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From Promise to Preeminence: Catalysts and Obstacles to Talent Development in the Arts and Sciences

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What is Giftedness?

Our conception of giftedness rests on three theoretical premises. The first is that abilities are forms of developing expertise (Sternberg, 1998). Second, beyond the level of expertise exists the realm of elite talent (Subotnik, 2000; 2004a) or what we call scholarly productivity or artistry (SP/A). Finally, in the course of transition from novice to expert and beyond, key personality, ability, and skill factors become increasingly or decreasingly important (Subotnik, Jarvin, Moga, & Sternberg, 2003). In accordance with these premises, we believe that abilities have interactive genetic and environmental components, yet are modifiable and capable of being flexibly deployed. The authors of this chapter view abilities as necessary but not sufficient for generating expertise or SP/A. From our perspective, in its early stages, giftedness is defined as the efficient yet comprehensive development of ability into competence in a domain. During the middle stage, giftedness becomes associated with precocious achievement of expertise. Finally, we view giftedness in adulthood as SP/A, taking the form of unique contributions to a field or domain. In the course of offering details on the transformation of abilities into competencies, expertise, and, in some cases, SP/A, we will focus on examples from the domain of music.

Substantial evidence exists that abilities can be enhanced, at least to some degree (see Feuerstein, 1980; Herrnstein, Nickerson, deSanchez, & Swets, 1986; Nickerson, 1986; Nickerson, Perkins, & Smith, 1985; Perkins, 1995; Perkins & Grotzer, 1997; Ramey, 1994; Sternberg, 1988, 1994, 1997; Sternberg & Spear-Swerling, 1996). The best evidence favors a complex mix of genetic and environmental origins of abilities, interacting in ways that are not as yet fully known (see Sternberg & Grigorenko, 1997). The question we explore here is how abilities are developed to elicit elite performance. The foundations of elite talent can be found in an individuals abilities, competencies, and expertise. Extraordinary *abilities* tend to be manifested in one or two domains, and not across the board. Without opportunities to learn from skilled instructors, such abilities may develop too slowly or even counterproductively. Incorrect fingering on an instrument or poor handling of athletic equipment can lead to injury. Insufficiently challenging instruction can also hamper opportunities available to a youngster with high abilities.

For example, introducing classic dance instruction to a 16-year-old would most likely preclude career advancement, since by that point, peers would have benefited physically, cognitively, and aesthetically from at least four years of instruction and practice. Notably, the age at which the different stages of the transformation process from ability to SP/A take place will vary, even within a domain. In music, for example, a singer will develop much later than a violinist. A high-quality teacher channels abilities into *competencies* by introducing a series of sufficiently challenging experiences that can be practiced and mastered. With each level of mastery, the student becomes increasingly competent. True competency, in contrast with false praise for meeting mediocre standards, cannot be achieved without student motivation. Some levels of drive are derived from temperament, but can also be elicited from challenging peers and engaging curriculum. Great teachers encourage their students to embrace rather than fear adversity, as mastery over such fear allows for persistence through practice, disappointment, and even failure. *Expertise* is derived from using ones abilities to acquire, store, and utilize at least two kinds of knowledge: explicit knowledge of a domain and implicit or tacit knowledge of a field (see Sternberg et al., 1995).

We define *domain* as a knowledge base, and *field* as the social organization of that knowledge base (Csikszentmihalyi, 1988; 1996). Explicit knowledge is the kind most frequently studied in the literature on expertise (see Chi, Glaser, & Farr, 1988; Ericsson & Smith, 1991). It is knowledge of the facts, formulas, principles, and major ideas of a domain of inquiry. Implicit or tacit knowledge of a field is the informally taught knowledge one needs to attain success in a field. For example, in music, the composition of a diminished seventh chord would constitute explicit knowledge, whereas how to get a gig would constitute informal or tacit knowledge. Although it represents the pinnacle of acquired wisdom, skill, and knowledge, expertise is a passive enterprise. It does not incorporate the addition of new ideas or levels of performance to a field, discipline, or domain. In order to describe the genesis of groundbreaking performance of transformational ideas, another category is needed. Such a category can be labeled as *SP/A* (*Scholarly Productivity/Artistry*). Through our investigations of giftedness in the domain of music, we have developed a model for the development of abilities into competencies, expertise, and SP/A. The model was developed on the basis of interviews (over 80 to date) conducted with students at different stages of their musical training at three top American conservatories, the music faculty at these institutions, and gatekeepers, or those who exercise influence over musicians opportunities to perform and make a living, e.g., music critics, artistic directors, and other professionals. Although this model was developed to describe the development of elite talent in music, we propose that the model also describes the process in most domains. Figure 1 summarizes this model of giftedness.

