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A History of Giftedness: Paradigms and Paradoxes

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Abstract

Any field of research has its core concepts that define the nature of a set of phenomena under investigation as well as determine the methodology of studying these phenomena. In history, the term “gifted” (or “giftedness”) is not only used descriptively to characterize some superior performance or outstanding accomplishments but also explanatorily to point to certain personal qualities responsible for this kind of performance or accomplishments. As our understanding of such performance and accomplishments changes, what “gifted” means also changes. Furthermore, our view of what gifted education can do to identify or promote these qualities also changes accordingly. In this chapter, I delineate the evolution of giftedness and gifted education as one that has gone through paradigm changes since the inception of the field. Existence of multiple, competing paradigms has created paradoxes in the sense of ascribing multiple meanings to the very concept of giftedness, neither of which can be

claimed correct or incorrect. I conclude the chapter by arguing that only by going beyond giftedness can we resolve the paradoxes.

Conceptions of giftedness, broadly defined, date back as early as Plato (see Grinder, 1985), but systematic thought and research devoted to this topic was a relatively recent event, and has been developed along with modern psychology. Early pioneers included Francis Galton and Alfred Binet (see Robinson & Jolly, 2014), among others. In the American history, with Terman’s (1925) study as the onset, the quest for the nature and consequences of giftedness has lasted for a century, and is still going on. The search for the locus of giftedness is also a search for the identity of a burgeoning field of studies that has yet to define its domain and defend its credibility. In this chapter, I first provide a historical-theoretical account in an attempt to capture the essence of what is seen as “gifted,” and identify and articulate the main thread of the intellectual history of giftedness, which can be characterized as resolving around three core elements: person, development, and context. Then, I delineate major paradigms of gifted education that is meant to serve gifted and talented students and facilitate their optimal development through carefully designed education provisions. Finally, I propose a new direction in the field that can help us

The significant problems we face cannot be solved at the same level of thinking we were at when we created them.
—Albert Einstein

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resolve the conceptual difficulties of identifying the locus of giftedness and move toward a new era of gifted education.

The Paradigms and Paradoxes of Giftedness

The locus and origins of giftedness turn out to be more elusive and complex than the founding scholars expected. As a result, the history of the search for giftedness can be defined as an ever increasing conceptual sophistication. In the following section, I delineate this historical process as going through four stages of development: conceiving, broadening, and refining the concept of giftedness, and exploring new frontiers, and summarize this history by identifying nine essential tensions revolving around the concept of giftedness, which are ontological, epistemological, and normative in nature.

The Conceiving Years: The Essentialist Paradigm

Theoretically and technically, the starter of this quest was Francis Galton (1869). Galton made a minimalist (and often radically reductionistic) assumption of the nature of high potential (i.e., there is some kind of genius "genes" at work, accounting for superior accomplishments of a few individuals). He also invented measurement techniques crucial for later development of psychometrics. Furthermore, his mathematical maneuvering of data to find discernable patterns and regularities led to heritability estimates critical for the claim of genetic contributions to human potential. Giftedness as conceived in the beginning of twentieth century also heavily relied on psychometric intelligence theory based on the discovery of a shared component in a variety of subtests, dubbed *general intelligence* or Spearman's "g" (Spearman, 1904). However, this more technical construal of intelligence was not what Galton initially had in mind. Galton (1869) had this to say:

By natural ability, I mean those qualities of intellect and disposition, which urge and qualify a man to perform acts leading to reputation. I do not mean capacity without zeal, not zeal without capacity, not even a combination of both of them, without an adequate power of doing a great deal of very laborious work. (p. 33)

In hindsight, Galton's conception of "natural ability" can be criticized on the ground that the three constituent qualities he identified must be separate things coming together in a particular context or at a particular developmental juncture (Renzulli, 1986; Simonton, 1999), rather than an innate, unitary capacity or structure, as he suggested. Nevertheless, the notion that the making of giftedness takes capacity, passion, and the commitment to hard work has proven to be a deep insight still meaningful today (see Lubinski, 2004).

