

Diary of a child musical prodigy

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This study involves a longitudinal investigation of an exceptionally talented 10-year old female pianist who was first interviewed when she had just turned 7 years of age. The research attempts to document a range of factors that impact on the child's learning. Of particular interest are the child's personal learning agenda which guides her mastery of difficult repertoire and the support she receives from her parents and significant others. Associated areas of investigation include her exceptional aural and memorization skills and her ability to master challenging repertoire either by ear or from notation. The self-regulated strategies she employs to monitor and control her learning, especially during the preparatory stages when she is about to start learning new repertoire and the methods she uses when practicing, are also areas that are being investigated.

Keywords: prodigy; giftedness; talent; performance; memory; ability

The discipline of music psychology has flourished as a result of the many intriguing questions surrounding the nature of musical ability and how musical potential can be developed. No single area of research has created more discussion and controversy however, than debates focusing on the degree to which exceptionally talented musicians are the result of genetic predispositions (nature) or environmental stimulation through systematic training and practice (nurture). A major contribution to the debate acknowledging innate abilities comes from the extensive literature in the gifted and talented educational domain which suggests that child prodigies (i.e. extreme versions of gifted children) differ from average children in three ways. First, they are *precocious*, in that they are able to master information and tasks earlier and easier. Second, they *march to their own drummers*, by making discoveries on their own and solving problems intuitively rather than through logical, linear steps. Finally, they are driven by a *rage to learn*, which

is evidenced in their ability to devote high attentional resources when engaged in learning, sometimes at the cost of losing sense of the outside world (Winner 1996). In line with this perspective, McPherson and Williamon (2006) have adapted Gagné's (2003) *Differentiated Model of Giftedness and Talent* to music, as a means of explaining the range of natural innate abilities, intrapersonal forces and environmental catalysts that impact on the development of musical skills. This conception defines *gifts* (e.g. intellectual, creative, socio-affective, sensori-motor) as natural innate potentials to achieve and *talent* as observable skills and proposes that although many seemingly natural potentials such as physical and mental dexterity, musicality, motor memory, and auditory memory are all evident in the first few weeks of formal musical training, each needs to be refined and developed further through extensive practice and learning for children to develop their musical talents.

From an environmental perspective, it can be argued that talent results not from cognitive abilities but from human characteristics such as temperament and personality which act in combination with a great deal of environmental stimulation through *deliberate practice* and ongoing, systematic training (Howe 1999, Gross 2005). Aligned with this perspective is literature suggesting that atypical development of the type displayed by child prodigies is highly influenced by interactions with significant others, especially parents (Mareschal *et al.* 2007, McPherson *in press*) and that these social dynamics result in the child developing particular neural structures which make further musical development much easier (Altenmüller and Gruhn 2002, Hodges 2006).

Vandervert and Liu (*in press*) have proposed that prodigies possess domain-specific high attentional control that begins in infancy to produce a spontaneous version of deliberate practice. This explanation shows how the child prodigy's working memory becomes faster, more concentrated, and more efficient and frames the role of both innate abilities and environmental stimulation because it shifts the explanation for these remarkable individuals "to the *reciprocal* learning relationships between the anticipatory, *adaptive* cognitive-affective and attentional modeling functions of the cerebellum and those of the cerebral cortex." This conception is similar to Shavinina (*in press*) who proposes that sensitive periods in the children's early years provide the foundations for giftedness, in that they accelerate the gifted child's mental development through the actualization of intellectual potential and cognitive experience.

This study involves a longitudinal investigation of an exceptionally talented young pianist who was first interviewed when she had just turned 7.

She is now 10 years of age. The research attempts to document a range of factors that impact on the child's learning. Of particular interest are the child's personal learning agenda which guides her mastery of difficult repertoire and the support she receives from her parents and significant others. Associated areas of investigation include her exceptional aural and memorization skills and her ability to master challenging repertoire either by ear or from notation. The self-regulated strategies she employs to monitor and control her learning, especially during the preparatory stages when she is about to start learning new repertoire and the methods she uses when practicing, are also areas that are being investigated.

METHOD

Procedure

To this point, the case study has involved face-to-face interviews with the child and her parents, ongoing communication with the child's mother, and viewing of videotaped performances of the child playing pieces and practicing over a period of three years. Although the research is ongoing with many parameters remaining to be analyzed, it is clear that the young learner displays outstanding potential as a musician. She has already developed to an international level of achievement on piano as compared to others of her age and shows the potential to continue developing at an equally rapid rate during the coming years.

