

Our comparative portrayal of experts and gifted learners [15] also noted becoming quick and automatic on basic processes so they can focus on main topics, being goal driven, and separating good from irrelevant evidence. These are also central to doing inquiry, our next topic.

Social-constructivist, inquiry-driven instruction closely complements an expertise-based view of giftedness. Social constructivism refers to Vygotsky's two main ideas [37]: Learners construct their own meaning in social interaction with more knowledgeable peers and adults, especially through dialogue, such as learners explaining ideas to each other. Inquiry-based instruction is based on social-constructivism [29,38,39]; gifted learners thrive in inquiry [40]. Systems that implemented inquiry curricula rank high in international comparisons of achievement [3]. Through interests, inquiry engages motivational and cognitive properties of expertise. Like experts, gifted learners more often experience flow [41], being deeply in a zone of concentrated, extended attention in their favorite areas of activity [42].

Social constructivism connects cognitive and social-emotional variables. In addition to addressing cognitive or academic qualities of inquiry-based instruction and learning, we have contributed to updated understanding of three interrelated social-emotional variables that aid understanding high ability and the success of inquiry implementation:

1.2.1. No Universal Preference to Work Alone

Contrary to decades of misrepresentation [43] and largely ignoring the learning context [44], gifted learners do not always prefer to work alone. We surveyed 247 school-identified Grades 4 to 7 gifted learners about ideal learning situations and when and why they prefer to work alone [45]. Those who felt their contributions were valued by teachers and fellow students most strongly preferred to work with others. Our subsequent

survey [46] revealed other context variables, such as high- versus low-stakes tasks, who was grading the work, and how groups were formed. Gifted learners want input about with whom they work. They care that coworkers contribute a fair share of the effort and work, fully discuss the goals—even if it takes a lot of time, and not be "free riders" [47]. In extended interviews, we asked high-achieving and other students what they expected would actually occur when teachers tell them they would engage in group work. Both expected their teachers to be sitting at their desks. High performers expected to work harder in groups, a greater number of negative social experiences, and to work together rather than divide the task into parts [48].

1.2.2. Working with Friends Can Be Positive

In our three-month observation of inquiry in two classrooms, students who were friends functioned better over time than a group created for the task [27]. Friends collaborating works with a rule to leave out no student. Friendship groups of gifted learners better withstand events that might upset others, for example, friendly arguing, sticking to their positions during arguments [49], and competition based on task mastery—not winning and losing [50]. Group work virtually guarantees difficult social moments [51], but promoting active listening and turn-taking, for example, can help effective classroom collaborative inquiry [29].

1.2.3. Gifted Students' Friendships Are Somewhat Distinctive

Rather than having fewer friends or being socially isolated, gifted students seem to structure their friendships differently, perhaps because they can have intense and unusual interests [52]. Although they report fewer positive qualities in specific friendships [51], they appear to have different friends for different needs. High-quality gifted friendships were predicted by social-perspective coordination and simply having a close personal friend [25]. Less able students seem to expect support on many common dimensions from most of their friends. More able students support each friendship with a smaller number of pillars, perhaps only one, and simply need fewer friends to feel cared for and supported [53]. In inquiry, depending on the task, they might want to have a different friend working closely with them.

2. Practice Context Matters

Practice in gifted education needs to be aligned with the theoretical contexts for understanding the nature of giftedness and instruction. My work has contributed in two ways to the choices we make in designing and implementing teaching, learning, and evaluation: (a) identifying overall best practices in gifted education based on the quality of research evidence, and (b) supporting specific practices that arise from interest in inquiry-based instruction.

2.1. Identifying Best Practices

In *Recommended Practices in Gifted Education: A Critical Analysis* [54], we extracted 101 specific practices from 100 books on gifted education. We then sought research evidence for each practices and summarized what was known, defensible, and worthy of further study. We chose textbooks as the knowledge base because they were more likely to give teaching and curricular advice than scientific journal articles, and the Internet as a source of the latter was not yet highly developed. Unsurprisingly, there was a lot of research on IQ in identification; but research is not an election and, although IQ-test use was frequently recommended, the need to better align identification practices with emerging new theories was already evident. The state of research in support for many practices was weak and remained so over the next 15 years [55].

The next effort [40] used a Delphi approach by a panel of 14 experts in the field identified 29 specific practices that had varying degrees of research support. The resulting work was *Best Practices in Gifted Education: An Evidence-Based Guide*.

Especially in their focus on evaluating support for particular practices, and being targeted to practitioners, both contributions differ from the many yearbooks, handbooks, guides, and encyclopedias of giftedness and gifted education The latter gather known research on the widest range of giftedness topics or on a theme. Examples that include our contributions are *Creative Intelligence: Toward Theoretic Integration* [56], the *International Handbook on Giftedness* [57], *The Routledge International Companion to Gifted Education* [58], *Critical Issues and Practices in gifted Education: What the Research Says* (2nd ed.) [59], the *APA Handbook of Giftedness and Talent* [60], and *The SAGE Handbook of Gifted and Talented Education* [61].

2.2. Specific Pedagogical Practices

Here are four examples of evidence for practices arising from our theoretical foci.

2.2.1. Goal Setting

Expert behavior is goal driven; goal setting is important, even if goals change. Gifted learners in collaborative contexts want to discuss goals up-front ([46]. Morisano studied undergraduates in a university with extremely high entering grades [62]. She identified students whose grades slipped and engaged an experimental subgroup in a very brief exercise of writing down any personal goals. A control group wrote about neutral topics. The experimental group's grades rebounded and the recovery was sustained the following semester. We also explored the potential of this approach to help gifted underachievers [63]. Enabling engagement in goal setting helps students plan ahead about strategies to use in the task, and sharing responsibilities.

2.2.2. Group Work Guidelines

Group work benefits from several specific actions. Excluding no classmates, students should participate in deciding with whom they work [27,46]. The teacher should actively circulate, oversee and assist the process when it stumbles [48]. Whereas most students expect to do a part of the total task, high achieving learners anticipate working as a group—collaboratively rather than just cooperatively, on a considerable part of the task. The group work process should therefore schedule in opportunities for the work groups to discuss their goals, progress toward their goals, each others' contributions, and a fair distribution of effort and contributions to the final product. In a survey of parents and teachers, teachers were more favorable to group work than parents [64]. We wondered if parents were sensitive to the same concern about their children's exceptional performance being undervalued. The added value of group work needs to be discussed openly with students and their parents, not just about learning collaborative skills, but the deeper learning that occurs when students expand their repertoire of roles, for example, asking questions, explaining, and offering evidence for statements.

2.2.3. Knowledge Fairs and Integrity

A learning experience that can be done individually or in groups is knowledge fairs. We casually asked participants in a regional science fair where they got their project ideas and how they did them. Several students revealed that the ideas came from books or parents (understandably) but they did not actually do the work they were exhibiting. Did they cheat? We then systematically surveyed science fair participants [65]. Five of 24 students, all of whom were required to participate, openly admitted that they did not fully do the work they were presenting. We then did a second survey to ask why, and what was missing so that they could have presented their own honest work. The main reasons they gave were lack of time and support. Cheaters received more help from parents than teachers, and only one from another student. They would especially have liked more help coming up with and shaping the idea, and setting up the project. Cheaters and noncheaters both reported the three greatest obstacles to be pressure to do the project, disappointment along the way, and coming up with project ideas. All the projects were

undertaken individually. We extended the study to academic scientists, graduate students, and elementary and secondary school students who voluntarily or compulsorily entered a science fair [39]. Graduate students, scientists, and voluntary participants were interested in the topics and self-motivated. Others were mostly assigned their topics. Voluntary projects evolved over time, often becoming more complex. The greatest obstacles were lack of time, knowledge, and resources. The students who were required to participate did not prepare their projects with an authentic audience in mind (as proposed in Renzulli's Type III activities [26]). The obstacles resembled those reported by professional adults who have been caught cheating. For knowledge fairs to succeed, the following advice emerges: give students opportunities to develop interests (Renzulli's Type I activities are one way), extensively discuss goals at the beginning, explain the work in stages so students can assess their own progress, allow enough time to complete the work, encourage working in groups including a trusted friend, have students "ask another student first" and give each other feedback at each stage of the work, closely monitor progress not just at the end. All this advice overlaps with the requirements of inquiry.