Terman (1925) and Hollingworth (1924, 1942) were both strong believers in giftedness as manifested in high IQ performance. They started a tradition of treating giftedness as a unitary core of high general intelligence that sets the "gifted" apart from the rest of age peers, not only in terms of high facility in intellectual functioning but also in its profound ramifications for the individuality of persons so identified, such as different ways of thinking, different social-emotional characteristics, different educational needs, and unique developmental trajectories and pathways. This conception was further strengthened when Dabrowski, trained in developmental psychology in Europe, was later introduced to the American audience (see Ackerman, 2009). To be sure, Terman (see Terman & Oden, 1959) later realized that, within the high IQ group he studied, there were individual differences in motivational and emotional characteristics (translated into today's language, self-efficacy, and goal-directedness, etc.) that contributed to differential achievements decades later. However, the basic premise of high IQ individuals as a homogeneous group remains intact (Terman, 1954). For Hollingworth, who studied a group of children with extremely high IQs, their unique, exceptional social-emotional needs became a focal point.

In addition to this homogeneity assumption, these early advocates of giftedness also considered this quality to be permanent; that is, giftedness is a quality of the person that holds its identity, unity, and continuity across situations and over time. Thus, once a child is identified "gifted," this child will always be gifted. Here is the logic: the IQ test (at the time, Stanford-Binet) measures one's intellectual capacity, and this capacity, being part of natural endowment, will be with the child forever, regardless of life circumstances or developmental changes. Taken together, the core assumptions of *homogeneity* and *permanence* are underlying what I called the essentialist tradition in conceptions and theories of giftedness (Dai, 2010). We might also see this tradition as a mainstream paradigm of giftedness. Paradigm, broadly defined, is a system or framework of thought and practice widely accepted by a community of practitioners or professionals as the standard, coherent in its organization, and distinct compared to competing frameworks (see Dai & Chen, 2014 for more discussion).

There were challenges within the psychometric tradition as to whether there are other kinds of giftedness. Getzels and Jackson (1962) argued for the creatively gifted as a separate category of giftedness, though the data they provided is far from convincing, as the creatively gifted they identified also had a high average IQ (127, to be exact; see Borland, 2014, for more discussion). Torrance (1966) created his own now famous creativity tests aimed at identifying the creatively gifted. Regardless of their differences, early pioneers had strong convictions that giftedness sits in the person or person's head, and that it is homogenous (hence the sharp distinction between the creatively gifted and the intellectually gifted) and permanent (a highly stable trait that distinguishes itself from achievement or developmental outcomes). This essentialist tradition with its assumptions of homogeneity and permanence, however, is currently challenged on theoretical (e.g., Simonton, 2005) and technical (e.g., Lohman & Korb, 2006), as well as scientific, ethical, and practical grounds (see Borland, 2003; Dai, 2016, for critiques). Dissatisfaction also

comes from the fact that the initial claims Terman (1925) and other advocates made about the power of general intelligence as measured by the IQ tests in predicting future achievement are exaggerated, to say the least (see Borland, 2014; Subotnik, Olszewski-Kubilius, & Worrell, 2011), leading to a search beyond the magic "g" (Spearman, 1904) for explanatory factors.

Broadening the Concept and Switching the Focus: The Rise of the Developmental Paradigm

There has been recognition in the field that giftedness means potential for outstanding achievement; between potential and achievement is talent development. Tannenbaum (1983) asserted that.

Keeping in mind that developed talent exists only in adults, a proposed definition of giftedness in children is that it denotes their potential for becoming critically acclaimed performers or exemplary producers of ideas in spheres of activity that enhance the moral, physical, emotional, social, intellectual, or aesthetic life of humanity. (p. 86)

Other scholars pointed out that giftedness can be indicated either by indicators of potential based on their predictive efficacy as well as real achievement in terms of high-level domain performance or accomplishments (Siegler & Kotovsky, 1986; Mayer, 2005). Thus, criteria for determining giftedness do not have to be based on what one presumably possesses (e.g., a capacity or a fixed amount of potential); it can instead be based on what one has accomplished through talent development. In other words: giftedness includes "doing" as well as "being."

A major shift in conceptions of giftedness occurred sometime in the 1950s. Dissatisfied with the rigidity of IQ-based definition of giftedness and the essentialist construal of giftedness, Witty (1958), argued for a more inclusive definition of giftedness:

There are children whose outstanding potentialities in art, in writing, or in social leadership can be recognized largely by their performance. Hence,

we have recommended that the definition of giftedness be expanded and that we consider any child gifted whose performance, in a potentially valuable line of human activity, is consistently remarkable. (p. 62)