INSERT FIGURE 1 ABOUT HERE

Abilities

Initial abilities, with interactive genetic and environmental components, include intrinsic motivation, musicality, and charisma. According to our study outcomes (Subotnik, 2004a; 2000; Subotnik, Jarvin, Moga & Sternberg, 2003) these three variables are not teachable. Intrinsic motivation is associated with the drive to pursue

a career in music, in spite of how difficult it is to make a living solely through performance or composition. Musicality is the capability to communicate effectively through music. Although we have argued for the plasticity of abilities, we view musicality, a central feature of musical talent, as being innate. We also believe, however, that wider exposure to music opportunity will expand a limited view of how innate ability manifests itself. Charisma, which plays a significant role later in the talent development process, refers to the ability to draw listeners to a performer, either through his or her music or through the force of his personality. According to our study participants, there are indeed two kinds of charisma: One centered on the artist and one centered on the music. Artists of the first kind draw people to them because their presence is larger than life. Another kind arises from the power of their performance.

From abilities to competencies

With high-quality instruction, a child can develop these abilities into competencies. The instruction should emphasize exposure to and guided practice of the skills and knowledge of the domain. The effectiveness of this instruction is mediated by the technical proficiency the child can attain, the parental support or pressure a child receives, the child's teachability (i.e., the willingness and openness to being taught), the quality of the student-teacher experience, the availability of external rewards such as praise and recognition, and persistence through good and bad times. The technical proficiency a child can attain will, in part, depend on physical factors. For example, a hand injury or faulty technique leading to constant muscle strain and inflammation will impede proficiency. Many of our interviewees pointed out that, past a certain threshold of technical proficiency, however, a (relative) technical flaw can be interesting. According to one gatekeeper, somewhat flawed is better than push the play button, especially for vocalists who can make up for less than perfect technique with their stage presence or the loveliness of their sound more so than can instrumentalists. Parental involvement can be either negative (nagging, restricting freedom of choice, turning an initially pleasurable

experience into a constraint) or positive. Positive parental involvement can take the form either of initial pressure or of support, and many of the musicians we interviewed who started very young indicated that without their parents insistence on a consistent practice schedule, they would not have transformed their competencies into expertise. Negative parental involvement can also take the form of mixed messages: on the one hand, the parent likes the idea that their child is learning music, considering it a form of refinement. On the other hand the parent may not want the child to invest in music completely and consider a career as a musical artist.

The child's teachability, i.e., the willingness and openness to being taught, is considered by most teachers we have interviewed to be a very attractive quality in a new student. If a student seems resistant to instruction in a conservatory audition, he or she will not be viewed as a good investment in the teacher's studio. Over time however, teachers expect their students to "bite back," and insist on keeping their own style, voice, or message. At this stage and throughout the process of elite talent development intrinsic motivation and musicality remain important factors.

From competency to expertise

Most young musicians enter conservatory highly competent. In order to move from competence to expertise, they need continued opportunity for instruction with an emphasis on technical proficiency. Mediating variables at this transitional stage remain technical proficiency, parental pressure or support, teachability, quality of the student-teacher experience, availability of external rewards including praise and success in auditions and competitions, persistence through good and bad times, intrinsic motivation, and musicality. In addition, two new variables come into play: self-promotion and the knowledge of how to play the game. According to our interviewees-students at different stages in their musical training, faculty members, and gatekeepers-these latter two characteristics take on an increasingly important role in moving a musician from training to a professional performance environment. The gatekeepers we interviewed recognized that self-promotion is necessary for success as a performer, and knowing when and how to promote oneself is part of being effective at securing jobs. However, they disdained efforts

at channeling creativity into playing the game instead of into one's music. Teachers also believed that they need to prepare their students to play the game, to being graceful in success and failure, and engendering a reputation as a professional, while most students we interviewed find the notion of game-playing repulsive.

