Theoretical Approaches, Societal Issues, and Practical Implications for School-Based and Extracurricular Talent Development: Outcomes of the Inaugural European–North American Summit on Talent Development (Part I)

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Gifted Child Quarterly and High Ability Studies collaborated on this pair of special issues resulting from the Inaugural European–North American Summit on Talent Development. The summit, held in Washington, D.C., in April 2016, had two main goals. The summit aimed, first, to increase researchers’ awareness of work on talent development being carried out in different countries by bringing together scholars working in Europe and the United States. The summit’s second aim was to initiate a new format for small, collaborative conferences at which participants present ideas they are working on—*in medias res*, so to speak—to all the other participants in order to receive feedback before they have completed their research. The event was made possible through the generous financial support of the American Psychological Association, the Belin-Blank Center at the University of Iowa, the Center for Talent Development of Northwestern University, and the Academic Talent Development Program at the University of California, Berkeley. The 2-day event consisted of clusters of presentations on eight topics. In each cluster, three researchers (two from American institutions and one from a European institution) presented their work and discussed future directions and possible implementations. Thanks to editors Betsy McCoach, Del Siegle, and Albert Ziegler, all participants were invited to submit articles for publication based on their presentation. The resulting articles on work presented in the first four talent development clusters (theoretical perspectives, societal issues, and practical implications for school-based and extracurricular talent development) make up the special issue of *Gifted Child Quarterly*. Articles arising from presentations in the final four talent development clusters (outcomes, psychosocial factors, adaptive and maladaptive learning, and high achievement and performance) comprise the special issue of *High Ability Studies*.

Part I: Articles Appearing in Gifted Child Quarterly (Volume 61)

Cluster 1: Theoretical Perspectives

Opening the first cluster, the article by Rena Subotnik, Frank Worrell, and Paula Olszewski-Kubilius challenges readers to imagine a brief interview or audition that could serve as a prescreening for recreational mathematics programs. The authors modeled their proof of concept on a project conducted by choreographer Eliot Feld. Feld identified three basic abilities that were essential for success as a dancer and conducted 10-minute auditions based on those abilities in third-grade elementary school classes in New York City to search for untapped dance talent. Using a parallel approach, a literature review led the authors to propose a four-item interview/audition for use with third to fifth graders, which was designed to identify and recruit children into after-school mathematics clubs or circles. The article goes on to describe the proposed abilities and instrument.

David Dai makes a compelling argument for talent development as the path forward for gifted education. In the process, he unveils his evolving complexity theory (ECT) with its special focus on the roles played by nature and nurture. The major components of Dai’s ECT are domain, person,

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development, and culture. Dai describes each component and then provides an analysis of how the components interact to facilitate high performance and creative productivity. One challenge faced by all the authors of the special issue is how to translate theoretical frameworks into practical applications in policy environments characterized by perpetual change. Dai thus closes his article with consideration of the implications of ECT for practice and research.

In their article, “Systemic Gifted Education: A Theoretical Introduction,” Albert Ziegler and Heidrun Stoeger introduce systemic thinking—an approach that has gained in popularity in developmental and learning sciences—to the field of giftedness and talent development. The authors define a system and introduce basic concepts of systems theory before they present the actiotope model of giftedness, a systemic model for research and practice in gifted education and talent development. After elaborating on the implications of systems approaches for gifted education, the authors discuss how their approach complements—rather than replaces—current conceptions of gifted education and talent development. They then review the ways in which systemic thinking can make a valuable contribution to gifted education, and argue for combining systemic thinking with other empirically testable theories.

**Cluster 2: Talent Development and Societal Participation**

A second cluster focused on talent development and societal participation. In his article, Peter Csermely presents a framework on creativity as a “network phenomenon of both human conceptual and social networks,” arguing that most creative breakthroughs occur because of social connections between individuals who bridge diverse domains of knowledge and cultures. From this perspective, optimal talent development (a) requires the support of social networks exposing talented individuals to new situations and different social circles, (b) facilitates the novelty seeking that fuels creativity, and (c) increases the likelihood of engagement with collaborators on major social issues. Csermely provides three examples of implementing the network concept of creativity to support talented youngsters in Hungary.

Paula Olszewski-Kubilius and Saiying Steenberg-Hu present a case study of a talent development program designed to prepare lower income minority students to qualify for placement in honors-level science and advanced math courses in Grade 9 by intervening with supplemental, outside-of-school programming during Grades 3 through 8. They use the example of Project Excite to illustrate a new approach to educational-intervention research called practice-embedded educational research. In the practice-embedded educational research approach, researchers work collaboratively with schools to study an intervention systematically, treating variations in implementation not as factors to control but as opportunities through which to learn how best to implement or improve an intervention within a particular, real-life setting.

Jonathan Plucker, Matthew Makel, Michael Matthews, Scott Peters, and Karen Rambo-Hernandez discuss the distinctions and connections between policy, advocacy, and intervention and review the current state of the policy research within the field of gifted education. While there are some significant studies in this area, the authors note that policy research in gifted education is generally still quite limited. Plucker and colleagues identify six key areas for future policy research: the outcomes of policy changes for high-ability students, incorporating policy considerations into models and theories of talent development, comparing policies and their effects across states and countries, the effects of specific policies, reassessing policies about grouping and other accepted instructional and organizational strategies, and the processes of policy implementation.

