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A Jeffersonian vision of nurturing talent and creativity: toward a more equitable and productive gifted education

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Abstract This article attempts to address the question of how to make gifted education more equitable and productive by shifting priorities to talent development for all rather than confining itself to the "gifted." I first present an overview of political and ethical considerations in selecting a few for talent or creativity development. I then argue for a form of meritocracy in education for the purpose of producing talents, leaders, and frontier explorers that is different from what is often perceived as "elitist" and that is viable and important for the common good as well as for the individuals involved. I then discuss how we can negotiate and balance priorities of equity, excellence, and diversity. In light of this form of meritocracy, I suggest that the Talent Development Paradigm be adopted as a promising alternative to the Gifted Child Paradigm for the future of gifted education.

Keywords Equity · Excellence · Meritocracy · Elitism · Diversity · Educational policy

The general objects—are to provide an education adapted to the years, the capacity, and the condition of everyone, and directed to their freedom and happiness—We hope to avail the state of those talents which nature has sown as liberally among the poor as the rich, but which perish without use, if not sought for and cultivated.

Thomas Jefferson, Notes on the State of Virginia.

Historically, talent development and creativity education fall into the territory of gifted education, at least in the USA. Should talent development and creativity education be confined to a small group of individuals or open to a majority who are willing or eager to avail themselves of the opportunities? After all, a common perception, reinforced by the multiple intelligence theory (Gardner 1983), views intelligence as multidimensional and talent as widely distributed in a population, rather than possessed by only a very few. Creativity education, an undertaking traditionally preserved for the "gifted," is now considered appropriate for a wide range of people and indeed quintessential for surviving in the twenty-first century (Partnership for 21st Century Skills 2008). Is gifted education still viable in this new context? Criticism of gifted education as elitist is common (e.g., Margolin 1994; Sapon-Shevin 1994, 2003), so are counter-arguments (e.g., Benbow and Stanley 1996; Colangelo et al. 2004); equity issues aside, effectiveness of choosing a small group of students for enrichment has also faced challenges (Berliner and Biddle 1995). How do we know the chosen few are necessarily the most talented and productive ones and the rejected less promising? Are the selection criteria fair and valid? Taken together, these issues concern the justification or defensibility of special programs or programming for the group identified as "gifted and talented." How do advocates and practitioners of gifted education respond to these challenges? How do they justify special education provisions for the selected? Would they even redefine gifted education in a way that addresses equity concerns and make it more effective? This article attempts to address these questions. I first present an overview of political and ethical considerations in selecting a few for talent or creativity development. I then argue for a form of meritocracy in education for the purpose of producing talents, leaders, and frontier explorers that is different from what is often perceived as "elitist" and that is viable and important for the common good as well as

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stakeholders of education. I then discuss how we can negotiate and balance priorities to make our practice socially equitable and educationally effective (i.e., productive). In light of this form of meritocracy, I conclude that the Talent Development Paradigm is a promising alternative to the Gifted Child Paradigm for the future of gifted education.

Why some deserve more than others educationally: the politics of education

In his *Democracy in America,* Tocqueville (1835/2004) made the following observation:

> I recognize the general and systematic idea upon which a great people direct all their concerns. Aristocratic nations are naturally too liable to narrow the scope of human perfectibility; democratic nations, expand it beyond reason.

There is indeed a political spectrum of how we set up education systems to serve the common good. On the conservative end is the view of an IQ-stratified society, which that predicts the inevitable emergence of a cognitive elite in a democracy over generations, largely based on genetic differences in general intelligence (Herrnstein and Murray 1994; Gottfredson 1997). Ideally, education systems should fully capitalize on the "cognitive elites" (i.e., the most intelligent bunch) and identify them for education purposes. In return, the identified should take additional responsibility for the well-being of the body politic. Such was the impetus of gifted education in its early days in North America (Terman 1925). With the assistance of psychometric measurements, the cognitive elite can be singled out by IQ test scores, which can determine who enjoy this privileged status. Consequently, a *social efficiency model* of education would prevail, which categorizes and classifies children in early years as average, gifted, mentally challenged, and so forth, and educates them accordingly. Indeed, the tradition of gifted education was characterized as such a categorical approach (the gifted and non-gifted bifurcation in education systems; see Borland 2003 for a critique). This approach, what I call the Gifted Child Paradigm (Dai 2011; Dai and Chen 2013), naturally faces criticism from within (e.g., Borland 2003; Keating 2009) and without (e.g., Berliner and Biddle 1995; Sapon-Shevin 1994, 2003).