In this new definition, not only were domains broadened to include artistic and social endeavors, but criteria for determining giftedness were also shifted from test scores to authentic task performance (see also DeHaan & Havighurst, 1957). More important, however, is the logic underlying this new definition. Witty felt that, in conceptualizing giftedness, the importance of "capacity" was over-emphasized and "zeal" (or drive) underestimated, to use Galton's terms (see Jolly & Robins, 2014). An emphasis on "performance" rather than "capacity" reveals Witty's practical wisdom of not making a sharp, unwarranted distinction between what is "capacity" or "aptitude" and what is "achievement," a strategic move in historical hindsight (see Lubinski, 2004). By emphasizing performance, the new conception of giftedness legitimized authentic task performance as evidence of giftedness, and made room for motivation to play a role. It is not accidental that, while earlier pioneers like Galton, Terman, and Hollingworth were more keen on identification, Witty paid greater attention to providing appropriate educational opportunities to develop leadership and creativity in gifted students. Thus, the balance of nature and nurture was readjusted in the mid-twentieth century.

The first "official" definition issued by the Office of Education in the USA (Marland, 1972) bears a resemblance to Witty's (1958) definition. In the Marland Report:

Gifted and talented children are those... who by virtue of outstanding abilities are capable of high performance... Children capable of high performance include those who have demonstrated any of the following abilities or aptitudes, singly or in combination: 1) general intellectual ability, 2) specific academic aptitude, 3) creative or productive thinking, 4) leadership ability, 5) visual and performing arts aptitude, 6) psychomotor ability (p. ix).

The Marland definition, like Witty's, broadened the construct of giftedness definitively, and made it more inclusive. However, it also created unexpected problems. It is a convenient taxon-

omy, and the listed categories are not mutually exclusive, nor, indeed, rigorously and consensually defined. For example, leadership has a social as well as expertise/creativity dimension and can manifest itself across domains; creative (or productive) thinking is not a domain of its own but a process that can be manifested in all domains of human activity. Such a convenient list could mislead educators into believing that it represents a scientifically justified typology of giftedness.

Witty's (1958) influence can also be seen in Renzulli's (1978, 1986) three-ring theory, which was a culminating point in the Broadening Stage. The most obvious of this influence is the articulation of motivation (task commitment) as integral part of giftedness. What was more revolutionary, however, was a view of giftedness as a relative state that happens to some individuals at some times in some places, rather than an "absolute concept" (Renzulli, 1986, p. 62), structurally permanent and functionally pervasive. In this anti-essentialist spirit, Renzulli prefers to focus on "gifted behavior" (p. 63) about which we can do something, rather than "giftedness" as an entity sitting in the head. The three-ring theory introduces developmental timing and contextual factors in explaining how giftedness as a critical state occurs when above average abilities, domain-general or domain-specific, are brought to bear upon a task at hand through task commitment, eventually leading to some expression or product judged to be novel and valuable for its purposes (i.e., creative). Moreover, the theory stipulates a more distinct role of nurturing gifted behavior than previous models and theories, as it postulates task commitment and creativity as contextually shaped and more malleable than basic abilities. Three-ring theory was the first developmental rendition of giftedness. It inspired a more explicit developmental conception of giftedness in Europe (Mönks & Mason, 1993). However, it deviated so much from the essentialist construal of giftedness that after many years of its publication, it remains controversial (see Renzulli, 1999). The essentialist construal of giftedness (i.e., homogeneity and permanence) dictates that giftedness should be a capacity or capacity-like, not a developmental state, and that

task commitment and creativity are too contextually varied and malleable to be qualified as constituents of giftedness.

A view of giftedness not as a static quality in the head (i.e., capacity), but as a result of the confluence of several forces, endogenous and exogenous, coming together in the right place at the right time, was a major shift in focus, from treating giftedness as a simple matter of individual differences to seeking a deep understanding of how exceptional competence comes about in context and further evolves. This developmental orientation opened a new horizon for understanding the nature and nurture of gifts and talents.

The second half of the twentieth century can also be characterized as a domain-specific turn in conceptions of giftedness. Gruber's (1981) biographic research on Darwin, Bloom's (1985) interview studies with eminent young scholars and artists, Feldman's (1986) research on child prodigies in math, art, and chess, among other domains, and Csikszentmihalyi, Rathunde, and Whalen's (1993) research on artistically and scientifically talented adolescents, taken together, laid a new foundation for understanding origins of giftedness, talent, and outstanding accomplishment. Theoretically, Feldman (1994, 2003) pointed out that cognitive development in one way follows a universal path, as Piaget suggested, but in another way follows distinctive individual developmental trajectories and pathways based on one's propensities and inclinations vis-a-vis environmental opportunities. There is a universal-unique continuum in human ontogeny (i.e., individual development). By incorporating mainstream developmental psychology, the notion of giftedness found its new foundation in life-span development.