• *From expertise to SP/A*

The last transition in our model is from expertise to scholarly productivity or artistry (SP/A), and relies on the opportunity for guidance derived from a master teacher in socializing the individual into the field and networking for him or her. This transition tends to take place for string and piano players during their conservatory years. Those who are not identified as stars begin to self select into other aspects of the music business. Vocalists, whose training begins in early adulthood, experience the transition from expertise to possible SP/A after completing conservatory training. Mediating variables at this stage are the availability of external rewards (opportunities to perform as well as peer and public recognition), persistence through good and bad times, intrinsic motivation, musicality, self-promotion, and knowing how to play the game. An additional characteristic at this stage is charisma. Charisma, one of the abilities, becomes increasingly important in determining success at the highest levels of achievement.

• *How does this conception of giftedness compare to other conceptions of giftedness?*

Let us compare this conception of giftedness with those of three other scholars whose theories or models have influenced our SP/A model most: Bloom, Tannenbaum (who contributed to the 1986 edition of this volume), and Gagné, whose work appears in this volume as well. Bloom provides us with stages of instruction on the part of expert teachers. Tannenbaum provides us with the key variables that enhance or impede talent development. Gagné frames the transformation of gifts into talents as a developmental process. Bloom and his colleagues (1985) conducted a seminal retrospective study of eminence or elite talent in six fields: two in sports, two in the arts, and two in academics. He sought to uncover the unique components of talent development in each field,

while concurrently seeking cross-disciplinary generalizations. The generalized model includes three stages that, according to Bloom, describe the talent development process in each field. The first stage of the Bloom model is characterized by a recreational involvement with a domain. Often the family values this domain. Teachers view those with ability as fast learners, and praise and competition serve as incentives. The middle stage of the model is characterized by high-quality performance guided by an expert teacher. Parents play a smaller role in teaching, and the teachers influence expands. As the learner progresses, he or she becomes initially socialized into the values of the domain and identifies him or herself as a swimmer, scientist, clarinetist, etc. The talented individual becomes his or her own critic, which can lead to first-time feelings of self-doubt. Should a learner become sufficiently expert to pursue the third stage of Blooms talent development model, he or she would need to be selected by a master teacher. The teacher expects total commitment to the students development of expertise into what we call SP/A and focuses on the learners unique qualities as a potential musical niche. Opportunities to demonstrate ones special expertise are sought ag) in childhood would translate into critically acclaimed performance or production of great ideas (corresponding to SP/A) in adulthood under the following conditions: g is channeled into a specific talent domain, personality characteristics such as motivation and persistence are developed, recognition and support are received from some important stakeholder(s), and the individual capitalizes on being in the right place at the right time. As a further elaboration of the theory, Tannenbaum explains that g does need not be equally high in every domain to achieve greatness. According to Tannenbaum, an outstanding physicist needs a higher IQ than an outstanding teacher. Similarly, personality variables may be more or less conducive to fulfilling potential depending on the domain at hand. Although a teacher and a physicist both need motivation and persistence to achieve excellence, a teacher may need to be more extroverted and gregarious than a physicist. Tannenbaums theory is domain specific, identifies outstanding performance or the generation of great ideas as a desired outcome, and highlights the importance of