On the opposite end of the political spectrum are the sentiment and belief that all human beings are born equal (with equal potential), and accordingly should have equal opportunity and rights to education and political participation. From this perspective, the notion of the "cognitive elite" or high intelligence is nothing but a social ploy to control the mass and suppress the underprivileged and disfranchised. According to this view, selecting a small percentage (say 3 %) of high IQ children for "higher-order thinking" and "leadership" training amounts to developing a ruling elite, thus violating the democratic principle of equal rights to education and political participation (Margolin 1994). Based on a radical, populist version of egalitarianism, since everyone is equally capable and competent, social equality means no merit-based selection, no social recognition or reward for excellence, no differentiated education for those educationally more advanced than others, and, indeed, no representative democracy.

In the middle of the political spectrum is what Sternberg (2000) called the Jeffersonian view, based on Thomas Jefferson's vision of human potential and ideal society, which sees human potential as pluralistic rather than monolithic, and diverse talents as widely distributed across all walks of life (rich and poor). According to this political vision, all people are born politically equal and therefore should have equal opportunity and rights to education and political participation. Indeed, education is the only way to liberate the mind and ensure that a democracy would not become another form of tyranny. However, people are not born biologically equal in terms of potential or competence, and people do not avail themselves equally of opportunities presented to them. The society should cultivate talents, but reward people for what they do, not for what they are. Special provisions for advanced students can be justified when the opportunity to develop and demonstrate high potential or aptitude is made available to all (see the opening quote in this article).

Two issues emerge from this political spectrum of education systems, equity and effectiveness. Regarding equity, the term "elitism" implies a privileged social status for some based on birth, social class, or alleged superior mental qualities, however defined. Therefore, it is commonly viewed as unfair and politically incorrect. The categorical approach mentioned above seems guilty on this count. However, is it equitable if some people, by demonstrated excellence or potential, prove themselves worthy of more or extra educational investment than others? To answer this question, it is useful to evoke the distinction Nozick (1974) made between his own historical entitlement theory of justice and Rawls's (1971) theory of justice. Nozick's historical entitlement theory emphasizes the equitable (or inequitable) *processes* of acquisition and transfer of "holdings" (or possessions), whereas Rawls's theory of justice, according to Nozick, is based on a non-historical, end-result principle, focusing on particular patterning of the distribution of holdings at a given moment (or current time-slice). In effect, Nozick argues that the key to social justice is equal opportunity, not equal results. John Gardner echoed Nozick's sentiment when he envisioned an ideal society where "everyone would be free to perform at the level of his or her ability, motivation, and qualities of

character and be rewarded accordingly" (Gardner 1984, p. 22). To be fair, Rawls also recognizes the justification of gaining more "holdings" or opportunities through ability as well as effort. As a corollary in education, equity does not mean the same education (curriculum, placement, etc.) for all, but appropriate given individuals' levels of development, demonstrated competences, and personal inclinations. Equity means equal rights and opportunity (no externally imposed impediments), not equal gains or outcomes.