There were also efforts by the advocates of the traditional psychometric theories of giftedness to forge an integration of differential and developmental approaches. Ziegler and Heller (2000) defined giftedness as a tipping point when developmental conditions are optimal to allow some individuals to demonstrate this superior quality. Robinson, Zigler, and Gallagher (2000) looked at the two tails of the intelligence spectrum, the intellectually challenged and

intellectually gifted. They argued that the intellectually gifted go through more developmental stages, a conjecture consistent with the recent brain research showing that high IQ subjects have a prolonged cortical development than subjects of the normal IQ range (Shaw et al., 2006). True integration of differential and developmental approaches awaits a new force of integration that shows how the domain-general and domain-specific resources come together developmentally vis-à-vis environmental opportunities and challenges to shape the person's unique trajectory and pathway called *talent development*.

Refining the Concept: The Developmental-Contextual Paradigm

As suggested earlier, in the history of giftedness, scholars have been wrestling with the issue of competing claims, from the person accounts and the developmental and contextual accounts, from the domain-general accounts and domain-specific accounts. Resolving this conundrum takes a new tack. One has to remap the parameters, Tannenbaum (1997) brought people back to the drawing board, and created a new road map of the gifted land: who (producer vs. performer), what (thought, artistry, or service), and how (proficiency vs. creativity). Simonton (1999, 2005) mapped out the main parameters developmentally in his emergenic-epigenetic model of talent development.

According to the emergenic-epigenetic model, giftedness or talent is relative to the nature of a given domain that offers a specific set of opportunities and challenges to an interested person. Whether gifted behaviors will emerge depend on (1) whether the domain involved is simple or complex, (2) whether the person in question has the right combination of genetic components vis-à-vis the domain, (3) whether these functional components for the domain operate at an additive or multiplicative fashion, and (4) whether all the components relative to the domain come into place (i.e., developmentally matured) at the right

time. In other words, what kind of giftedness will emerge is not prespecified or preordained in biology but determined by a combination of multiple factors: *person* (biology), *domain* (culture), *social context* (opportunities and age peers), and *developmental timing* (epigenesis). The model also predicts that gifted behaviors are not a constant but can emerge and disappear, depending on individuals' developmental timing, opportunities for sustained engagement, and related population characteristics.

Dai (2010; Dai & Renzulli, 2008) proposed *flexible agency, participation, and increasing differentiation*, among others, as major tenets of individual development. Thus from a differential-developmental point of view, giftedness as outstanding performance or behavior is an emergent, changing property of person–environment interaction that grows and becomes more differentiated over time. This formulation attempts to solve the tensions between the person accounts (essentialism) and contextual-developmental accounts (developmentalism), between domain-general and domain-specific accounts (see Pfeiffer, 2013, for a similar effort in his tripartite model of giftedness).

Using a neo-Piagetian approach, Porath and colleagues' research shows that domain-specific differential development (emerging talent) starts very early (in preschool years, in mathematics and writing, among others), though constrained by the working memory capacity (see Porath, 2006). Working memory capacity has both individual difference and developmental underpinnings that constrain performance in terms of cognitive efficiency. Cognitive sophistication (metacognitive awareness and control) is another possible domain-general mechanism that facilitates domain-specific development (Dai, 2010; see also Miller, 2005). Extending this research beyond childhood and adolescence, Horowitz, Subotnik, and Matthews (2009) provided a life-span developmental perspective on giftedness that further elaborate on giftedness as a dynamic, developmentally changing state, with different challenges and opportunities at different points in individual development. Together, they provide an

integrated, unified understanding of gifted behavior and talent manifestation.

New Frontiers: Contextualism vs. Individualism

Compared to the zeitgeist of the beginning of the twentieth century, when Spearman (1904) declared that general intelligence is once and for all "objectively determined and measured" (p. 201), the zeitgeist of the twenty-first century is completely different. For better or for worse, it favors social-contextual accounts and dismisses individual difference accounts of giftedness, reflected in popular media such as Gladwell's (2008) best seller "Outliers, and" Daniel Coyle's (2009) book titled "Talent Code."