supportive teachers, family and peers. He also stresses the roles played by personality and capitalizing on opportunity. In these ways, the theory is consistent with the model we propose in this chapter, although the process is not presented in the form of stages. Our view differs from Tannenbaums in the following two ways: we substitute abilities for *g* because in the case of many important domains outside the intellectual and academic realm, general intelligence does not describe the foundational ability associated with great performance or idea generation in a domain. Sensitivity to sound and touch is more central to musical ability than IQ, and the spatial awareness and coordination required of a dancer or athlete trump *g* in those domains. Finally, Tannenbaum does not frame his model in developmental terms. Tannenbaum identifies those variables that enhance or impede the transformation of *g* to outstanding performance or great ideas, but leaves the path from abilities to SP/A undocumented. Gagné's theory (2003) is also multi-faceted and domain specific, and we therefore especially value its elegance. The model begins with abilities (which he calls giftedness or aptitude domains). Those abilities are transformed either positively or negatively by four catalysts: 1) intrapersonal variables such as motivation and personality, 2) environmental conditions (surroundings, people, activities, and events), 3) developmental processes (learning, training, and practicing, and 4) chance factors. Our research supports the key roles of the four catalysts described by Gagné. However, unlike Gagné, we weight each variable in terms of importance at each developmental level. Finally, we pursue eminence or SP/A as our outcome, whereas Gagné's model focuses on the transformation of giftedness or abilities into high-level expertise.

• *How should gifted individuals be identified?*

The use of standardized ability and achievement test scores as the primary identifiers for inclusion in gifted programming is too narrow (Sternberg & Subotnik, 2000), particularly for secondary programs, as basic profiles of abilities are different depending on the domain. We propose that intrinsic motivation and a domain-relevant ability are key variables for early identification, and that real-life success should be the ultimate criterion for adult giftedness. This requires

instruction in analytical, practical, and creative skills and the ability to capitalize on one's strengths, personality, and opportunity.

Most school districts use standardized ability and achievement test scores as the primary identifiers for inclusion in gifted programming (Feldhusen, Jarwan & al., 2000) because such measures are relatively inexpensive, easy to administer, and usually well normed. Yet, a quick review of the literature (see Kwiatkowski & Sternberg, in press) on gifted education reveals that new theories of gifted identification comprise a potential goldmine of new identification procedures.

Abilities in all domains are too often assessed serendipitously. The two environments of greatest importance in assessing abilities are home (which includes realms of extended family as well as local cultural and religious organizations that are part of the family routine) and school. If the family culture values such abilities in any way, it is likely that the abilities may be noticed by a relative, clergy person, neighbor, or coach. If an ability is not particularly valued by the family or community, unusual sensitivities may go unnoticed or be misinterpreted as strange or inappropriate behavior.

School is another place where abilities can be displayed. If a child expresses great interest in rhyming words, for example, her teacher may notice and praise her, even if her peers may ridicule her. More commonly, if there are no available opportunities to demonstrate unusual responses to enriching stimuli, an ability will likely deteriorate. If there is no well-designed physical education or writing program available, for example, then it is not likely that any child with such proclivities will be noticed, especially if the family culture does not support or encourage athletics or writing.

Although schools and homes are petri dishes for talent identification, abilities can be assessed most effectively by artists/scholars. Renowned choreographer Eliot Feld and his colleagues visit hundreds of New York City third grade classrooms to hold ten-minute auditions (Subotnik, 2002). Children are assessed on their visual memory for movement, their flexibility, their physical proportions, and their response to the music or task at hand. From these thousands of mini-auditions,

Feld and his colleagues identify 800-1,000 students who receive free dance instruction. Approximately 10% of the students persist for more than a year or two. Eventually, 20 to 25 committed and clearly talented students are invited to attend his special school and highly regarded professional performance group-Ballet Tech. Feld's wide-net assessment and nurturing of raw, untrained ability is an excellent model for all domains, but requires the exquisite judgment of an experienced master.

Selective academic high school programs assess abilities with words or numbers by way of standardized tests. Teacher recommendations tend to be viewed with suspicion of bias or distrust of their judgment in general. Relying on standardized tests rather than a form of audition, however, makes the process of identifying abilities less content-valid, especially during the transition from competence to expertise of adolescents and young adults. Giftedness in adolescence is better identified through samples of poetry, creative stories, quantitative musings or scientific reasoning revealed after exposure to excellent teaching and demonstrated receptivity to advanced instruction (Subotnik, 2004b).

Let us consider a specific example in the domain of music. The audition committee at The Juilliard School is regularly confronted with a number of highly competent young musicians vying for a small number of places in their departments maintaining a regime of disciplined practice serves to transform an individual's ability into a high level of competence. Further, managing adversity requires great personal strength to persist through the good and bad times of the talent development process.