As for effectiveness, whether education should allow some to advance faster and deeper in whatever they choose to do hinges on our understanding of individual differences and the malleability (and the degree thereof) of human abilities. If individual differences in human potential are fixed at birth (or even at the moment of conception), then a social efficiency model of education would be effective and efficient, as long as the system has a reliable and valid way to tell who should be a NASA scientist and who should be a plumber. If, on the contrary, people have equal potential and will avail themselves of whatever opportunities they have, then no special provisions for a privileged few are necessary. The preponderance of evidence seems to refute both. Human potential is multifaceted rather than monolithic as the view of an IQ-stratified society suggests, and dynamically shaped through developmental interactions with the environmental opportunities, resources, tools, and support (Dai 2010, 2014; Dai and Renzulli 2008), involving motivational, cognitive, emotional as well as social processes (Dai and Sternberg 2004), in a probabilistic fashion (Gottlieb 1998). Moreover, "gifted and talented" means different things at different stages and levels of development (Subotnik et al. 2011). Therefore, a fixed categorical view of giftedness devoid of context (once gifted, always gifted), just like a fixed view of the "cognitive elite," is untenable. Conversely, however, evidence of divergent development and differential educational outcomes is overwhelmingly strong. Using the developmental standard score norms of the Iowa Tests of Basic Skills (ITBS), Gagné (2005) showed a fan-spread effect whereby academic achievement in grades 1–9 evidenced a widening of the achievement gap within each cohort. More pertinent to the current topic, he showed that by grade 3, the most academically talented students had caught up with average ninth grade students, and from fourth grade up, there was a 50-point spread within the top 10 %, and by ninth grade, a 50-point spread can be observed within the top 2 %. The fan-spread effect is likely due to both one's ability and effort, everything else being equal (presumably no systematic impediments or privileged treatments in the environment). Lubinski and Benbow (2006) have conducted a large-scale longitudinal study of mathematically and verbally gifted children over four decades. They found a significant impact of initial ability differences at the ages of 13–14 on long-term developmental outcomes in terms of earned academic credentials and creative productivity decades later. The prediction even holds within the highly selective samples. Ceci and Papierno (2005) argued that, in view of a prevalent Mathew Effect in education (i.e., a cumulative advantage, similar to the fan-spread effect mentioned earlier), psychological realities seem to collide with the political rhetoric of helping those lagging behind and "closing the achievement gap." If individual differences in aptitudes and achievements are ubiquitous, trying to equalize the learning outcomes is an illusion. To extrapolate based on the observed "Mathew Effect," compared to the pre-industrial age when formal education was still rare, modern education, by virtue of making the most of one's potential, may inevitably amplify individual differences rather than reducing individual differences. Therefore, an education system that neglects individual differences and ignores gifted and talented learners' need for more advanced learning is ineffective (and inequitable) in providing appropriate education for all.

Sum-up: empowering the highly capable and willing for excellence is a just cause

To sum up the above discussion, an equitable education system should make opportunities as open as possible so that everyone has an opportunity to try. However, attempts to produce "equal" outcomes are doomed to fail (i.e., ineffective), and depriving some individuals of opportunities and resources for excellence is unfair and unjust. What should prevail is a Jeffersonian meritocracy in education that is based on what you do or can do (achievements and contributions), not what you are (assumed inherent superiority by birth, social class, or mental qualities). The following are main justifications for this model:

- Measurable enduring individual differences in developmental potential cognitively and affectively (Lubinski and Benbow 2006) call for an education system that pays full attention to emergent talents and interests and respond to them adequately. However, the system needs to be fully aware of the heterogeneous nature of talented individuals, and different trajectories and pathways they present.
- A merit-based education system reflects the principles of equity and excellence. Raul's (1971) Difference Principle should be interpreted in this context to mean that those who demonstrate high aptitude for a particular line of endeavor should be given further opportunity and support. Equal rights to education do not mean the same, one-size-fits-all education for all (Reis et al. 1998).
- An education for excellence, creativity, and leadership serves a crucial strategic interest and enhances the

vitality of a society for any nation; the Jefferson version of meritocracy that highlights excellence and diversity ultimately benefits all and serves the common good.

- The twenty-first century knowledge economy and the high-tech information age demand an education that can cultivate as many talents as possible and produce talented individuals who will be eventually capable of generating novel and useful ideas and innovative systems, products, and services for improving human conditions.

This kind of system is not elitist in the sense of favoring a particular social group. Yet, it can create elite performers and producers of ideas and products. They constitute a "creative class" distributed in science, art, and technology, business, among others, roughly 20 % of the workforce, as estimated by Florida (2002). This class of highly specialized or well-rounded creative talents can advance intellectual and practical causes by exploring the frontiers and stretching their imagination, capitalizing on modern technology to improve human conditions and life quality, while solving major problems plaguing the contemporary society.

Meritocracy embodied in education systems

Meritocracy is quite ubiquitous in education systems, including those in countries that emphasize equality and egalitarianism. For example, selective universities by nature have high-threshold admission requirements; many state universities in the USA have set up an honors college. At the secondary education level, there are selective high schools in Australia, China, France, and many other countries. Even in places where high school admissions are based on children's residential locations, there are International Baccalaureate (IB) programs and honors classes, among other special provisions that are selective in nature. Besides, there are many summer programs and online courses for the gifted and talented (using certain selection criteria). Theoretically, an effective meritocratic education system has three defining features: excellence, selectivity, and efficiency (or cost-effectiveness). In the following section, these three aspects will be discussed separately to highlight their respective theoretical and practical ramifications.