2.3. Identification by Provision

In our summer gifted program, identification is by provision—offer the program and suitable students will come. A local school district asked us to operate a similar program for them for two years. They would identify students on IQ and related criteria. We obtained approvals to compare the students on aptitude, social, and achievement measures [66,67]. Only one differed statistically significantly: Our group was higher on the Torrance divergent figural subtest [68]. There were no significant differences on self concept (both high), IQ (both in the 120 s), or other measures. Although this study was of a summer, not regular, school, and there were other constraints, it mildly supported our preference to invest in programming first [69]. Most tests do not inform teachers about abilities in ways related to contemporary theories of learning and instruction and perhaps their use should be selective and inclusive—focused on giftedness rather than who is gifted.

3. General-Education Context Matters

Conceptually and politically, gifted education needs to be contextualized as an integral part of general education (including higher and teacher education), not as a separate discipline [70].

Situating Gifted Education within Regular Education

Because an approach works well in gifted education does not usually mean it is less relevant elsewhere. Decades of publications have shown the educational value for gifted learners of curricula that incorporate student interests, individual and small-group investigations, and other inquiry-based approaches. However, in international comparisons, these are in general curricula in the highest performing general school curricula [3]. Just five practices from the 101 in *Recommended Practices in Gifted Education* [54] might be uniquely applicable in gifted education: acceleration, some career education, program organization addressing certain socio-affective outcomes, ability grouping, and using high- and above-level curricular materials [71]. In addition, learning is enhanced in disciplinary context. For example, "thinking skills" in isolation do not transfer to new tasks as well as those learned in subject areas [72].

The theme of the Fourth World Conference on Gifted and Talented Children [4] was Education of the Gifted for the Benefit of All Children. In the Parallel Curriculum Model [73], the first foundation stone of excellent gifted programming is a strong general curriculum. A volume commissioned by UNESCO, specifically connecting gifted, regular, and special education, documented 19 examples of direct contributions from gifted education to the field at large [2], recategorized here in relation to the three main domains described in this article (see Table 1).

Table 1. Nineteen Ways Gifted Education Contributes to the Quality of General Education.

Area of Contribution	Contributions of Gifted to General Education
Theory (definitions of giftedness and instruction)	Highlighting the full range of children's performance and potential Building curriculum around explicit models Linking education and creativity Promoting the idea of talent development
Specific Practices (curriculum and instruction)	Embracing inquiry-based instruction Promoting high-level questioning Promoting knowledge fairs Promoting fine and performing arts in school Promoting second-language, global, future, and intercultural studies Expanding the range of career education College-for-kids opportunities Encouraging subject matter interest clubs Supporting types of acceleration
Relationship to General Education	Encouraging high-quality state schools Seeking talent across social barriers Focusing on opportunities for girls Supporting early school entry Awareness of curricular loss in level Keeping up the "class average"

Despite these examples of practices in gifted education that also enhance general education, plus the parallel applicability of contemporary theories about expertise development and social-constructivist pedagogy, the goal of uniting gifted and regular education remains rather aspirational. The two are not yet well synchronized [74], as also shown by the continuing struggles to serve gifted learners either in the classroom or in complementary services such as counseling or school psychology [75].

4. Conclusions

My contribution to the field has been to provide evidence that (a) giftedness and gifted education should be contextualized within theories of the development of the cognitive, social, and emotional characteristics of expertise, (b) social-constructivist and inquiry-based instructional theories should guide practice, (c) specific instructional practices can be especially applicable to gifted education but are not necessarily uniquely so, and (d) gifted education needs to be an integral part of general education to thrive.

These contributions are consistent with the overall direction of contemporary scholarly argument about giftedness and gifted education. In practice, the ubiquity of high IQ and achievement scores as criteria for receiving gifted education services—emphasizing acceleration and more advanced materials as the most defensible matches—emerges as a possible area of conflict. However, it is also possible to not toss the proverbial baby with the bathwater. Giftedness is not a singular phenomenon. If we conceptualize giftedness differently and in multiple ways, then we need multiple ways to identify gifted learners differently. This also has implications for what gifted education can be—with less emphasis on more knowledge more quickly and more emphasis on interests, asking important questions, and collaborative knowledge creation, in pedagogically, socially, and emotionally supportive ways.

I have a parallel research interest in successful teaching and learning in higher education. Gifted and higher education are both concerned with student engagement, high-level learning, creating knowledge, and intellectual and creative leadership. The populations of postsecondary students and students needing gifted education considerably overlap. Additional sources on this topic are provided in the Supplementary Online Material linked to this article.

Supplementary Materials: A full bibliography of the author's related publications is available at https://www.mdpi.com/article/10.3390/educsci11080424/s1.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Chichekian, T.; Savard, A.; Shore, B.M. The languages of inquiry: An English-French lexicon of inquiry terminology in education. *Learn. Landsc.* **2011**, *4*, 93–109. Available online: http://www.learninglandscapes.ca/images/documents/ll-no8/tchichekian.pdf (accessed on 7 July 2021). [CrossRef]
2. Clark, C.; Shore, B.M. *Educating Students with High Ability*, Revised ed.; UNESCO: Paris, France, 2004. Available online: http://unesdoc.unesco.org/images/0013/001383/138328e.pdf (accessed on 7 July 2021).
3. Irving, J.A.; Oppong, E.; Shore, B.M. Alignment of a high-ranked PISA mathematics curriculum and the *Parallel Curriculum* for gifted students: Is a high PISA mathematics ranking indicative of curricular suitability for gifted learners? *Gift. Talent. Int.* **2016**, *31*, 114–131. [CrossRef]
4. Shore, B.M.; Gagné, F.; Larivée, S.; Tali, R.H.; Tremblay, R.E. (Eds.) *Face to Face with Giftedness*; Trillium Press: Monroe, NY, USA, 1983.
5. Barab, S.A.; Plucker, J.A. Smart people or smart contexts? Cognition, ability, and talent development in an age of situated approaches to learning and thinking. *Educ. Psychol.* **2002**, *37*, 165–182. [CrossRef]
6. Shore, B.M. Cognition and giftedness: New research directions. *Gift. Child Q.* **1986**, *30*, 24–27. [CrossRef]
7. Shore, B.M.; Kanevsky, L.S. Thinking processes: Being and becoming gifted. In *International Handbook of Research and Development of Giftedness and Talent*; Heller, K.A., Mönks, F.J., Passow, A.H., Eds.; Pergamon: Oxford, UK, 1993; pp. 131–145.
8. Sternberg, R.J. *Beyond IQ: A Triarchic Theory of Human Intelligence*; Cambridge University Press: Cambridge, UK, 1985.
9. Sternberg, R.J. Abilities are forms of developing expertise. *Educ. Res.* **1998**, *27*, 11–20. [CrossRef]
10. Cohen, P. The embodied conductor: Concert pianists, diaper dancers, and the fine art of creative variability in performance. In *Inquiry in Education (Vol. II): Overcoming Barriers to Successful Implementation*; Shore, B.M., Aulls, M.W., Delcourt, M.A.B., Eds.; Routledge: New York, NY, USA, 2008; pp. 165–206.
11. Kaizer, C.; Shore, B.M. Strategy flexibility in more and less competent students on mathematical word problems. *Creat. Res. J.* **1995**, *8*, 113–118. [CrossRef]
12. Shore, B.M. Metacognition and flexibility: Qualitative differences in how the gifted think. In *Talents Unfolding: Cognition and Development*; Friedman, R.C., Shore, B.M., Eds.; American Psychological Association: Washington, DC, USA, 2000; pp. 167–187. [CrossRef]
13. Shore, B.M.; Carey, S.M. Verbal ability and spatial task. *Percept. Mot. Ski.* **1984**, *59*, 255–259. [CrossRef]
14. Shore, B.M.; Hymovitch, J.; Lajoie, S.P. Processing differences in the relation between ability and field-independence. *Psychol. Rep.* **1982**, *50*, 391–395. [CrossRef]
15. Coleman, E.; Shore, B.M. Problem-solving processes of high and average performers in physics. *J. Educ. Gift.* **1991**, *14*, 366–379. [CrossRef]
16. Austin, L.B.; Shore, B.M. Concept mapping of high and average achieving students, and experts. *Eur. J. High Abil.* **1993**, *4*, 180–195. [CrossRef]
17. Chichekian, T.; Shore, B.M. Concept maps provide a window onto preservice elementary teachers' knowledge in the teaching and learning of mathematics. *Can. J. Educ.* **2013**, *36*, 47–71. Available online: http://journals.sfu.ca/cje/index.php/cje-rce/article/view/1542/1598 (accessed on 7 July 2021).
18. Pelletier, S.; Shore, B.M. The gifted learner, the novice, and the expert: Sharpening emerging views of giftedness. In *Creative Intelligence: Toward Theoretic Integration*; Ambrose, D.C., Cohen, L., Tannenbaum, A.J., Eds.; Hampton Press: New York, NY, USA, 2003; pp. 237–281.
19. Oppong, E.; Shore, B.M.; Muis, K.R. Clarifying the connections among giftedness, metacognition, self-regulation, and self-regulated learning: Implications for theory and practice. *Gift. Child Q.* **2019**, *63*, 102–119. [CrossRef]
20. Shore, B.M.; Koller, M.B.; Dover, A.C. More from the water jars: Revisiting a cognitive task on which some gifted children's performance is exceeded. *Gift. Child Q.* **1994**, *38*, 179–183. [CrossRef]
21. Lynne Hannah, C.; Shore, B.M. Twice exceptional students' use of metacognitive skills on a comprehension-monitoring task. *Gift. Child Q.* **2008**, *52*, 3–18. [CrossRef]
22. Martini, R.; Shore, B.M. Pointing to parallels in ability-related differences in the use of metacognition in academic and psychomotor tasks. *Learn. Individ. Differ.* **2008**, *18*, 237–247. [CrossRef]