**Cluster 3: Designing the Learning Context for Talent Development in School**

In her article, Nancy B. Hertzog explores learning contexts for talent development in public schools. She discusses various environmental aspects that influence talent development, such as physical space, affective elements, and teachers’ beliefs and their influence on instructional design. Hertzog concludes her article with suggestions for “extreme classroom makeovers” to the end of creating classroom environments optimally designed to foster students’ strengths and talents.

Within the framework of Vygotsky’s zone of proximal development, Scott Peters, Karen Rambo-Hernandez, Matthew Makel, Michael Matthews, and Jonathan Plucker analyze student achievement data from several different tests across multiple states in the United States. Their results showed that between 20% and 49% of elementary and middle school students scored above grade level on language arts and 14% to 37% in mathematics. These data vividly illustrate the tremendous variability in achievement among students at the same grade level and call for wider use of acceleration strategies.

**Cluster 4: Talent Development Outside of School**

Cluster 4 focuses on talented children and youth outside of school. In their article, Heidrun Stoeger, Manuel Hopp, and Albert Ziegler introduce CyberMentor, a Germany-wide extracurricular, online program in STEM (science, technology, engineering, mathematics). The participants (females from high-achiever–track secondary schools in Germany) work for at least 1 year with a personal mentor with whom they discuss STEM topics and work on projects in STEM. After having employed a one-on-one mentoring approach
Intelligence. Zeidner's comprehensive analysis provides a complex research surrounding the broad topic of emotional intelligence. In his article, Moshe Zeidner introduces his readers to the development of metacognitive processes. It clarifies the multiplicative nature of an individual's self-perception of self-efficacy, goal valuation, and environmental perceptions. These three areas require positive affect, although not necessarily in equal amounts in all three areas. Added to this model is also the self-regulation of metacognitive processes.

**Part II: Articles Appearing in High Ability Studies (Volume 28)**

**Cluster 5: Outcomes of Gifted Education and Talent Development**

Betsy McCoach, Hui Hui Yu, Allen Gottfried, and Adele Gottfried considered data from the Fullerton Longitudinal Study to explore the interaction between cognitive ability and achievement over time. The Fullerton study included data from 13 cognitive tests taken by participants between birth and age 17, as well as the results of 22 achievement tests administered to the same population between 7 and 17 years. After analyzing the participants' outcomes, McCoach and her colleagues concluded that if the goal of talent development is for students to acquire long-term academic benefits, it is a better investment to base educational interventions (offering academically challenging knowledge and skills) on students' previous achievement rather than tests of their cognitive abilities.

**Cluster 6: Psychosocial Factors of Talent Development**

In his article, Moshe Zeidner introduces his readers to the complex research surrounding the broad topic of emotional intelligence. Zeidner's comprehensive analysis provides an impetus for the establishment of general principles and guidelines for developing training programs that aim to nurture the emotional intelligence of gifted students. Zeidner argues that individual students as well as schools can benefit from such training. However, he cautions that there should be careful consideration of training programs prior to their implementation in order to ensure that programs address the actual needs of the gifted they seek to serve. Furthermore, he points out that many of the programs that together make up gifted education are only 1-day interventions and explains why short-term interventions may not be capable of effecting significant change and improvement for the individual student or school system.

Tracy Cross and Jennifer Cross highlight the importance of the establishment of principles and guidelines for developing training programs that aim to nurture the emotional intelligence of gifted students. They discuss the effectiveness of a broadened identification process for generating an inclusive talent pool of high-achieving rural middle school students. Using above-average scores (85th percentile or higher) on a grade-level test resulted in a talent pool from which a cohort of high-potential students ready for talent development opportunities in STEM was identified. The project investigators observed significant improvement for all talent pool participants and concluded that talent development opportunities, including taking an above-level test, have a positive impact on high-achieving students, including students who are not typically identified for gifted education or talent search programs. Not surprisingly, there was greater growth for students who participated in the extracurricular program, especially in the area of math, with boys outperforming girls.

**Cluster 7: Adaptive and Maladaptive Learning Processes in Talent Development**

The article authored by Megan Nicpon-Foley, Susan Assouline, Martin Kivlighan, Staci Fosenburg, Charles Cederberg, and Michelle Nanji, which sums up the theme of this cluster, presents a study of the effects of social and talent development interventions for high-ability youth with social-skills deficits. Intervention studies in the area of twice-exceptionality are relatively rare; therefore, findings from this investigation offer crucial new information to educators and psychologists. The investigators found that high-ability students who also had social-skills deficits benefited from the dual experience of a 2-week talent development program coupled with daily group meetings in which a video-modeling intervention addressing their social-skills deficits was implemented. The authors conclude that their results provide support for the recommendation of Subotnik, Olszewski-Kubilius, and Worrell (2011) that psychosocial skill acquisition—whether or not students
have a social-skills impairment—should take place within a
talent development framework.