Excellence

Excellence is the hallmark of and sole criterion in any meritocratic education system. First of all, excellence is an inherently norm-referenced as well as criterion-based concept, implying a distinct comparative advantage or merit in a domain of human activity, though degrees and levels of excellence may vary (e.g., a national-level vs. an international-level player). Second, as superior achievement, excellence is not possessed, but earned. Therefore, while sharing characteristics with the concept of "gifted" as being "superior" and "rare," excellence is more of a performance concept, denoting levels of competence and promise as well as commitment. Third, excellence, like the term "gifted," is fundamentally value-laden, indicative of superior achievement in domains valued by a culture and important for improving human conditions. Gifted burglars or computer hackers are perfectly conceivable, but few, if any, would cite their feats as instances of excellence and treat them as prototypes of the gifted.

In the educational context, excellence can be defined as superior achievement in academic, artistic, social, technical, and vocational domains, among others, by age-appropriate standards (Feldhusen 1992). It can take the form of *skilled performance* (a chess champion, a piano virtuoso, etc.), *creative products* (a scientific theory, a novel, a new form of artistic expression, etc.), or *social leadership* in some worthy human endeavor (business, environmental protection, visionary governance, etc.). Excellence in educational context can be defined either in an orthodox manner, based on mainstream curriculum and professional standards, or in a more liberal manner that permits a variety of cultural and personal ways of expression (Ford and Grantham 2011). We might derive from this argument the *principle of diversity*, through which equity in strivings for excellence can be enhanced. An education system is meritocratic to the extent that excellence is featured prominently and rewarded with social recognition and more advanced learning opportunities.

Selectivity

Excellence entails selectivity of some sort. Selectivity means that there are threshold requirements, gatekeepers, and checks and balances for merit-based participation (e.g., acceptance to a selective school, or entering a science laboratory). Only those proven capable and willing are qualified to participate, and standards of achievement will be higher for them than for non-participants. Because of the non-compulsory nature, the pursuit of higher than "normal" levels of excellence is also a personal choice (e.g., no one is or should be forced to join a math or science competition, or seek admission to a prestigious college). Also, merit-based participation (e.g., attending an honors college) is a privilege, not an entitlement, bestowed upon individuals based on the expectation that they will try their best to achieve excellence, contingent on their satisfactory performance and having a "good standing."

In formal selection, what kind of threshold requirements is appropriate? How do we know the selected are the capable and willing? Who can achieve the levels of

achievement we expect of them? These are empirical questions that need to be addressed to yield evidence-based practice. Conceptually, threshold requirements for specific programs should in principle (a) be sensitive to ages and developmental levels (e.g., whether the individual is mature enough to show a particular patterns of abilities, interests, self-concepts, and preferences), (b) be as domain specific as possible (e.g., what it takes to pursue a particular line of scholarly inquiry), and (c) match curriculum goals (e.g., how rigorous the program is). Technically, selection tools and systems should be reliable and valid for the purpose of selection. For that matter, it is always desirable to use *multiple criteria* including both indicators of domain-relevant abilities and motivations (e.g., the ability to reason with particular symbol systems, interests and commitments; see Lohman 2005, 2009) and *multiple methods* including objective tests and subjective assessments (see Borland 2014).

Sometimes selectivity is achieved, not through formal procedures, but through consultation. Taking an Advanced Placement course in high school, or pursuing an independent study on a topic of interest, typically takes this form of merit-based participation. Selectivity through consultation and self-selection has a distinct advantage of making decisions on an individual-by-individual basis, thus avoiding the problem of having a necessary cutoff point or rank order list due to limited slots available. It can be predicted that when education is no longer confined to formal schooling, and abundant opportunities and high-quality resources (open online courses offered by top universities) are available in and outside of school, this form of pursuing excellence will become more prevalent. Consider people like Bill Gates or Steve Jobs, who achieve excellence, creativity, and leadership largely through their own initiatives (self-selected activities) rather than institutionalized merit-based education.