23. Tarshis, E.; Shore, B.M. Differences in perspective taking between high and above average IQ preschool children. *Eur. J. High Abil.* **1991**, *2*, 201–211. [CrossRef]
24. Walker, C.L.; Shore, B.M.; Tabatabai, D. Eye of the beholder: Investigating the interplay between inquiry role diversification and social perspective taking. *Int. J. Educ. Psychol.* **2013**, *2*, 144–192. [CrossRef]
25. Masden, C.A.; Leung, O.N.; Shore, B.M.; Schneider, B.H.; Udvari, S.J. Social-perspective coordination in gifted adolescent friendships. *High Abil. Stud.* **2015**, *26*, 3–38. [CrossRef]
26. Renzulli, J.S. *The Enrichment Triad Model: A Plan for Developing Defensible Programs for the Gifted and Talented*; Routledge: New York, NY, USA, 1977.
27. Walker, C.L.; Shore, B.M.; Tabatabai, D. On the trail of authentic collaboration over extended time in inquiry classrooms: Following the footprints of role diversification as indicators that inquiry occurred. Advance online publication. *Scand. J. Educ. Res.* **2021**, 1–24. [CrossRef]
28. Aulls, M.W.; Kaur Magon, J.; Shore, B.M. *Active-Learning Practices in Undergraduate Science Instruction: A Multiple-Case Study of Variability and Instructional Context*; manuscript submitted for publication; Department of Educational and Counselling Psychology, McGill University: Montreal, QC, Canada, 2021.
29. Shore, B.M.; Aulls, M.W.; Tabatabai, D.; Kaur Magon, J. *I Is for Inquiry: An ABC of Inquiry Instruction for Elementary Teachers and Schools*; Routledge: New York, NY, USA, 2020.
30. Barron, F. The psychology of imagination. *Sci. Am.* **1958**, *199*, 150–169. Available online: http://www.jstor.org/stable/24941114 (accessed on 7 July 2021). [CrossRef]
31. Feldhusen, J.F.; Goh, B.E. Assessing and accessing creativity: An integrative review of theory, research, and development. *Creat. Res. J.* **1995**, *8*, 231–247. [CrossRef]
32. Shore, B.M.; Rejskind, F.G.; Kanevsky, L.S. Cognitive research on giftedness: A window on creativity. In *Creative Intelligence: Toward Theoretic Integration*; Ambrose, D.C., Cohen, L., Tannenbaum, A.J., Eds.; Hampton Press: New York, NY, USA, 2003; pp. 181–210.
33. Getzels, J.W.; Csikszentmihalyi, M. *The Creative Vision: A Longitudinal Study of Problem Finding in Art*; Wiley: Hoboken, NJ, USA, 1976.
34. Maniatis, E.; Cartwright, G.F.; Shore, B.M. Giftedness and complexity in a self-directed computer-based task. *Gift. Talent. Int.* **1998**, *13*, 83–89. [CrossRef]
35. Jaušovec, N. *Flexible Thinking: An Explanation for Individual Differences in Ability*; Hampton Press: New York, NY, USA, 1994.
36. Shore, B.M.; Lazar, L. IQ-related differences in time allocation during problem solving. *Psychol. Rep.* **1996**, *78*, 848–849. [CrossRef]
37. Vygotsky, L.S. *Mind in Society: The Development of Higher Psychological Processes*; Cole, M., Translator; Harvard University Press: Cambridge, MA, USA, 1978.
38. Aulls, M.W.; Shore, B.M. *Inquiry in Education (Vol. I): The Conceptual Foundations for Research as a Curricular Imperative*; Routledge: New York, NY, USA, 2008.
39. Shore, B.M.; Aulls, M.W.; Delcourt, M.A.B. (Eds.) *Inquiry in Education (Vol. II): Overcoming Barriers to Successful Implementation*; Routledge: New York, NY, USA, 2008.
40. Robinson, A.; Shore, B.M.; Enersen, D.L. *Best Practices in Gifted Education: An Evidence-Based Guide*; Routledge: New York, NY, USA, 2006.
41. Csikszentmihalyi, M. *Flow: The Psychology of Optimal Experience*; Harper & Row: New York, NY, USA, 1997.
42. Borovay, L.A.; Shore, B.M.; Caccese, C.; Yang, E.; Hua, O. Flow, achievement level, and inquiry-based learning. *J. Adv. Acad.* **2019**, *30*, 74–106. [CrossRef]
43. French, L.R.; Shore, B.M. A reconsideration of the widely held conviction that gifted students prefer to work alone. In *The Routledge International Companion to Gifted Education*; Hymer, B., Balchin, T., Matthews, D., Eds.; Routledge: Abingdon, Oxfordshire, UK, 2009; pp. 176–182, 325–366.
44. Walker, C.L.; Shore, B.M.; French, L.R. A theoretical context for examining students' preferences across ability levels for learning alone or in groups. *High Abil. Stud.* **2011**, *22*, 119–141. [CrossRef]
45. French, L.R.; Walker, C.L.; Shore, B.M. Do gifted students really prefer to work alone? *Roeper Rev.* **2011**, *33*, 145–159. [CrossRef]
46. Walker, C.L.; Shore, B.M. Myth busting: Do high-performing students prefer working alone? *Gift. Talent. Int.* **2015**, *30*, 85–105. [CrossRef]
47. Orbell, J.; Dawes, R. Social dilemmas. In *Progress in Applied Social Psychology*; Stephenson, G.M., Davis, J.H., Eds.; Wiley: Hoboken, NJ, USA, 1981; Volume 1, pp. 37–65.
48. Cera Guy, J.N.M.T.; Williams, J.M.; Shore, B.M. High-and otherwise-achieving students' expectations of classroom group work: An exploratory empirical study. *Roeper Rev.* **2019**, *41*, 166–184. [CrossRef]
49. Chichekian, T.; Shore, B.M. Hold firm: Gifted learners value standing one's ground in disagreements with a friend. *J. Educ. Gift.* **2017**, *40*, 152–167. [CrossRef]
50. Schapiro, M.; Schneider, B.H.; Shore, B.M.; Margison, J.A.; Udvari, S.J. Competitive goal orientations, quality, and stability and friendship in gifted and other adolescents' friendships: A test of Sullivan's theory about the harm caused by rivalry. *Gift. Child Q.* **2009**, *53*, 71–88. [CrossRef]