American scholars tend to be polarized when it comes to the nature–nurture issue, but in the new century, the pendulum is swinging to the nurture side. Ericsson's (2006) influential research on expertise, and Weisberg's (2006) research on eminent scientific creativity lend support to the idea that alleged gifts and talents for high level accomplishments are exaggerated; even their existence is scientifically questionable (Howe, Davidson, & Sloboda, 1998). They highlighted the role of dedicated effort and deliberate practice, and downplayed the importance of talent or giftedness. A more radical view can be seen in a new wave of contextualism that stresses the nature of human intelligence and creativity as fundamentally situated (hence contextual), distributed (between the person, tools and resources available), and collective (co-constructed with others), rather than reflective of individual characteristics (Sawyer, 2012). According to a "relational ontology" (Gresalfi, Barab, & Sommerfeld, 2012; p. 42), intelligent behaviors arise from (1) the nature of the task that frames activity, and tools and resources that support activity; (2) recognized and valued norms and rules that shape particular activities; and (3) personal history and dispositions of the learner. In other words, to understand outstanding performance, one has to understand the context that shapes the performance. This is how the focus on giftedness is shifted to from person

to context (Barab & Plucker, 2002; Plucker & Barab, 2005).

Ziegler's (2005) Actiotope Model of Giftedness is in spirit closest to this new wave of contextualism in its emphasis on situated action with all the supporting tools and resources, action repertoires developed through action, as well as "subjective action space," with aspirations, intentions, and goals. A major departure of this new contextualism is that it no longer treats person and environment as separate entities but see them as an undividable functional unit. If the developmentalism focuses on "giftedness in the making," (Dai, 2010, p. 196), this new contextualism goes one step further and locates giftedness squarely in action and the functional relationship and interaction with some aspects of the world.

To summarize various competing claims and arguments in the field of gifted studies, Dai (2010) delineate nine ontological, epistemological, and normative tensions or "antinomies," to use Immanuel Kant's terminology (see Table 1.1), consisting of a set of thesis and antithesis.

Of the tensions identified in Table 1.1, ontological tensions reveal differing convictions or competing arguments about the nature and sources of human potential for outstanding contributions in a variety of domains of cultural importance. These convictions or arguments drive their conceptualizations and research agendas. Epistemological tensions reflect differing beliefs and positions regarding evidential basis of knowledge claims and the methods of identifying and understanding the nature and development of giftedness. To some extent, the epistemological tensions are derived from ontological tensions as well as perpetuating specific ontological convictions. Thus, the gifted-nongifted trait comparison research further solidifies the claim of qualitative differences between the gifted and non-gifted, hence the legitimacy of the gifted-nongifted bifurcation in education practice. Conversely, developmental research shows the changing and evolving nature of competence, thus in favor of developmental and contextual accounts of giftedness. Generally speaking, the paradoxical nature of the "antinomies" in the field of gifted studies

resemble those in physics, for example, debates about the nature of light as particle vs. wave; some methods reveal particle-like properties, and others wave-like properties. To push this parallel further, particle accounts reveal a reductionist bias just as wave account reveal a holistic bias. In comparison, the normative tensions arose partly from ontological convictions and epistemic stances, and partly from values and priorities: what is considered optimal and ideal conditions. The normative concerns and goals lead to the next topic: gifted education.

Paradigms and Paradoxes of Gifted Education

In the above account of the history of giftedness, the vantage point is psychological. However, various conceptions of giftedness occurred in educational contexts as part of practical endeavor known as gifted education. Discussing this context is necessary for intellectual and practical reasons. For one, discourse on giftedness often takes place in the context of gifted education; giftedness becomes meaningless if deprived of its practical context. For another, specific approaches to gifted programming typically explicitly or implicitly embraces a particular viewpoint regarding the nature and nurture of giftedness; uncovering the hidden assumption is useful if we are to make our educational discourse intelligible and intelligent.

At the core of a paradigm of gifted education is a view of what "giftedness" means, and what we can do about it. The former concerns the psychological dimension of the nature and nurture of gifts and talents; the latter involves a normative dimension in terms of priorities and values we embrace, which is not a true or false question that can be answered empirically but has to be negotiated and endorsed among its stakeholders. At the theoretical as well as practical level, gifted educators have been searching for unique curricular and instructional identity for gifted education (Ward, 1961; see also Borland, 1989; Kaplan, 2003; Tomlinson, 1996). As we shall see, what "giftedness" means has deep implications as to what we can