Efficiency

Excellence cannot be achieved without opportunities, resources, and technical and social support. An accountable meritocratic system in education has to show that it is effective for its purpose, and efficient or cost-effective in the larger context of the entire education system in terms of *educational productivity*. Just as additional resources are allocated to help those academically challenged students, additional resources are warranted to support advanced learning and talent development for those who excel in academics and other areas. To be sure, evidence is needed (often through program evaluation and follow-up studies) to show the money is worth spending. Internally, to achieve the ends of excellence, how to select participants, design activities, allocate resources, provide support, and assess progress are practical challenges important for an effective, successful meritocratic education system. Resources, tools, and research and development efforts are needed for this purpose. Externally, to the extent that the meritocratic practice does not negatively affect the educational productivity for non-participants (a no-harm policy), or even positively influence the entire education system, we can say the system as a whole operates in an efficient and productive manner. Ability grouping, between classes or within a class, for instance, is one of the most debated and researched topics in education (Kulik and Kulik 1997). While this grouping practice is often politicized as privileging some students, what is often overlooked is the fact that it serves a good pedagogical purpose of making the curriculum appropriate to a group of learners in terms of level, pace, and complexity of the learning materials (Rogers 2007). In short, it is a strategy of organizing learning more efficiently. Although the categorical social efficiency model of education is questionable, efficiency and educational productivity should still be part of accountability for an education system in the sense that educational resources are used productively rather than wasted. In principle, ability grouping allows all students, including more advanced learners, to learn at a pace commensurate with their ability and at the level of complexity appropriate to their understanding. As students make further advances in secondary school, we should anticipate even more divergence that necessarily sets them apart from others. For example, only limited high school students will take calculus or digital electronics. For that matter, subject-based or grade-based acceleration, or early college entrance programs, can also be highly cost-effective, as they only entail some administrative flexibility rather than substantial resources (Robinson 2005).

How to make merit-based provisions equitable and effective: negotiating and balancing priorities

Theoretically justifying an education system is one thing, and practically making the system work and addressing multiple priorities and concerns at the same time are another. There is no absolutely "correct" or foolproof approach to "make it right," and there is no fixed formula. Negotiating and balancing priorities entail some degree of wisdom and/or art to address multiple goals and constraints in practical designs and policy deliberations. In the following section, I discuss several relevant cases as an occasion to illustrate the tensions and trade-offs between competing priorities and how we might negotiate viable solutions.

Selectivity, equity, and social equality

Until we can claim otherwise, psychology and related psychological educational assessment are an inexact science. In other words, it is not an infallible system (no one has crystal ball when human affairs are concerned). It poses challenges to a merit-based education system in terms of identifying the most promising students for further talent development. When school-age children are concerned (e.g., those under 18), things are even more complicated, as they are still developing physically and psychologically. Balancing maximal participation and rigor is a central task to ensure that the principles of both excellence and equity are honored. This means that when children are young, designating very few as "gifted" and grouping them in a rigid and permanent way are a risky policy, as it minimizes participation and excludes too many "false negatives" (Dai 2010).

A case in point is selective schools in New York City. In a recent entrance exam (using Otis–Lennon School Ability Test, or OLSAT) for gifted elementary schools, more than half of the 4-year-old children tested in two districts (encompassing the wealthy section of Manhattan) were found to be "gifted" (with a cutoff set up at the 90th percentile), while only six children made the cut in an economically disadvantaged district, according to New York Times (Phillips 2012). Did these exams sort children by actual giftedness or by economic and social advantages? This advantage may have come from enriched daily experiences, but it may also be due to targeted coaching and preparation for the test, which was apparently the case with several parents interviewed by the ABC Nightline (2012). Moreover, knowing that scores of these types of aptitude tests can fluctuate quite dramatically in early elementary years (Lohman and Korb 2006), the relatively permanent placement at such an early age is not only unfair but also likely to perpetuate social disparities going forward. New York City also has eight selective high schools for which admission is based on a citywide test (mainly of verbal and mathematical abilities). Although the admission test is also challenged (Feinman 2008), the practice of selectivity is more justified for 14-year-olds whose academic competence and interest are stabilized (Plomin and Spinath 2004), especially when the results show that the composition of students admitted is diverse, including a large proportion from low-income families.