51. Barfurth, M.A.; Shore, B.M. White water during inquiry learning: Understanding the place of disagreements in the process of collaboration. In *Inquiry in Education (Vol. II): Overcoming Barriers to Successful Implementation*; Shore, B.M., Aulls, M.W., Delcourt, M.A.B., Eds.; Routledge: New York, NY, USA, 2008; pp. 149–164.
52. Gyles, P.D.T.; Shore, B.M.; Schneider, B.H. Big ships, small ships, friendships and competition: Things to consider. *Teach. High Potential* **2009**, *3*, 19–20. Available online: https://www.researchgate.net/publication/299294663_Big_ships_small_ships_friendships_and_competition_Things_to_consider (accessed on 7 July 2021).
53. Shore, B.M.; Chichekian, T.; Gyles PD, T.; Walker, C.L. Friendships of gifted children and youth: Updated insights and understanding. In *The SAGE Handbook of Gifted and Talented Education*; Wallace, B., Sisk, D.A., Senior, J., Eds.; SAGE: Thousand Oaks, CA, USA, 2019; pp. 184–195. [CrossRef]
54. Shore, B.M.; Cornell, D.C.; Robinson, A.; Ward, V.S. *Recommended Practices in Gifted Education: A Critical Analysis*; Teachers College Press: New York, NY, USA, 1991.
55. Shore, B.M. Yogi Berra's Chevy truck: A report card on the state of research in the field of gifted education. *Gift. Child Q.* **2006**, *50*, 351–353. [CrossRef]
56. Ambrose, D.C.; Cohen, L.; Tannenbaum, A.J. (Eds.) *Creative Intelligence: Toward Theoretic Integration*; Hampton Press: New York, NY, USA, 2003.
57. Shavinina, L.V. (Ed.) *International Handbook on Giftedness*; Springer: Berlin/Heidelberg, Germany, 2009.
58. Hymer, B.; Balchin, T.; Matthews, D. (Eds.) *The Routledge International Companion to Gifted Education*; Routledge: Abingdon, Oxfordshire, UK, 2009.
59. Plucker, J.A.; Callahan, C.M. (Eds.) *Critical Issues and Practices in Gifted Education: What the Research Says*, 2nd ed.; Routledge: New York, NY, USA, 2014.
60. Pfeiffer, S.I.; Shaunessy-Dedrick, E.; Foley-Nicpon, M. (Eds.) *APA Handbook of Giftedness and Talent*; American Psychological Association: Washington, DC, USA, 2018.
61. Wallace, B.; Sisk, D.A.; Senior, J. (Eds.) *The SAGE Handbook of Gifted and Talented Education*; SAGE: Thousand Oaks, CA, USA, 2019.
62. Morisano, D.; Hirsh, J.B.; Peterson, J.B.; Pihl, R.O.; Shore, B.M. Setting, elaborating, and reflecting on personal goals improves academic performance. *J. Appl. Psychol.* **2010**, *95*, 255–264. [CrossRef] [PubMed]
63. Morisano, D.; Shore, B.M. Can personal goal setting tap the potential of the gifted underachiever? *Roeper Rev.* **2010**, *32*, 249–258. [CrossRef]
64. Saunders-Stewart, K.S.; Gyles PD, T.; Shore, B.M.; Bracewell, R.J. Student outcomes in inquiry: Students' perspectives. *Learn. Environ. Res.* **2015**, *18*, 289–311. [CrossRef]
65. Syer, C.A.; Shore, B.M. Science fairs: Sources of help for students and the prevalence of cheating. *Sch. Sci. Math.* **2001**, *101*, 206–220. [CrossRef]
66. Shore, B.M.; Tsiamis, A. Research Support for Less Formal Identification of Giftedness. 1985. Available online: https://escholarship.mcgill.ca/concern/papers/0p096721v (accessed on 7 July 2021).
67. Shore, B.M.; Tsiamis, A. Identification by provision: Limited field test of a radical alternative for identifying gifted students. In *Identifying and Nurturing the Gifted: An international Perspective*; Heller, K.A., Feldhusen, J.F., Eds.; Huber: Berne, Switzerland; Toronto, ON, Canada, 1986; pp. 93–102.
68. Torrance, E.P. *Torrance Tests of Creative Thinking: Norms-Technical Manual*; Scholastic Testing Service: Bensenville, IL, USA, 1974.
69. Shore, B.M. Gifted-program provision is at least as serious a challenge as identification. Comment on F. Gagné, Academic talent development and the equity issue in gifted education. *Talent. Dev. Excell.* **2011**, *3*, 97–99. Available online: http://iratde.com/index.php/jtde/article/view/54/52 (accessed on 7 July 2021).
70. World Council for Gifted and Talented Children. *Global Principles for Professional Learning in Gifted Education*; World Council for Gifted and Talented Students, The Center for Gifted Studies, Western Kentucky University: Bowling Green, KY, USA, 2021; Available online: https://world-gifted.org/professional-learning-global-principles.pdf (accessed on 8 August 2021).
71. Shore, B.M.; Delcourt, M.A.B. Effective curricular and program practices in gifted education and their interface with general education. *J. Educ. Gift.* **1996**, *20*, 138–154. [CrossRef]
72. Birlean, C.; Birlean, E.M.; Shore, B.M. Problem-solving characteristics in gifted and advanced learners. In *The Development of the High Ability Child: Psychological Perspectives on Giftedness*; Miller, E.M., Matthews, M.S., Dixson, D.D., Eds.; Routledge: New York, NY, USA, 2021; in press.
73. Tomlinson, C.A.; Kaplan, S.N.; Renzulli, J.S.; Purcell, J.; Leppien, J.; Burns, D.E.; Strickland, C.A.; Imbeau, M.B. *The Parallel Curriculum: A Design to Develop High Potential and Challenge High-Ability Learners*, 2nd ed.; Corwin Press: Thousand Oaks, CA, USA, 2008.
74. Shore, B.M.; Gube, M. A historical overview of instructional theory and practice in the United States and Canada: The double Slinky phenomenon in gifted and general education. In *APA Handbook of Giftedness and Talent*; Pfeiffer, S.I., Shaunessy-Dedrick, E., Foley-Nicpon, M., Eds.; American Psychological Association: Washington, WA, USA, 2018; pp. 39–54. [CrossRef]
75. Shore, B.M. Giftedness is not what it used to be, school is not what it used to be, their future, and why psychologists in education should care. *Can. J. Sch. Psychol.* **2010**, *25*, 151–199. [CrossRef]

education sciences

MDPI

Article

Organic Creativity for 21st Century Skills †

Jane Piirto

College of Education, Ashland University, Ashland, OH 44805, USA; jpiirto@ashland.edu

† This article summarizes a keynote talk I gave at the 2017 World Conference for the Gifted and Talented, in Sydney, Australia (Piirto, 2017).

Abstract: This article contains 15 "takeaways" about how to teach organic creativity, from actual teachers with several hundred total years of experience. Teachers of English, physics, Advanced Placement Calculus, science, theater, the visual arts, dance, school administration, school counseling, educational psychology professing, world languages, mathematics, the education of the gifted and talented, social studies, music, and elementary education describe their strategies for teaching for intuition, imagination, insight, imagery, risk-taking, openness to experience, feeding back, improvisation, and other aspects of creativity that arise from the subject matter.