Table 1.1 A summary of major tensions and themes in the field of gifted studies

Ontological tensions	
<i>(1) Being versus Doing/Becoming</i>	
Giftedness is possessed; giftedness is biologically constitutional, an enduring personal quality that ultimately explains gifted behavior and outstanding achievement over time.	Giftedness is achieved; giftedness is an emergent property and functional state of person–environment transaction and interaction, and a result of learning, practice, and social and technical support, subject to further development and change.
<i>(2) Domain-general versus domain-specific</i>	
Giftedness is not inherently confined to any single domain, because general cognitive abilities can be flexibly channeled and utilized in multiple ways, depending on environmental circumstances and motivations.	Giftedness is domain-specific, because each domain has its own unique set of demands in terms of sensitivities, inclinations, and abilities, which are tuned to a particular set of objects, symbolic meanings, and underlying relationships.
<i>(3) Qualitative versus quantitative differences</i>	
Gifted individuals are different from their average peers <i>in kind</i> , because the structural and functional organization of their minds is different, and their developmental trajectories are unique.	Gifted individuals differ from their average peers only <i>in degree</i> , because they only show relative strengths and advantages rather than absolute ones.
Epistemological tensions	
<i>(4) Aptitude test versus authentic performance</i>	
Potential for excellence (i.e., giftedness) is best evidenced in performance conditions that can differentiate high potential (aptitude) from high achievement.	We will never know whether a person is “gifted” or holds unusual “potential” unless the person demonstrates superior mastery of skills and knowledge in an authentic domain or functional context.
<i>(5) Nomothetic versus idiographic</i>	
Manifestations of gifted behaviors are subject to a set of hidden but universally valid laws and principles; therefore, we can determine who are gifted and how the gifted develop by applying these universal rules and principles.	Manifestations of gifted behaviors are diverse and unique phenomena, and have their own underlying logic, not subject to predetermined universal principles; therefore, the uniqueness of each manifestation needs to be closely examined in order to shed light on its nature.
<i>(6) Reductionism versus emergentism</i>	
The complexity of gifted manifestations can be explained by simpler components at a more basic level of analysis; higher-level phenomena can be causally reduced to lower-level components, structures, and processes.	The complexity of gifted manifestations reflects higher-order organizational principles in the organism and functional regularities that are context-dependent, and there are emergent properties that cannot be reduced to isolated lower-level components.
Normative tensions	
<i>(7) Expertise versus creativity</i>	
High-level expertise (proficiency) in a given domain should be the hallmark of giftedness and goal of gifted education, because only this form of excellence can be scientifically verified, and educationally promoted.	Creative productivity (innovation) should be the hallmark of giftedness and goal of gifted education, because giftedness is not about mastery of the already known, but exploring, discovering, and inventing the unknown.
<i>(8) Gifted child versus talent development</i>	
Gifted children should be the center of our focus and the sole rationale for the existence of gifted education; their special educational needs and unique patterns of personal growth should be the driving force in educational programming and intervention.	The evolving process of talent development should be the central focus of gifted education; gifted education should provide maximal opportunity for those who show manifest or emergent talents and are interested in developing their talents to the fullest of their capacities.
<i>(9) Excellence versus equity</i>	
Identifying and cultivating high potential for excellence is a society’s responsibility for the welfare of individuals as well as the society at large. Developing excellence reflects a cultural value that is important for a viable democracy and advances in human civilization.	Singling out the alleged “gifted” for special treatment and privileged access to opportunity to pursue excellence perpetuates existing social inequality, and creates a new social “elite,” thus violating the democratic principle of equal rights and opportunity.

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do about it. If giftedness is about the person, the focus will be on identification and targeted interventions; but if giftedness involves development and context, and if qualities we deem “gifted” are malleable, practical strategies would be completely different. In the following section, I delineate a history of gifted education in terms of paradigms and paradigm shifts, parallel to the development of the concept of giftedness sketched earlier, largely based on the three-paradigm framework I developed (Dai, 2011; Dai & Chen, 2013, 2014) as a general guide (see Eyre, 2009, for a similar effort).

Paradigms and Paradigm Shift

Dai and Chen (2013, 2014) defined a paradigm of gifted education in terms of how programming addresses the questions of What, Why, Who, and How, pertaining to both theoretical foundations and practical approaches. Each paradigm is distinct regarding (1) *What* is the nature of gifted-

ness, (2) *Why* we need gifted education, (3) *Who* are gifted and how we get to identify them, and (4) *How* we educate them, and what strategies and methods are viable and effective? (see Table 1.2)

From an educational point of view, Terman (1925) and Hollingworth (1942) can be seen as two leading historical figures who laid a solid foundation for what I called the Gifted Child Paradigm in the inception years of the gifted education movement, because they held the same strong conviction that giftedness as evidenced by high IQ scores is genetically determined and sets children so identified apart from the rest (i.e., homogeneous and permanent); what naturally followed was a *categorical approach* to gifted education; namely, by being “gifted,” they warrant an education uniquely suited for them (Delisle, 2002, 2014; Gallagher, 2000).