Another case in point is the US Supreme Court rulings on the University of Michigan' affirmative action cases in 2003 (Supreme Court of United States: Gratz v. Bollinger 2003a; Supreme Court of United States: Grutter v. Bollinger 2003b). The Court upheld University of Michigan Law School's admission policy, which considered race as a "plus" factor in admission decisions, because the diversity of a student body is, according to the Court, a compelling state interest that presumably brings educational benefits of cross-racial understandings, breaking stereotypes, among others, and "better prepares students for an increasingly diverse workforce, for society, and for the legal profession" (Supreme Court of United States: Grutter v. Bollinger 2003b). In a parallel case (the Gratz v. Bollinger case), however, the Court held University of Michigan College of Literature, Sciences, and the Arts' (LSA) admission policy "unconstitutional," as it automatically assigned 20 points to any minority undergraduate applicant (one-fifth of points needed for admission), and thus violated the Equal Protection Clause of the US Constitution. The Ruling points out that "the LSA's 20-point distribution has the effect of making 'the factor of race… decisive' for virtually every minimally qualified underrepresented minority applicant" (Supreme Court of United States, Gratz v. Bollinger 2003a, p. 4). Both Law School and LSA of University of Michigan are highly prestigious programs with limited and coveted admission slots. Justice O'Connor, who cast a deciding vote to support the Law School policy on the Supreme Court ruling, expressed her ambivalence toward a race-conscious admission policy. The Supreme Court ruling document she drafted ends with the following statement: "[R]ace-conscious admissions policies must be limited in time…The Court expects that 25 years from now, the use of racial preferences will no longer be necessary to further the interest approved today" (Supreme Court of United States: Grutter v. Bollinger 2003b). She apparently realized that the racially preferential policy in the name of diversity is a double-edged sword, and can potentially discriminate against non-minority applicants and thus threaten the very notion of equal rights protected by the constitution (an equity issue). In the LSA case wherein racial preferential treatment was more distinct in the admission policy, infringement upon the principles of both excellence (and for that matter, selectivity) and equity was quite blatant to opponents of this policy. What potentially gets sacrificed in the name of affirming equal rights is the selectivity and rigor of the program.

Technically, selectivity in merit-based systems is a continuum with many options that have a bearing on equity as well as effectiveness. High selectivity (i.e., high-threshold requirements for participation) tends to create more *false negatives* (i.e., those who are rejected but would prove competent if admitted), and low selectivity (i.e., low-threshold requirements for participation) tends to create more *false positives* (i.e., those who are admitted but later prove inadequate). The negotiation and balancing between equity and excellence, maximal participation, and rigor (selectivity) boil down to the determination of an optimal point of the trade-off that renders the numbers of false positives (e.g., dropouts) and false negatives (qualified but

rejected) acceptable. Another strategy to reduce false negatives (hence equity concerns) for socioeconomically disadvantaged students is to use *local norms* (e.g., using district-based norms) for test scores (Lohman 2005), which are sensitive to where children live and grow up. What further justifies this practice is the theoretical assumption that cognitive advantages (IQ or other indicators), rather than biological, are derived (at least partly) from social advantages. Selection practices that are not sensitive to social contexts would naturally lead to an unfair competition for access to excellence. On the other hand, racial preferences or preferences solely based on socioeconomic conditions would compromise the rigor (selectivity) and undermine the integrity of the merit-based program in question. Still another strategy is to consider both demonstrated excellence and potential for excellence in the selection process, given that a level playing field is far from reality, and certain disadvantaged groups need to have a fair amount of the opportunity to learn (Gee 2003) before they can demonstrate their capabilities (Lohman 2005; Robinson 2005). These strategies provide better alternatives to race-based or SES-based preferential selection systems for equity and effectiveness reasons. However, as I pointed out earlier, any selection approach that involves preferential standards extrinsic to excellence itself can be a double-edged sword and should be used with caution.

Excellence, rigor, and diversity

In meritocratic education systems, rigor is reflected not only in selectivity, but also in curricular goals and standards. Historically, based on the social efficiency model of education, the problem of high standards in curriculum has been addressed through tracking whereby differential goals and standards are set up for different tracks of students. Tracking systems have been used in many countries from grammar schools in UK to gymnasium still practiced in Germany. In Chinese educational systems, vocational and academic tracks are initiated starting in high school. At the high school level, the distinction between key schools and regular schools remains and even key schools themselves are distinguished from one another based on levels of selectivity. Tracking is increasingly controversial in democracies because of equity and social equality concerns (the two are different, as discussed earlier). The trend is to "detrack" the tracking system. In the words, eliminate selectivity. The question is can a "detracked" education system still serve the goal of excellence well?