Keywords: organic creativity; creativity; teaching for creativity; creative teachers

Citation: Piirto, J. Organic Creativity for 21st Century Skills. *Educ. Sci.* **2021**, *11*, 680. https://doi.org/10.3390/educsci11110680

Academic Editor: Dorothy Sisk

Received: 29 August 2021
Accepted: 13 October 2021
Published: 25 October 2021

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

1. Introduction

Often, how-to-teach advice is given by persons who have little or no experience in the classroom with real, live children and adolescents. The writers, often professors, may have taught in a K-18 classroom many years ago, but only for a few years, before they received their higher degrees, entered the education departments and psychology departments, and did not remain in touch with the academic field in which they taught. As the editor of the *Organic Creativity* book, I asked academic specialists who were also pedagogy specialists how they taught creativity while also teaching subject matter. This article summarizes their thoughts on how to teach intuitively in the academic and arts classroom.

Creativity can be taught and nurtured, and we can build classrooms in which creativity thrives. Twenty-three educators with over 500 combined years of classroom experience in K-18 discussed how they used the Eight I's (intuition, inspiration, insight, improvisation, incubation, imagery, imagination, and intentionality), the Five Core Attitudes (group trust, risk-taking, openness to experience, self-discipline, and tolerance for ambiguity), and General Practices for Creativity (ritual, exercise, a decision to live a creative life). I have developed the The Five Core Attitudes, Eight I's, and General Practices for Creativity and based them on the practices of creators, which I have explicated in articles (cf. Piirto, 2009, 2016) and in my book [1]. These 23 educators taught literature, mathematics, social science, science, physics, foreign language, theatre, visual arts, songwriting, dance, music, arts education, educational psychology, gifted education, school counseling, and school administration.

What is Organic Creativity? I coined this term, which some of my colleagues have viewed with humor. By "organic", I mean creativity that arises from within, with or without intention, as part of the whole. It is unforced, spontaneous, free, pure, living, and animate. Most people think being creative means being in the arts and they say, "I am not creative". This is a misconception. All people are creative. The working definition of creativity which I have used since I wrote my first book on creativity [2]. is this simple dictionary definition: "Creativity is a basic human need to make new" (p. 2). While creativity is the natural propensity of human being-ness, creativity can be enhanced and also stifled. The creative personality can be developed and also thwarted. What is unnatural and sad is for creativity to be repressed, suppressed, and stymied through the process of growing up and being educated. Creativity takes certain habits of mind.

What I have gleaned about the creative process has been learned through my research method, which is a qualitative biographical approach. I have read over 1000 biographies of creators deemed worthy of having a book written about them and noted how they describe their creative processes. However, I have also read nonscholarly biographies, which include puff pieces, autobiographies, memoirs, and interviews. For example, each issue of the literary journal, *The Paris Review*, includes a lengthy interview of a writer. Many of these interviews were cited in my book about creativity in writers [3] My and these themes were gleaned. For example, in the 1967 interview of poet Anne Sexton, (1928–1974) she was quoted as saying:

> Hell, I am undisciplined too, in everything but my work . . . and the discipline, the reworking, the forgeing into being is the stuff of poetry . . . the original impulse is only that . . . and perhaps poets get that as a gift. However, it is what you do with the gift that makes the difference. Everyone in the world seems to be writing poems . . . but only a few climb into the sky. What you sent shows you COULD climb there if you pounded it into your head that you must work and rework these uncut diamonds of yours.
>
> [4]

I coded this as an example of the core attitude of self-discipline.

In conceiving the book on organic creativity [5], I considered teaching as a creative domain. I asked 23 creative teachers to write personal essays of about 6000 words on how they teach their academic disciplines creatively. One of the criteria for choosing these people was (1) that they had expertise in the academic subjects they taught—for example, they had undergraduate majors and in many cases, graduate degrees in the subjects; and (2) they had years of experience teaching. After compiling the book, I recapitulated its themes, cross-coding among the teachers' personal essays about how they teach creativity; here are 15 takeaways from their insights.

2. Takeaways from the Personal Essays of Creative Teachers

2.1. Teachers Should Resist the Current Climate of Multiple-Choice Assessment, Single-Target Standards

Peppercorn [6], spoke about the pressure of meeting such standards. He related that creatively in the subject of social studies was extremely important, as students and teachers were subjected to rigid assessments were demoralizing. He related that schools were not businesses, and that "the MBA-ification of schools is interfering with teachers' ability to inspire their students, help them discover their talents and interests, and let them showcase their creativity" ([6], p. 34). The current and recent past emphasis on standardized testing has put the focus on narrow right and wrong answers, and "we're losing sight of the importance of developing students' creative thinking skills, and we're killing students' intellectual curiosity and love of learning. "Peppercorn argued that academic skills such as critical thinking were important. Students should also be helped in discovering what their strengths are, and teachers and schools should "give them opportunities to be imaginative".

Groman [7], who is now a professor of the education of the talented, found her years of classroom teaching often heartbreaking, being required to check off testing standards instead of teaching with joy and creative energy:

> I found that life as a teacher of the gifted is very difficult. Heartbreaking, even. Now when I hear stories of the breaking hearts of teachers around me and the questions my young teachers-to-be ask about the difficulties of the profession, I think back to these days . . . I saw the slow, steady movement toward standardization with the No Child Left Behind and the standards-based legislation and at the same time was aware that teaching could be different—deeper, and more soulful.
>
> ([7], p. 273)

She said that her creative work as a jazz singer and singer-songwriter was necessary for her sanity: "I had an outlet for expression when I was frustrated, sorrowful, and ready to give up. I had a connection to like-minded individuals that bolstered me" ([7], p. 273).

2.2. Teachers Should Know Their Students' Strengths and Teach to Their Strengths

Nicoll [8] experienced a teaching breakthrough while teaching choreography and dance. She noted that most such classes were very directive, with the choreographer being the leader and boss, imposing the patterns upon the company. Once a 9-year-old student asked her, "When do we get to dance?". This comment moved Nicoll to reflect on her teaching. To make space for students' creativity, teachers sometimes need to move aside, even when students request more help. In her essay, Nicoll [8] described how making space for students' intuition and creativity can be one of the most challenging and essential tasks undertaken by any teacher. Her question for herself was this: "What is the least I can do that will help students discover their own powers as artists?" ([8], p. 109). Nicoll likened her teaching to being a cairn, a wilderness marker on a hiking trail. Instead of freeing her from overplanning her classes, her insight led her to more planning:

> Planning became a more intensive process. I spent hours imagining every student and digging around in my memory for what I heard and saw in their dancing. I started hauling notebook and pen around the studio with me, scribbling notes about what students were doing, what questions they asked each other, what thoughts they expressed. Studying the notes later, I asked myself questions. When did this or that student get excited? What did he or she say, or was she mostly silent? To whom should I pay special attention so I would catch that little smile or glimmer in the eye . . . My goal: to pay very close attention and turn the students on to themselves.
>
> ([8], p. 114)

2.3. The Teacher Should Teach Improvisationally; That Is, the Lesson Can Be Changed when the Situation Changes

As an example of teaching improvisationally, Kettler and Sanguras [9] developed a method for teaching literature that utilized four pedagogical strategies. One of these strategies was "disciplined improvisation" ([9], p. 14) which encouraged students to perform their favorite works with verve and emotion. Second is the "centrality of imagination", which encouraged students to engage with fantasy and to interpret literature using a "what if" strategy:

> Depending on their personal experiences and worldviews, perhaps they envision an absentee father, or a series of academic failures, or even a chemical imbalance. The product students create (i.e., an essay, a scrapbook, a series of Facebook posts) is secondary to the true purpose: melding life experiences and imagination to create deep, personal meaning of literature.
>
> ([9], p. 9)

Snowber [10] also advocated that teachers be willing to "see what happens" and to enter the classroom willing to improvise: "I may come in with a lesson plan, but I may find out that day that there was a huge tragedy, and the only way the class could bear this" is to write or move honoring the grief and loss" ([10], p. 257). Snowber called this "the emergent curriculum". The teacher must be open, fluent, and aware of the textures of creativity. "I am more interested in what I do not know than what I know" ([10], p. 258). The teacher must embrace vulnerability, "for the creative process is seldom neat and is an invitation to both wonder and difficulty, but it is a process, which resides in the text of our bodies and souls" ([10], p. 258). The teacher should feel free to stray from the lesson plan and use his or her intuition to determine the direction of the classroom situation and the lesson, encouraging students to use their imagination.