Cluster 8: High Achievement and Performance in
Talent Development

This final thematic cluster explores high achievement, high
performance, and creative productivity in different talent
domains. In his article, “Learning to See by Learning to
Draw,” Aaron Kozbelt explores the relationship between
high levels of drawing skill, on one hand, and visual percep-
tion and attention, on the other. Kozbelt offers a compre-
hensive review of the psychological research associated with
artistic skill, placing particular emphasis on visual percep-
tion and attention as related to drawing. He concludes his
review with the central assertion that the nature of artists’
expertise in their talent domain is rooted in perceptual pro-
cesses such as attentional flexibility and perceptual advan-
tages associated with understanding the structure of objects.

Roza Leikin, Mark Leikin, Nurit Paz-Baruch, Ilana
Waisman, and Miri Lev identified specific characteristics of
mathematically gifted students in three interconnected areas:
basic cognitive traits, neurocognitive characteristics, and
mathematical creativity. The authors conducted a multidisci-
plinary comparison of three groups of secondary school stu-
dents who exhibited mathematical expertise: students not
identified as generally gifted, generally gifted students, and
students who had demonstrated superior performance in
mathematics. Students with superior performance in mathe-
ematics attained better scores than generally gifted students in
most of the tasks, while generally gifted students outper-
formed students not identified as generally gifted. The
authors were also able to identify different profiles of charac-
teristics for students who had demonstrated superior perfo-
rance in mathematics.

Jonathan Wai and Heiner Rindermann looked at the rela-
tionship between high general ability and occupational
achievement through multiple U.S. samples that included
federal judges, members of the U.S. Congress, millionaires
and billionaires, business leaders, and elite journalists. About
50% of these individuals were in the top 1% of ability indica-
tors, which reflects a proportion that is 50 times greater than
what would be expected. However, this percentage varied by
group, with U.S. Congressional Representatives having the
lowest percentage. Wai and Rindermann assert that these
results demonstrate that ability matters in terms of reaching
the pinnacle of any occupational or educational domain;
however, there is no ability threshold in terms of adult
achievement. The authors note the striking influence of
Harvard and other selective institutions in providing institu-
tional path effects that include supportive social networks
and opportunities. They conclude with several advocacy and
policy recommendations intended to help level the playing
field for disadvantaged youths, including a greater focus on
financially disadvantage gifted students and the spatially
talented.

The final article in the Gifted Child Quarterly special issue,
by Rena Subotnik, Heidrun Stoeger, and Paula Olszewski-
Kubilius, summarizes some of the highlighted outcomes of the
inaugural summit. Participants were excited by the exposure
to ideas and methods of their colleagues from abroad, and
committed themselves to taking better note of scholars in other
countries in their future reading and networking. The focus of
the summit was talent development and included discussion of
the differences between taking a talent development approach
and more traditional mechanisms for selecting and serving
gifted children and youth. Through their papers and discus-
sions, participants identified components of talent develop-
ment and implications for policy and advocacy in need of
further exploration and development to the end of ever advanc-
ing the paradigms that undergird our shared field of scientific
and humanistic endeavor.

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Heidrun Stoeger, PhD, is full professor for educational sciences at
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Paula Olszewski-Kubilius, PhD, is the director of the Center for
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Rena F. Subotnik, PhD, is director of the Center for Psychology in Schools and Education at the American Psychological Association. One of the Center’s central missions is to generate public awareness, advocacy, clinical applications, and cutting-edge research ideas that enhance the achievement and performance of children and adolescents with gifts and talents in all domains. She is coauthor of the following recent publications (with Paula Olszewski-Kubilius and Frank Worrell): “The Talent Gap: The U.S. Is Neglecting Its Most Promising Science Students” (Scientific American), “Nurturing the Young Genius: Renewing Our Commitment to Gifted Education Is Key to a More Innovative, Productive and Culturally Rich Society” (Scientific American Mind), “Rethinking Giftedness and Gifted Education: A Proposed Direction Forward Based on Psychological Science” (Psychological Science in the Public Interest), and (with Ann Robinson, Carolyn Callahan, and Patricia Johnson) “Malleable Minds: Translating Insights From Psychology and Neuroscience to Gifted Education” (National Research Center for Giftedness and Talent).

Susan G. Assouline is the director of the Belin-Blank Center, holds the Myron and Jacqueline N. Blank Endowed Chair in Gifted Education, and is a professor of school psychology. She is especially interested in identification of academic talent in elementary students. In 2015, she coedited (with Nicholas Colangelo, Joyce VanTassel-Baska, and Ann Lupkowski-Shoplik) A Nation Empowered: Evidence Trumps the Excuses Holding Back America’s Brightest Students.

Albert Ziegler, PhD, is the chair professor of educational psychology and research on excellence at the University of Erlangen-Nuremberg, Germany. He is the founding director of the statewide Counselling and Research Centre for the Gifted. He has published around 300 books, chapters, and articles in the fields of talent development, excellence, educational psychology, and cognitive psychology. Presently he serves as the secretary general of the International Research Association for Talent Development and Excellence, as vice president of the European Council for High Ability, as Chairman of the European Talent Support Network, and as editor in chief of High Ability Studies.