RESULTS

When I first met with the child and her parents, she was 7 years old. I sought information according to two important areas. First, I was interested to know how she had become interested in music. Second, I wanted to know more about the informal learning experiences that had occurred since her first formal engagement with music. Watching her perform during this first session, I was struck by her remarkable abilities, which include the capacity to perform complete piano sonatas that she had learned entirely by ear as well as her ability to comprehend and read pieces from notation.

At about 2 years of age, the child was given a plastic toy piano. Her parents report that she would often sit at the toy piano and try to imitate melodies which she heard on the TV and a hi-fi her father had built with a friend at that time. Her father reports also that she would accompany him to purchase piano recordings that they would listen to on his stereo, and that she preferred purchasing CDs rather than going to a toy shop.

At age 4.5, the child began taking formal lessons on piano and by 7 was practicing up to 3 or even 4 hours per day and was capable of performing Grade 8 Associate Board repertoire. At 7 years of age, she was doing less practice (about 1 or 2 hours per day), partly because of the difficulty of finding a teacher who could cater for her unique learning curve, but also because she was more involved at school and needed to do more homework after school. More recently, the child has moved with her mother from Hong Kong to the United States in order to study at a prestigious school of music.

At our first meeting, I was informed that the young child had received lessons from a number of different teachers but that these had typically been only for a short period of time and that the parents had not been able to find anyone with whom the child felt comfortable learning. Most importantly, there appeared to be a distinct difference between the young child's learning agenda and those of her teachers. She displayed superb self-regulatory skills for her age, in that she would often listen to CD recordings of piano repertoire before choosing those works that she wanted to learn. This typically involved listening to the work on CD for a few weeks before then attempting to start learning the piece on the piano. Consequently, this young learner's strategy for learning new repertoire involved developing a clear mental image of the work she was about to learn well before physically attempting to master the work on the piano. One of the reasons why teachers were unable to satisfy this young learner's learning agenda is that they would typically attempt to take her back to basics rather than help her find the most efficient fingerings for the repertoire which she was attempting to master. Her *rage to master* was not related to the technique of playing the piano but rather what needed to be done in order to master the repertoire which she already knew from recordings and wanted to learn on the piano.

Without any question, a key influence in the child's learning has been the support and encouragement she has received from her parents. Neither parent has had any previous formal musical training. In line with existing evidence (McPherson *in press*), her mother reports sitting with her daughter during the early months of the child's learning and playing games that helped focus the young musician on repetition and mastery. One of the more successful strategies, according to the mother, was to say: "Can you play that piece again five times correctly?" "Can you play it 10 times correctly?" "Now, can you play the piece 50 times correctly?"

During our meeting two years later, the child had improved significantly, but it was becoming clear that she needed to find a good teacher who could help her cope with a number of technical problems that were impacting on her development. About this time, her mother investigated the possibility of

studying at leading institutions overseas, and the family made a decision that the mother would move with the child to a large city in the United States where she could take up a scholarship at an internationally renowned music school. The child has now completed one full year of study at this institution and made rapid progress, evidenced by her invitations to perform with orchestras. She has also won competitions and gained national recognition, through articles published in newspapers such as the *New York Times*.

During the presentation, videotaped excerpts of the child playing at the ages of 7, 9, and 10 will be shown, in order to document how the young girl has developed and how her learning curve is distinctly different from the majority of children who learn piano.

DISCUSSION

Current explanations of child prodigies suggest an interactive, dynamic model for explaining how their exceptional achievement in music develops as a result of environmental forces acting together with innate potentials at critical moments in the child's development. Implications for teaching and for understanding musical giftedness and talent will be discussed in the final part of the presentation which will also outline plans for future data collection and for documenting the child's musical development now that she is exposed to a highly competitive environment and world-class teaching.

Overall, there is much to learn from this remarkable young pianist. Her sense of musicianship, love for music, and the learning strategies that she uses to master difficult repertoire causes us to reflect critically on the efficiency with which other children typically learn instruments. My previous research has focused on the development of visual (performing rehearsed music, sight-reading), aural (playing from memory and by ear), and creative (improvising) aspects of performance, and the results of these studies has convinced me that typical teaching concentrates far too much on visual orientations to the exclusion of aural and creative facets of development (McPherson and Gabrielsson 2002). What I find intriguing about the child pianist described here is that she has naturally, effortlessly, and largely without formal teaching, been able to develop her ability to learn music by ear and to perform difficult repertoire from memory and from notation. Her distinctive learning curve is exemplified by a high degree of purposefulness and autonomy in her practice and performances that project a sense of style and musical understanding that normally becomes evident at a much later age. These attributes distinguish her from the majority of children who take

up music. They are also the attributes that I intend to study further, in my attempts to chronicle the life of this extraordinarily talented young musician.

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