In terms of purposes of gifted education (the question of *Why*), however, Terman and Hollingworth held somewhat differing views. Borland (1989) identified in history two *raison d’etre* of gifted education: a special-education

Table 1.2 Major points of differences between and among the three paradigms

Dimension	Paradigm		
	Gifted child	Talent development	Differentiation
Assumption “What”	Essentialism; exclusive categorical assumption; status definition; permanent, context-free exceptionality with regard to general ability assumed	Developmentalism; talent diversity assumption; malleable status; increasingly differentiated aptitudes for a particular domain; exceptionality not assumed	Individuality assumption; emergent needs for differentiation; context dependency of exceptionality
Purpose “Why”	Serving the gifted; thinking and leadership qualities as the goal	Supporting domain excellence and innovation; modeling after authentic professions and creativity	Diagnostic focus; responding/ serving manifested individual needs within the confines of schooling (e.g., main school subjects)
Targeted students “Who”	Classification based on psychometric measures of superior mental qualities	Selection/placement based on aptitudes for a particular domain	Diagnosis of strengths and needs for educational purposes in a particular educational context
Strategy “How”	Programs assumed to be uniquely suited for the gifted; pull-out and self-contained programs as service models	Various enrichments, authentic learning, and mentorship across school, home, college, and community as service models	Appropriate pacing of learning progression, school-based curricular and instructional adaptations and other interventions as service models

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approach, and a national-resource approach. Hollingworth (1942) placed a premium on special needs of these children. Terman held a national-resource or human capital rationale for gifted education (see Terman, 1954). Both have had a following in history: some aligned themselves more with Terman (e.g., Tannenbaum, 1983; Gagné, 1999) and others with Hollingworth (e.g., Roeper, 2006; Silverman, 1997). Indeed, the recently emerging paradigms, the Differentiation Paradigm and the Talent Development Paradigm (Dai, 2011; Dai & Chen, 2013) inherited the two orientations respectively, though the way advocates of these two paradigms conceptualize the nature of giftedness (What), the way they identify gifted children (Who), and the way they fashion their practical strategies (How) are quite different.

The Talent Development Paradigm emerged in the late twentieth century and has been gaining momentum to become a major force in gifted education. Earlier pioneers included Julian Stanley and Joseph Renzulli, among others. Both were active at practical fronts from 1970s onward, and both developed practical ideas to combat the rigid practices of traditional age-graded schooling (Stanley, 1996) as well as the rigid IQ-based categorical approach to gifted education and overemphasis on "schoolhouse giftedness" (Renzulli, 1986; see also Subotnik & Olszewski-Kubilius, 1997). Drawing upon the conceptions of multiple and multidimensional intelligences (e.g., Gardner, 1983; Sternberg, 1985), there was a surge of talent development models and research (e.g., Bloom, 1985; Gagné, 1985; Feldhusen, 1992; Feldman, 1992; Lubinski & Benbow, 1992; Maker, 1996; Passow, 1981; Piirto, 1994; Subotnik & Coleman, 1996; Tannenbaum, 1983; Treffinger & Feldhusen, 1996) that have looked at various manifestations of talent in different domains and how education can create advanced domain-specific learning experiences (e.g., through authentic inquiry and mentorship) to cultivate talent and creativity in school and optimize talent and life trajectories toward a productive and fulfilling career.

Although explicit paradigmatic prescriptions about strength-based differentiation did not emerge until recently, the notion of differentia-

tion has been around for decades. Questioning the effectiveness of pull-out gifted programs that patched upon the regular curriculum without any systematic design, Ward (1961) argued that the regular curriculum within schools should be adapted to provide for a full-day learning environment that meets the needs of advanced learners. Robinson and Robinson (1982) proposed the notion of optimal match of educational settings for the highly able learners through providing some learning progression flexibility instead of the rigid age-graded academic placement. However, it is in the context of the full inclusion movement that the Differentiation Paradigm emerged as an important guiding framework in gifted education, as the heterogeneity of class composition makes curricular and instructional differentiation even more imperative (Tomlinson, 2014; Tomlinson et al., 2003; Coleman & Hughes, 2009). Regarding the nature of giftedness, this paradigm assumes that educational needs of advanced students only become manifest in the context of a particular juncture of development on a particular school subject and can be best met with the right diagnosis of discrepancies between mastery levels of the student and curricular offerings (Matthews & Foster, 2006). In effect, it advocates a kind of "gifted education without gifted children" (Borland, 2005, p. 1) in the sense that instructional adaptation can be made on an individual-by-individual basis without the need to label a few students as "gifted" for special service (i.e., establishing the "gifted" status) and by default designate the rest as "non-gifted" (see Peters, Matthews, McBee, & McCoach, 2013, for a similar approach called *advanced academics*).