2.4. The Teacher Should Seek to Develop a Climate of Feedback in the Classroom where the Students Trust Each Other

Developing a trusting atmosphere in the classroom requires skill. The teacher should demonstrate an acceptance of students' stories and comments, without putting down students' ideas. World languages teacher, F. Christopher Reynolds [11] has developed a process called "feeding back". There are four responses for when a student presents a product or idea.

1. Reminds me of;
2. Occurs to me;
3. Art answers art;
4. Silence.

Firstly, the class and the teacher draw upon their own past experiences, and comment on the work noncommittally, saying, "Your work reminds me of . . . " This is a sharing exercise and not a value judgment. Reynolds [11] related, "This level invites you to allow the creativity to inspire you to remember and to share your memories" ([11], p. 81). The second level of feeding back adds a little more specificity. Feeding back is not evaluative. It does not say, "Cool, dude!" or "What's up, man?" or gush about how awesome or beautiful the work is. Works are taken seriously, perhaps with the class walking about the room silently and quietly looking at their classmates' work in a respectful manner, as at an art show. Then, the student or teacher pins the image to the wall or board, and the person who constructed the image listens quietly and nondefensively while the rest of the people begin their sentence with the words "I see". We tell the students: "You will receive insights into your work (and self) that you did not know you were putting into the work, if you listen to the feeding back". This is said carefully and tenderly, with no evaluation, but just description or association: "While I was looking at this, something just popped into my mind". Other possible responses are these: "This work reminds me of". A higher, more engaged level of feeding back is answering art with art: "I want to make a work of art to respond to your work of art", or, most profound of all, being rendered silent by the power of the work [12].

2.5. Students Should Be Encouraged to Learn from Failure and from Vulnerability

The arts of dance and theater are particularly suitable for learning from failure and vulnerability, as much of the learning is improvisational and requires trial and error as the students gain skills and remember lines, notes, and routines. The fear of failure is always present, but the teacher can mitigate this by encouraging risk-taking. Dubin [13], a teacher of theatre, related that students were hungry for a non-judgmental atmosphere which encouraged experimentation and "unfettered exploration" ([13], p. 124):

> Risk-taking is an inherent part of the creative process. If students are to realize their potential, to develop the skills in which they are the least confident, to step outside of what is comfortable, they need to have the freedom to indulge in unfettered exploration. They have to be willing not only to go out on a limb, but to leap, hop and jitterbug on that limb. What stands in the way of their arboreal Lindy-Hopping, is that ubiquitous question "What if I fall?" . . . it is necessary to have a safe environment; an environment in which failure has been de-stigmatized, in which it is encouraged and even celebrated.
>
> ([13], p. 125)

Dubin argued that failing with permission is liberating, and thus it is "an invaluable tool of learning and growth" ([13], p. 125). He uses circle meditation and a bevy of trust exercises to help students to conduct the risk-taking.

2.6. The Teacher Should Use Creative Humor which Teaches and Engages Students

Social studies middle school teacher, Daniel Peppercorn [6], is known throughout his school for his joke contests and humorous stories, and parents clamor to attend the

class as guests. He said that comedians are known for their ability to surprise people with ideas that are unique and original., and that he welcomed class comics into his classes because the other students were engaged and the teacher always had a foil. He described his parents' nights:

> During our annual Curriculum Night, I try to incorporate humor into the presentation to give my students' parents a sense of what my class is like. For example, sometimes I give them current events challenge questions and they win bills from our classroom currency for answering questions correctly. One question was: "According to a study by psychologists, do our memories get more or less positive over time?" After a parent correctly answered that our memories get more positive over time, I said, "Hopefully your son or daughter will really like my class. However, even if they do not, in ten years they'll love the class".
>
> ([6], p. 35)

2.7. Administrators, Counselors, and Teachers Should Not Be Afraid to "Trust the Gut"

Rebecca McElfresh [14] wrote about being an elementary school principal and Maria Balotta [15] wrote about being a middle school counselor. Both emphasized that such work is improvisational and requires intuition as decisions are made on the fly when situations arise throughout each day. Balotta illustrated this through four case examples—of a girl who was being bullied by other girls, and so brought a knife to school intending to deal with them violently; of a boy whose macho Latino father would not accept that he was gay; of a Russian immigrant girl whose mother was so busy with her other six children that she could not perceive the needs of her oldest child; of a bright, achieving native Spanish speaking girl who was being refused the class valedictorian honor because of her background. Balotta [15] related:

> I feel blessed to have discovered the voice within. This thing that we call *intuition* leads me to carve new paths when at times the road seems to have reached its end. Not all the stories are about students whose lives have been in danger, or students denied their earned rewards. The incubation period for creative solutions is frequently seconds long, but as I look back at my journey as a school counselor, I cannot think of any story where intuition did not play a significant role.
>
> ([15], p. 311)

2.8. Music, Theatre, Art, Dance, Foreign Language, and Athletics Are Not Extras, but Vitals

McElfresh [14] also wrote about seamlessly weaving the standard curriculum and the arts together through shared activities, field trips, and residencies by artists, writers, musicians, dance companies, and so on. Every day, in the schools she led, students would have music lessons embedded into their literature, mathematics, science, history, and other lessons as a matter of course. When the bombings of 11 September 2001 happened, she gathered her teachers, students, and staff for the making of art as a response:

> It seemed natural to us to respond organically through the creation of art. Students created art, teachers created art, poems, and song. We gathered in a large group assembly, surrounded by our art, and listened to poetry and music. We had found confidence in this way of working and we were able to turn to it at a time when we knew little else to do.
>
> ([14], p. 324)

2.9. Techniques Such as Meditating, Slowing Down, Paying Attention, and Mindfulness Should Be Part of a Teacher's Repertoire

I discussed the use of meditation in the classroom. Meditation is a part of the creative process in all domains [11]. Meditation seems to be a theme in the discussions of creators on how they create. Religion is most likely not a reason; creators seem to meditate in a

spiritual, individual sense. Here, are some ways teachers can use the general creativity practice of meditation in their classrooms:

- Pause. Breathe. Don't rush. Begin activities with closed eyes and a deep breath.
- Have students "put on their game face" before performances or practices by encouraging them to close their eyes, sit still, breathe, and visualize themselves.
- Talk about and research the classroom uses of meditation.
- Use bells or a bronze begging bowl with a mallet to signal a period of quiet and mindfulness in the classroom. The very sounds of these musical instruments seem to induce a creative frame of mind.
- Emphasize slowness and thoroughness rather than quickness. ([1], p. 137)

2.10. The Use of Field Trips Increase the Likelihood of Students' Engagement, Remembering, and Transfer

Nowadays, and throughout history, schools have debated the usefulness of field trips. Just do it, as Nike says. Even as a college professor, I require field trips for all of my undergraduate and graduate students; getting away, seeing things with one's own eyes, socializing, and being somewhere physically cannot be beaten. Gardner's [16] work on "teaching for understanding" emphasized the "museum curriculum", noting that transfer is achieved through the concrete apprehension of learning through the body. Johnson [17], who taught poor, rural Appalachian students was adamant that they took trips out of their school and local region. He even conducted field trips to the nearest McDonald's 30 miles away, for his students, who had never eaten out, teaching them about mathematics, economics, and nutrition.