In the 1990s, ten secondary schools, located in different parts of the USA and with racially and socioeconomically mixed student populations, were engaged in a reform effort to restructure the social and pedagogical organization of learning designed to bring *all students* to high academic standards (Oaks and Wells 1998). Detracking was their main strategy, which eliminates all between-classes grouping in favor of heterogeneous classes for the sake of promoting high standards for all, rather than reserving them for only a very small proportion of students designated as "gifted." Some high schools eliminated remedial tracks, leaving only one regular and one advanced track (i.e., the system was only partly "detracked"). Others made their electives equally rigorous but offered an honors option so that high standards are preserved in the system. Using a multidimensional conception of intelligence and giftedness that is often unrecognized in formal academic assessment, these schools accommodated diverse achievement not by ability grouping, but by offering diverse opportunities for low-achieving students to catch up or demonstrate their unique abilities. Sometimes high-achieving and low-achieving students were deliberately mixed together to allow them to gain insights from diverse backgrounds, experiences, and perspectives. Contents of the curriculum were enriched and diversified to reflect the multicultural values and perspectives. Pedagogically, inquiry-based learning and project-based learning are featured prominently in classroom, permitting the active engagement and high achievement of some students perceived as low achievers in traditional classrooms. In short, they introduce another critical piece that helps solve the excellence–equity conundrum: *diversity* in excellence criteria, assessment methods, and pedagogy.

Detracking is based on the belief that all students can learn and excel if given appropriate opportunity and scaffolding. Detracking clearly eases the tension between "haves" and "have-nots," and helps equalize the opportunity to learn and excel. It advocates a diverse range of opportunities that cultivate a wider range of student's strengths and interests, such that culturally diverse forms of excellence can be validated and rewarded. However, it does not directly address the question of how to accommodate individual differences in a way that will enhance the educational productivity for all, including the highly capable and academically advanced. As Ceci and Papierno (2005) pointed out, equal opportunity, along with content diversity and pedagogical changes, due to the Matthew Effect (the rich get richer), is unlikely to level the playing field. To be sure, a multidimensional conception of intelligence and giftedness is used to support diverse forms of excellence, which is in keeping with the current understanding of the multifaceted, multisource nature of human potential. Oaks and Wells (1998) also alluded to the notion of a *pyramid of opportunities* for the many and various ways of achieving and demonstrating excellence (i.e., there is a broad-based participation at the bottom, but as one advances to higher levels, opportunities become more divergent and selective). However, although the touchy issue

of selectivity is avoided, or superseded by self-selection, the question of how to maintain rigor and differentiate goals and standards for those who demonstrate excellence remains unarticulated. One way to avoid formal selection yet still make the system responsive to emergent talents and interests and capable of monitoring progress is to borrow the idea of the Revolving Door Identification used in Schoolwide Enrichment Model (Renzulli and Reis 1997) in gifted education. As the revolving door metaphor implies, the system has both an entry point (participation) and an exit, depending on how far one can go or wants to go. The purpose of the Revolving Door model is not selection of a few as the most promising, which is always subject to the possibility of creating false positives or false negatives. Rather, it is meant to identifying educational opportunities appropriate for specific students who demonstrate their potential for a particular line of work. A caveat is that this approach has many practical constraints, such as curricular flexibility and resource availability (can one make a high school like a large shopping mall where one can get anything at any time?). It is more easily applied to enrichment or extracurricular activities and implemented in afterschool and supplementary programs than to the formal curriculum. As for the end results, Baker's (2007) idea of gaining a unique set of "certificates" based on individuals' talents and interests rather than taking the same exam or fulfilling the same course requirements for high school graduation fits the bill. Ultimately, the purpose of merit-based education systems is to enhance educational productivity by setting up differentiated goals/standards and finding the means to achieving these goals for various talented students, thus creating optimal trajectories and pathways into their adulthood.