Comparing and Contrasting the Three Paradigms

There are continuities as well as discontinuities between the old and new paradigms. The Differentiation Paradigm inherits the legacy of the Gifted Child Paradigm in its emphasis on optimal match, but with more detailed, contextualized understandings of how to adapt curricu-

lum and instruction to suit education-relevant individual characteristics and developmental changes. The Talent Development Paradigm inherits the legacy of the Gifted Child Paradigm in its emphasis on developing future leaders and major contributors on various fronts of human endeavor, but with a more pluralistic, dynamic, and developmental outlook regarding the nature of human potential and consequently the role of environment and motivation. Despite continuities with the traditional Gifted Child Paradigm, theoretical (“What” and “Why”) and practical (“Who” and “How”) differences between the two late comers and their predecessor are distinct. While the two late comers are not incompatible with each other, the Differentiation Paradigm is a more circumscribed, present-focused, classroom-based, practice-driven model, and the Talent Development Paradigm a broader, more ambitious (i.e., not confined to school structures and provisions), future-oriented, psychology-based framework that has been implemented in many ways at the practical level (Subotnik et al., 2011).

Resolving the Paradoxes of Giftedness and Gifted Education: Toward an Unified Vision of Talent Development

As suggested in Einstein’s quote at the beginning of this chapter, it is difficult to resolve the paradoxical nature of giftedness and competing paradigms of gifted education without going beyond the conceptual trenches we created in the first place. Regardless of existing differences, the field seems to have at least reached a basic consensus: human potential is much more pluralistic, and more contextually and developmentally shaped than the founding scholars of the field believed. With this in mind, I argue in favor of going beyond “giftedness” to embrace a broader vision of not only understanding what “nature” bestows on each individual, but, more importantly, how to cultivate human potential and help create productive and fulfilling life trajectories and pathways for those showing great promise,

which are beneficial to society as well as individuals. In the final analysis, understanding the nature and nurture of high potential for outstanding contributions is more important than fixing a terminology issue. A fundamental task for the field, more meaningful than that of figuring out the meaning of “giftedness,” is to develop a better understanding of how someone becomes a great scientist, artist, inventor, or social leader, what their upbringings look like, and how the inner (endogenous) environment and the outer (exogenous) environment interact to produce a great life. Tannenbaum (1997) provided a useful framework. Subotnik et al. (2011) provided a framework for understanding the developmental stages, processes, and timing of talent development. I have also attempted to develop a theory of talent development (Dai, 2010, 2017) that can account for multiple developmental trajectories/pathways (involving both nature and nurture), leading to various forms, kinds, and degrees of talent, high-level expertise, and creativity. In short, the talent development perspective provides a scope of inquiry that is much broader and richer than the term “giftedness” can afford.

There are policy and practical implications for such a shift in paradigm. Defined such, gifted education would become a more open, rather than exclusive, system. Potential positive impact and benefits of this new approach can be (1) a more diverse group of students served, (2) a variety of talent trajectories and pathways accommodated to, (3) more connections to themes of the twenty-first century (creative economy, technology age, twenty-first century problems, new talent niches, four Cs), and (4) more connections to personal interests and aspirations. Many years ago, Renzulli and Reis (1991) pointed out a “quiet crisis” in gifted education regarding how well it can address the equity and social equality issues. The new approach would help gifted educators better address them (Dai, 2013). From a multicultural perspective, the new approach is more receptive to distinct strengths and values various cultures bring into play in education. After all, what we define as “gifted” is often value-laden, and therefore not culture-free (see Ford, 2011).

In conclusion, as the discourse on giftedness is deeply rooted in educational context, the central issue is how to make gifted education scientifically more compelling, socially more equitable, and educationally more productive (Dai, 2016). This entails a sound understanding of the nature and nurture of human potential that can help guide and inform gifted and talented programming. To that end, the discussion of paradigms and paradigm shifts will still be meaningful in the years to come, potentially leading to a new era of gifted and talented education.

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