2.11. The Classroom Is a Mutual Learning Environment, where Both Students and Teachers Learn Together

Science is a subject that is often challenging for both teachers and students. Taber [18] said there are three myths about how to creatively teach science. The first myth is that science is about facts. This is false. Science is about data from which facts are creatively extrapolated: "In terms of cognitive processes, this means *inventing* patterns that can make sense of the data. Scientists *imagine* possibilities to best fit data, and then *invent* ways of testing those imaginary possibilities by doing further data collection" ([18], p. 49). Making models to explain phenomena is also part of creativity in science. The second myth about teaching science is that students can memorize concepts by rote. In fact, when a model is presented to explain a phenomenon, the student must encounter the model with an imagination similar to the imagination with which the model was invented. Understanding is necessary. The third myth is that memorizing a set of facts increases knowledge of science. Taber [18] related that, while it is convenient to know that water is H_2O,

> Arguably, we should be more impressed by the student who can devise a role-play; or develop a graphical representation; or construct a narrative; or build a model—which shows some understanding of the concept of element, than the student who can select, or even regurgitate a formal definition.
>
> ([18], p. 114)

However, creatively teaching science requires that the teacher have at least enough knowledge of the concepts to be able to simplify them so that the students can apprehend them at a level which they can understand. This is often accomplished through the use of "metaphors, similes, and analogies between the target knowledge and what is already familiar to learners" ([18], p. 115). The teacher must be able to build cognitive bridges between the textbook and the individual student's level of understanding. The teacher must have "knowledge of the subject matter, preparation in the pedagogy, and a good deal of insight into learners and their ways of thinking" ([18], p. 115).

Tolan [19], a Newbury Award-winning children and young adult fiction writer, who has given thousands of author workshops and readings to teachers and children, spoke

about emphasizing the magic of a story when working with students. She also listed several ways that children's creativity and intuition can be hindered. These are (1) criticisms, both good and bad, including grades; (2) an overemphasis on *product* rather than on the process of creating; (3) an overemphasis on *revision*, which "should not be regularly expected of children, whose focus is the adventure of seeing where the story goes. Revision should seldom be required earlier than middle school" ([19], p. 179); (4) requiring students to always pay attention and work hard can kill creativity, as day-dreaming, looking out of the window, and sitting quietly with a thought are necessary for creativity; (5) movement, recess, walking, running around, are also necessary; and (6) an emphasis on creative courage:

> *Fear*. This comes in part from criticism (grading) or the idea that every creation must be appreciated by someone else. Creation involves the ability to take a risk, and all creators experience times when they are not sure they'll be able to finish something they've started, or come up with another new idea. Share this fact with the kids, and maintain as much as possible a sense of play and exploration. Regularly remind students that creators need to be courageous.
>
> ([19], p. 186)

2.12. Self-Knowledge Tools Such as Mandalas, Walking the Labyrinth, Reflections, Nature Walks, and Similar Tools Help Give Students Insight and Inspiration

Burnett [20], an actor and dancer who engaged in the highly cognitive Creative Problem-Solving Process (CPS) as a professor, decided to include a softer intuition within the CPS process in order to round it out, aligning the process with what creators do while creating. She encouraged her students at the State University of Buffalo to slow down while practicing CPS. She called this "passive intuition":

- When students become stuck on what to do next, ask them to take an incubation break.
- Ask students to do short bursts of exercise in between divergence and convergence.
- Put the problem away until the next day.
- Go for a quiet walk outside of the building.
- Do not try to do too much in one session. Instead, give students time to reflect and think about their processes. ([20], p. 289)

Burnett also described the addition of "active intuition": "visualization and imagery, artistic tools, the use of analogies, centering tools such as meditation and labyrinths, and the deliberate focus on an intuitive response e (i.e., —what does your gut say?)" ([20], p. 291).

2.13. Talent Is Omnipresent, but There Is a "Certain Something" beyond Talent That Is Indefinable, That Experts and Audiences Know when They See It

Many experts suggest that a certain number of repetitions, say 10,000, or ten years of deliberate practice can trump the presence of talent (cf.: [21,22]). The writers of chapters in the book being discussed here [5] beg to discuss this. Oreck [23] was the organizer and leader of a program, ArtsConnection, in over 150 NYC public schools that identified children with talents in dance, music, circus, and theatre. Oreck was interested in creativity and motivation:

> That creativity and motivation were considered essential to artistic ability and success is not at all surprising. When discussing the roots of their own success and that of their most promising students, accomplished artists often mention attitude—of curiosity, openness, risk-taking—as key to their development . . .
>
> ([23], p. 95)

While Oreck [21] is in agreement with the necessity for repetition, deliberate practice, and so on, he contemplates, in this chapter, about the obvious "artistry . . . in untrained children working in the arts . . . . An artistic attitude, emotional connection, and aesthetic appreciation, signal the artist at work" [23], p. 97). He came to call this "A". We might refer to this general artistry as an "*A factor*", a range of abilities and attitudes that can explain and predict outstanding performance in a variety of artistic experiences and settings. It

is crucial to recognize that *A* is equally important at both ends of the continuum: "from Carnegie Hall to the gym at PS 130" ([23], p. 98). Further, correlational studies with a large grant program, which Oreck ran in Ohio, showed the existence of a *g*-factor in artistic talent across domains; children showed *general* talent: "What was striking was the magnitude of the statistical correlation among the art forms—almost perfect across the three performing arts and just a bit lower when visual art was added in". ([23], p. 99).

2.14. "Know Thyself " Is a Goal for Teaching and Living Creatively

Visual arts professor, Charles Caldemeyer [24], noted the presence of talent in students in advanced painting classes. Often, his students were feted and honored for their work in, say, landscape, or in decoration, and thus they continued to work in the fields in which they had garnered praise. They were certainly talented, but they had not explored their inner selves, nor had they used their intuition in creating. He stated that "The artistic process is only vibrant when it is one of discovery" ([24], p. 210). He urged that young artists develop their intuitive skills: "Techniques we use to develop intuitive skills involve (a) elimination of routines, (b) the re-contextualization of everyday events, and (c) the use of associative patterns to view life, as well as painting, experiences" ([24], p. 211). Caldemeyer reminded students that their paintings "stand halfway between the artist and the viewer, reflective of the artist's intent, yet equally interpretable by the viewer in their terms" ([24], p. 211). Yet, the student's personal symbol system needs to be developed, a system that is not too esoteric nor too cliched. Each individual artist needs to examine their inner self and to reflect on their personal references and images:

> Ideas are gifts from the great unknown. It is important for artists to follow their ideas, because ideas that are dispensed but ignored will slowly drive one insane, or at least lead to compensatory neuroses and insecurities. Developing one's ideas allows an artist to understand and order his/her world, and to reconcile outer and inner experiences.
>
> ([24], p. 220)

Montgomery [25] emphasized that teachers teaching creatively must assess what their students already know and build upon this. She operates with two guidelines: "(1) I will not teach what is already learned and (2) I cannot teach what learners are not ready developmentally to learn" ([25], p. 264). Montgomery developed a model that emphasized transformational thinking called The Holistic Model. The Holistic Model included (1) The Mind, (2) The Body, (3), The Spirit, and (4) The Heart. ([25], p. 248).

She worked with her graduate students on opening up their preconceived notions of knowledge, leadership, and dominance, utilizing tools such as walking the labyrinth, meditation, movement, creating a mandala, memory work, and so on, using the Medicine Wheel as an example. Montgomery worked in the highly indigenously populated state of Oklahoma with many mentors who helped her to create this model. "The medicine wheel was the inspiration for the Holistic Model. The Medicine Wheel focuses on the four geographical directions (east, south, west, and north) or areas of development—physical, social, emotional, spiritual, and intellectual" ([25], p. 248).

2.15. Students Should Be Encouraged to Improvise, Theorize, Elaborate, Discuss, Explore, Create, Conjecture, Ask Why, and Not to Just Focus on "the Right Answer"

George Johnson [17], a long-time Gifted Intervention Specialist, shared his 40 years of practices that inhibited or encouraged creativity in the Appalachian G/T classroom where creative innovation is a way of life for both parents and teachers. The author concluded that the single most important factor in the creative classroom is a teacher and students who ask "Why?" the title of his essay was "Cars on Blocks and Roadkills", exemplifying the way of life of his economically challenged community and school. Johnson wrote, "I have found that the easiest and most consistent way to encourage creativity in the classroom is to ask the question "Why?" ([17], p. 222). He described the guided imagery that he practiced with his students. "In a relaxed setting, allow students to close their eyes and

use their mind's eye to see. There must be time to incubate, to allow the images to come forward. Try reading selections from appropriate literature with highly descriptive scenes" ([17], p. 224).