Conclusion: the case for a paradigm shift for gifted education

So far I have delineated a way of thinking about merit-based education system that can promote talent development and creativity as valuable educational goals. It is open for maximal participation yet maintains its rigor and effectiveness (productivity). Pertinent to the topic of this special issue, should talent development and creativity education be open to all students? According to the Jeffersonian vision of an equitable education, the answer is a resounding yes. As Renzulli (1998) put it,

> Our vision of schools for talent development grows out of the belief that everyone has an important role to play in the improvement of society and that everyone's role can be enhanced if we provide all students with the opportunities, resources, and encouragement to develop their talents as fully as possible. (p. 107)

How many can excel at the high level of excellence (elite-level performers or producers) in this process? The preponderance of evidence seems to suggest that only a small minority can if a student body is representative of the population, 15 % as a talent pool based on (Renzulli 1986) or 20 % if we use Florida's (2003) estimation of the size of the "creative class". To be sure, this creative or leading minority is by no means homogeneous, albeit sharing some characteristics (e.g., above average abilities). The reasons that only a few excel at the high level can be both cognitive and motivational. Many factors, such as natural endowment, upbringing, and environmental opportunities (and, indeed, chance as well; Tannenbaum 1983), play into the process that yields differential outcomes. Not the least is the fact that a meritocratic system is by nature selective; the notion of "a pyramid of opportunities" implies only few at the top (winners of Olympic Games or Nobel Prizes). Thus, for an education aiming at talent development and creativity, the Jeffersonian model of meritocracy I have discussed above suggests that it should be done equitably as well as effectively, and it takes negotiation and balancing of multiple priorities. In light of this vision of merit-based education systems, the traditional IQ-based model of gifted education is falling short both on equity and on effectiveness.

I have recently proposed a three-paradigm framework as an effort to understand the current state of gifted education (Dai 2011; Dai and Chen 2013, 2014). Table 1 presents a comparison of the three paradigms along the four dimensions of What, Why, Who, and How. Relevant to the topic of the article is the *status definition* of gifted children (assumed to be a homogeneous group distinct by their mental quality) and the *categorical approach* (gifted–non-gifted bifurcation) used in the Gifted Child Paradigm (GCP), which is vulnerable to "elitism" charges. Indeed, as envisioned by Terman (1925, 1954), education of the gifted is unapologetically elitist. However, this conception of giftedness is inequitable as it limits participation (often from early on) in talent development and creativity to a narrowly and exclusively defined group. It is also ineffective in the sense that it will produce many false positives as well as false negatives.

In contrast to GCP, the Talent Development Paradigm (TDP) holds a more pluralist and developmental view of human potential, and its practice is not driven by status (gifted–non-gifted bifurcation) but by one's demonstrated potential or aptitude for a particular line of talent development. Contrary to the standard image of high "gifted" intelligence translated into real-life excellence or giftedness translated into talent under GCP, TDP sees talent

Table 1 Major points of differences between and among three paradigms in gifted education

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; pullout 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

Dai and Chen (2014, p. 49)

(human potential) as contextually and dynamically shaped and manifested through interactions with the environment, becoming increasingly differentiated and integrated over time (Dai 2010). Elsewhere, I argue that (a) developmental conceptions of giftedness and talent underlying TDP are scientifically more compelling; (b) talent development approaches are more inclusive and are socially more equitable, as it recognizes many forms and ways in which talent can be cultivated and excellence achieved; and (c) talent development approaches are educationally more productive in terms of promoting optimal individual development and bringing out the best of everyone with a vision of what a person can be given his or her strengths and interests (see Dai in press, for details). Practically speaking, a distinct advantage of TDP over the GCP is that TDP is driven by educational goals; the issue of how to find the means to this end naturally follows whether it takes the form of specialized schools or Talent Search as delivery models, or engaging in advanced conceptual work and authentic inquiry as its pedagogy (Dai and Chen 2014). In contrast, GCP is status based, lending itself to the impossible task of finding the gold standard for giftedness and the litmus test that can nail down this elusive quality once and for all, let alone the fact that a status definition does not yield a clear vision of what gifted education is for; serving the alleged needs of the gifted is too vague as a policy argument. In the above exposition, I have alluded to the curricular and instructional differentiation strategy. The Differentiation Paradigm (DP) shown in Table 1 is not incompatible with the TDP and can surely come to assistance in the development of talent and creativity. However, a challenge for DP is it can be significantly constrained by the existing curriculum structure, whereas demands and opportunities for talent development often go way beyond the purview of the standard curriculum. Also, DP needs a vision of excellence (e.g., creative productivity) espoused by the TDP to be lifted, from purely a practical matter of deciding what to do if there is a mismatch between the curriculum offered and what one is capable of doing or interested in, to a theoretical height of producing an optimal developmental trajectory for a fledgling talent. For these reasons, I see the TDP as holding promise for the future of gifted education.

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