Under those circumstances, the committee values those who appear to be ready to maximize opportunities for education in the conservatory. According to the Juilliard faculty, some candidates are clearly receptive to instruction, and others resistant to technical or aesthetic suggestions for change. Although great performers and creators are known for their unique ideas or techniques, there is a delicate balance between receptivity to ideas and confidence in one's own judgment that emerges in the talent development process. While in the process of

acquiring expertise, teachability is key. When ensconced in the transition from expertise to artistry or scholarship, reliance on one's own judgment, even stubbornly, may be essential and appropriate. By the time candidates audition for conservatory in violin, they will have been playing for at least 10 years. The level of skill that is evidenced at the top music schools is tremendous, making selection for performance opportunities based simply on technique or even teachability virtually impossible. Other characteristics, such as practical and creative skills, and traits such as charisma, differentiate those who are given opportunities to perform or take on exciting jobs. Artistic directors look for a deep connection with the music and an ability to communicate it with zeal. This passion is magnetic, drawing audiences into the performer's spell.

• *How should gifted individuals be instructed in school and elsewhere?*

The methods used to identify students for special programming and the methods used to deliver such programming must match. If there is no match, then the children who are supposed to benefit from the programming may not be served appropriately. We promote instruction that develops students' abilities into competences, expertise, and finally SP/A by balancing analytical, creative, and practical skills. Throughout the process of instruction, the teacher or mentor also capitalizes on key personality facts that with guidance will elicit the greatest potential for success in life, whether inside or outside the classroom. Providers of high-quality instruction are deeply familiar with the acquired knowledge of a domain, including its criteria for excellence. They are able to design a clearly articulated set of problems and assignments that lead to mastery of increasingly challenging material. Highly competent students need to work in specialized environments, whether full time, after school or during summer breaks.

Without the chance to learn from skilled instructors, abilities may develop too slowly or even counterproductively. In addition, when a domain is highly competitive, insufficiently challenging instruction can hamper the schooling, training, or performance opportunities available to youngsters with high abilities.

Teachers also socialize their pupils into the values of the domain, and provide peers that reinforce and challenge one another's progress. In other words, a high-quality teacher channels abilities into competencies and competencies into expertise by introducing a series of sufficiently challenging experiences that can be practiced and mastered.

• How should the achievement of gifted individuals be assessed?

We believe that the development of giftedness follows the three stages we have outlined above: Abilities transform into competencies, which in turn can develop into expertise and finally SP/A. Though the sequence of these stages is consistent across domains, the age at which an individual is expected to reach a given stage is domain specific, and therefore the assessment of giftedness should also be domain specific. For example, giftedness as a musician is assessed differently from giftedness as a poet. And giftedness within the domain of music depends on the sub-domain: that is, the performance expectations for a 15-year-old violinist are much higher than for a 15-year-old vocalist, or for a 15-year-old historian. In its early stages, giftedness can be defined as a high level of competence in the domain of choice. For a violinist, for example, this would be reflected in solid technique. We propose that secondary programs for gifted students be domain specific, and focus on developing expertise in those domains. The passage into the expert level of giftedness is defined by mastery of the field, i.e., a broader space encompassing a thorough knowledge of past occurrences. For a violinist, this would be, for example, the ability to interpret a piece of music in different styles that have been performed by earlier masters. Finally, SP/A is achieved when a musician employs his or her musical ability and expertise to engage a present-day audience in an emotionally moving or intellectually powerful experience.

In sum, we have presented here a model of giftedness by referring to the specific domain of music. The model defines giftedness as a transitional process, in which different characteristics contribute to the development of abilities into competencies and expertise and even, in exceptional cases, into scholarly

productivity or artistry. This development is made possible through the interaction of innate abilities and context, as specified at each stage, and we have outlined how we believe education can best facilitate the passage from abilities to competencies to expertise and scholarly productivity or artistry. As we have shown, this model, though based on research in the domain of music, offers a useful framework for understanding and nurturing talent development in other domains as well.

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