Daniels [26] discussed how to use creative imagination in teaching physics and Advanced Placement Calculus in a public high school with little funding. She said, "When studying concepts in physics, it is often necessary to use visualization and imagery" ([26], p. 19). Few high schools can afford simulators that can let students feel inertia or conduct field trips where students can experiment with weight loss or gain in a pool or a moving elevator. Using dummies to simulate the force of car crashes with or without seatbelts is also not feasible. "For these examples, and many more, I ask the students to imagine how they would feel. I ask them to close their eyes and think about the situation, and then visualize what they would see, how they would move, and what they would feel" (p. 19). Daniels lectures and demonstrates, yet "the students gain a better understanding of the concepts from visualization and imagery" ([26], p. 20). She encourages students to use their imaginations when concrete experiments that use the senses of sight, hearing, and touch are not possible.

Stephenson [27] taught music to young children, and she believed that the songwriting experience with them was one of the most "inestimable" ([27], p. 146). She had several tips for writing songs with children:

- Solicit ideas from the children, both for the theme of the song itself, and for words and phrases to include in the lyrics.
- Ask the children for suggestions for a first line, and lines to follow. It is surprising how easily this comes to children—rhythm and rhyme are their natural languages.
- Invite the children, once part or all of the lyrics are created, to sing a possible melody for each line.
- Plan a way to record the finished song immediately upon completion. This will serve to capture the musical ideas before they can be forgotten, and gives the children immediate positive feedback for their creative work. ([27], p. 154)

Two teachers of physics [28] talked about the improvisation needed in order to teach so that the students could trust their own observations and theories. The teaching style in such an active setting must be flexible and adaptable. They used the Socratic method so that students could proceed individually, finding answers, observing results, or having ideas that might be shocking, as well as intriguing, to their classmates and their professors. The professors often had to rethink their own preconceptions about the experiments. Michael related:

> It is easy to walk into a classroom and tell the students what you know but it takes a lot of creative courage to walk into a classroom and to let the class be led by the students and to follow them as the professor . . . It requires a confidence in your understanding of the material and a certain willingness to grasp the material deeper than you may have in the past.
>
> ([28], p. 62)

The nature of the subject matter of physics encourages design and experimentation as students build devices to illustrate the principles of physics. They said, "Throughout these experiments and projects, the students must use their intuition, visualization, imagery, and creative abilities to transform ideas into plans, then build actual devices using their plans" ([28], p. 71).

3. Summary

In summary, organic creativity rises from the creator who has self-knowledge and who is not afraid to express it. Certain exercises help to enhance this by focusing on the various processes such as the Eight I's: (1) Insight; (2) Intuition; (3) Incubation; (4) Imagination; (5) Improvisation; (6) Inspiration; (7) Imagery; (8) Intentionality; the Five Core Attitudes: (1) Openness to experience or naivete; (2) Risk-taking; (3) Tolerance for Ambiguity; (4) Self-

Discipline; and (5) Group trust. Additionally, there are several general practices: (1) the need for solitude; (2) creativity rituals; (3) meditation; (4) exercise, especially walking; (5) the quest for silence; (6) divergent production practice; and (7) creativity as the process of a life ([1–3,5,29–32]). With these suggestions, those who want to teach creativity will find many avenues to explore.

Experienced teachers who have not only extensive subject matter knowledge, but also extensive pedagogical knowledge have various ways of teaching for organic creativity. This article has shared a few of these ideas.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Piirto, J. *Creativity for 21st Century Skills: How to Embed Creativity into the Curriculum*; Sense Publishers: Rotterdam, The Netherlands, 2011.
2. Piirto, J. *Understanding Those Who Create*; Ohio Psychology Press: Tempe, AZ, USA, 1992.
3. Piirto, J. *"My Teeming Brain": Understanding Creative Writers*; Hampton Press: New York, NY, USA, 2002.
4. Sexton, L.G.; Ames, L. *Anne Sexton: A Self-Portrait in Letters*; Houghton Mifflin: New York, NY, USA, 1977.
5. Piirto, J. (Ed.) *Organic Creativity: Teaching to Intuition in Academics and in the Arts*; Prufrock Press: Waco, TX, USA, 2014.
6. Peppercorn, D. Thinking outside the blocks: Organic creativity in teaching social studies. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 31–44.
7. Groman, J.L. The mirror: Creativity as seeing and being seen: Autoethnography of a teacher. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 267–285.
8. Nicoll, J. Learning to be a cairn. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 107–120.
9. Kettler, T.; Sanguras, L. Naïveté, imagination, and a glimpse of the sublime: Organic creativity in teaching literature. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 3–16.
10. Snowber, C. Visceral creativity: Organic creativity in teaching arts/dance education. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 253–266.
11. Reynolds, F.C. Let the beauty we love be what we do: Organic creativity in the high school world language class. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 75–90.
12. Piirto, J. *Understanding Creativity*; Great Potential Press: Tempe, AZ, USA, 2004.
13. Dubin, J. Embracing vulnerability: Organic creativity in teaching theatre. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 121–134.
14. McElfresh, R. Imagining school communities: Organic creativity in elementary school administration. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 313–328.
15. Balotta, M. That "Uh-Oh" feeling: Organic creativity in school counseling. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 299–312.
16. Gardner, H. *The Unschooled Mind*; Basic Books: New York, NY, USA, 1991.
17. Johnson, G. Cars on blocks and roadkills: Organic creativity in teaching in the G/T resource room. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 221–236.
18. Taber, K. Once upon a time, there were no acids: Teaching science intuitively and learning science creatively. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 45–58.
19. Tolan, S.S. The magic of writing: Organic creativity in teaching fiction writing. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 177–188.
20. Burnett, C. The missing link: Teaching the Creative Problem-Solving Process. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 285–299.
21. Ericsson, K.A. (Ed.) *The Road to Excellence: The Acquisition of Expert Performance in the Arts and Sciences, Sports, and Games*, 2nd ed.; Psychology Press: New York, NY, USA, 2012.
22. Gladwell, M. *Outliers*; Little Brown: New York, NY, USA, 2008.
23. Oreck, B. Looking for artistry. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 91–106.

24. Caldemeyer, C. On ideas: Organic creativity in teaching visual arts. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 203–220.
25. Montgomery, D. Toward a more holistic approach to teaching: Organic creativity in teaching educational psychology. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 237–252.
26. Daniels, E. The mess of creativity in math. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 17–30.
27. Stephenson, S. Tapping into the sounds of the universe: Organic creativity in music-making and songwriting. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 149–162.
28. MacDowell, K.; Michael, R. Beginning with the totally unexpected: Organic creativity in teaching physics. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 59–74.
29. Piirto, J. The creative process as creators practice it: A view of creativity with emphasis on what creators really do. In *Perspectives in Gifted Education: Creativity*; Cramond, B., Ed.; Institute for the Development of Gifted Education, University of Denver: Denver, CO, USA, 2009; pp. 42–67.
30. Piirto, J. Visual and performing arts talent development. In *Critical Issues and Practices in Gifted Education*; Callahan, C., Plucker, J., Eds.; National Association for Gifted Children: Washington, DC, USA, 2014; pp. 723–734.
31. Piirto, J. The Five Core Attitudes and Seven I's for enhancing creativity in the classroom. In *Nurturing Creativity in the Classroom*, 2nd ed.; Kaufman, J., Beghetto, R., Eds.; Cambridge University Press: New York, NY, USA, 2016; pp. 142–171.
32. Piirto, J. Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts. [Keynote Address] World Conference for the Gifted and Talented. Sidney, AU. Available online: https://www.youtube.com/watch?v=NvjDT48avo4 (accessed on 21 July 2017).

MDPI
St. Alban-Anlage 66
4052 Basel
Switzerland
Tel. +41 61 683 77 34
Fax +41 61 302 89 18
www.mdpi.com

Education Sciences Editorial Office
E-mail: education@mdpi.com
www.mdpi.com/journal/education

MDPI
St. Alban-Anlage 66
4052 Basel
Switzerland

Tel: +41 61 683 77 34

www.mdpi.com

ISBN 978-3-0365-5640-6