Beyond the Image: *The Giftedness of Jimi Hendrix*

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This article explores aspects of the life and character of electric guitarist Jimi Hendrix based on the review of literature on gifted achievers and Dabrowski's theory on developmental potential in the gifted. The influential environmental and personality factors in the development of Hendrix's musical gift, including the role played by imagination and autodidactism with reference to Vygotky's theory on play, are a primary focus. Issues raised include the value of different musical education forms as they relate to the varieties of musical expression, and the usefulness of motivational and creative attributes as indicators of gifted potential.

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> We sat there in the gloom, feeling strong and lucky, knowing that under the hype and the bullshit there had been a genius all along. (Germaine Greer describing a performance by Jimi Hendrix shortly before his death [1986, p. 44])

While acknowledging the importance of concurrent and predictive studies of gifted development in children and adolescents, many in the field also point to the value of retrospective biographical study of recognized achievers for greater understanding of factors underlying the development of gifted creativity (Feldhusen, 1986; Gruber, 1982, 1986; Simonton, 1998). Such studies have found that creative gifted achievers frequently share intellectual and motivational attributes and even background characteristics and life experiences. These findings provide clues to personal qualities and environmental conditions associated with the successful development of gifted potential, and may also provide insights into the relationship between giftedness and creativity. This article applies the retrospective method to the life of electric guitarist Jimi Hendrix. It argues that beyond his popularly received image as decadent rock star was a highly creative, gifted musician, and a personality that aligns with those described in the review of literature on eminent achievers. It also considers some of the personal attributes and environmental factors that figured prominently in his musical development.

While few would deny that Jimi Hendrix had talent—he is widely regarded as rock music's greatest instrumentalist (Heatley, 1997; Shapiro & Glebbeek, 1994; Shaar Murray, 1990)—there is the matter of the "Hendrix Image," summed up here by Charles Shaar Murray:

> The "authorized version" of the Jimi Hendrix experience (sic) is that Hendrix was a crazy black man who did funny things with a guitar, had thousands of women and eventually died of drugs, which was a shame because he was a really good guitarist, and he could play it with his teeth, too. (Like David Bowies's Ziggy Stardust, "he took it all too far/but boy, could he play guitar.") (1990, p. 2)

However, delving deeper, another picture emerges. Those who knew him describe him as shy, softly spoken and courteous, intelligent and well informed, and as possessing personal magnetism and a strong sense of humour (Black, 1999; C. Cass [personal communication, April, 1977]; Davis, 1990; McCartney, 1992; Shapiro & Glebbeek, 1994). He could also be moody, noncommunicative, maddeningly perfectionistic and emotionally volatile (Black, 1999; Redding & Appleby, 1996; Shaar Murray, 1990; Shapiro & Glebbeek, 1994). Overall, the biographical material presents a picture of a highly sensitive and thoughtful individual who found himself in a situation that offered extraordinary rewards and opportunities for the expression of his musical ideas, but also placed him frequently under almost intolerable pressure. The "authorized" version has dominated the popular perception of Hendrix, ensuring that he has not been widely perceived as a serious musician, and clouding the facts of his substantial contribution to contemporary music: "For the past twenty years, the symbols of Jimi's pop-culture heritage have stood defiantly between him and any clear sight of just what an important musician he was" (Shapiro & Glebbeek, 1994, p. 502). Thus, it is important to briefly review some of the professional commentary on Hendrix's achievements and his place in contemporary musical history before considering his life and character in the light of findings from the literature review on creative gifted achievers.

The Achievements of Jimi Hendrix

Jimi Hendrix was a gifted and dazzling guitar player who spent several years in musical apprenticeship as an itinerant sideman in various rhythm and blues bands playing the network of black venues across America known as the Chitlin Circuit. In 1966 he was discovered by ex-*Animals* bass player Chas Chandler, playing at a cheap club in New York. Eminent achievers often benefit from a fortuitous conjunction of time and place (Feldman, 1982), and in this instance Hendrix was taken by Chandler to the right place at the right time—late sixties London. On arrival there, the superiority of his playing was immediately recognized by top British guitarists such as Jeff Beck and Eric Clapton (Black, 1999; Shapiro & Glebbeek, 1994).

His performances were memorable. Drummer Robert Wyatt states that he "was a master at organizing a dramatic

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event" (Shapiro & Glebbeek, 1994, p. 322). Pete Townshend of *The Who* recalls that 'When he started to play, something changed: colors changed, everything changed....I remember flames and water dripping out of the ends of his hands....He was such a manipulator, such a magician to me, such a charismatic figure" (Shaar Murray, 1990, p. 7). These performances were based on a complex coordination of various elements. In addition to simultaneously playing lead and rhythm guitar, he sang, danced and, through years of experience, was able to carefully choreograph his movements in relation to the guitar and the amplifiers, to produce the electronic effects that were an essential part of his music. The overall effect was literally and figuratively electric. A Finnish musicologist wrote after seeing Hendrix perform:

> The *whole man* vibrates with feeling like a perfectly tuned string. Many people who have seen live performances of Jimi Hendrix have been amazed by this unity of musical content and visual appearances and at the feeling of mastery and freedom that was conveyed just by watching him play. What we were seeing was a direct manifestation of pure creative energy....This made him free and his listeners feel free in themselves. Such artistic achievements are rare and precious gifts. (Shapiro & Glebbeek, 1994, p. 499)

Hendrix was also a prolific and skillful writer of lyrics, continuously jotting down ideas on hotel notepads, table napkins, envelopes, menus, and matchboxes (Hendrix, 1994; Shapiro & Glebbeek, 1994). Long inspired by Bob Dylan, he also drew on science fiction and various cosmological and spiritual traditions for his imagery. His symbolical use of natural and supernatural phenomena has parallels with the work of William Blake and the Metaphysical Poets. Increasingly, his lyrics reflected the message of universal love and spiritual awakening that he wished to convey (Hendrix, 1994; Shaar Murray, 1990):

> Many of his songs operated on at least two levels or had more than one message to impart—he later said to close friends that he had to wrap up his metaphysical and spiritual intent in simplified language or through commonplace metaphors in order to get the material accepted by the record companies, and probably by most of his audience as well. (Shapiro & Glebbeek, 1994, p. 124)

Hendrix crossed musical boundaries, and musicians from a range of genres were able to relate to his music. Popstar and avant-garde musician Brian Eno has asked why Hendrix is not considered "one of the century's great composers?" (quoted in Shapiro & Glebbeek, 1994, p. 501). Others have referred to his compositional ability. In an interview in *Guitar Player*, jazz guitarist Larry Coryell commented that "[Hendrix] didn't know the names for the truly advanced musical forms that he created....he hadn't had classical or any other training, yet he had the talent of someone like Stravinsky or Berg" (quoted in Shaar Murray, 1990, p. 200). Jazz arranger Gil Evans said of him: "I'm always going back to Jimi's music and finding new possibilities, and every time I listen to his tunes, I hear something new. That's the mark of a great composer" (Shaar Murray, 1990, p. 201).

After attending a Stockhausen concert the previous day, Otto Donner, one of Finland's leading contemporary classical music composers, was in the audience for a Hendrix performance in Helsinki[1].

> Stockhausen and Hendrix work in many ways with the same material and same equipment. But Stockhausen has fallen into sterile observation of sound material whereas Jimi Hendrix creates vital music from that material.... the way Hendrix uses feedback, extended notes, humming of amps and echo effects and the way he mixes them with so vital [a] blues guitar...makes him an artist who in complexity can be compared to most of the serious composers. (Shapiro & Glebbeek, 1994, p.162)

Hendrix had a huge impact on his musical contemporaries. Fellow rock artists and a range of respected musicians such as B. B. King, Miles Davis, Gil Evans, Nigel Kennedy, and the Kronos Quartet have played his music, or otherwise testified to his significance as an innovative musician and composer (Davis, 1990; Ouellette, 1999; Shaar Murray, 1990; Shapiro & Glebbeek, 1994; Wilmer, 1994). Biographers Shapiro and Glebbeek (1994) quote John McLaughlin, who considered that Hendrix "single-handedly shifted the whole course of guitar-playing" (p. 498). They also emphasize his revolutionary influence: "He was the first to harness sound to electricity and the first to bring under control all the technological accoutrements of guitar playing...to sculpt a whole new aural landscape" (p. 500). Shaar Murray (1990) writes that in both his person and his music, Hendrix perfectly symbolized the concerns and aspirations of his times ("if he hadn't existed, who would have had the foresight to invent *him*?" p. 17). At the same time he argues for the lasting significance of his music, proposing his rendition of *The Star-Spangled Banner* (Hendrix, 1969, track 20) as "probably the most complex and powerful work of American art to deal with the Vietnam war" (p. 24). Shaar Murray also argues that the field of blues music has still not responded to the challenge of new possibilities Hendrix presented. Instead of the rural references of traditional blues, Hendrix reproduced the sounds of contemporary urban and international experience—sirens and traffic jams, bombs and helicopters: "In the truest sense of the term, it was *modern* blues, and the gauntlet is still lying where he left it" (p. 151).

Findings and Theories on Creative Gifted Achievement

The retrospective biographical literature shows that eminent creative achievement is consistently associated with certain intellectual and motivational attributes. These include deep knowledge and a high level of motivation and commitment; a high degree of individualism, self-direction, and persistence; dissatisfaction with existing paradigms and an orientation towards problem-finding and a willingness to test existing limits (Csikszentmihalyi & Robinson, 1986; Feldhusen, 1986; Feldman, 1982; Gruber, 1986; Haensley, Reynolds & Nash, 1986; Miller, 1998; Simonton, 1998). These findings are synchronous with aspects of Dabrowski's theory of developmental potential. In his study of gifted and eminent individuals, Dabrowski linked creativity and giftedness to emotional and personality development. He proposed that the creatively gifted show high levels of intensity, sensitivity, and openness to experience, what he called *overexcitabilities*, and a corresponding potential for higher level personality development indicated by such attributes as moral autonomy, desire for meaning, and aspiration towards the "ideal" (Piechowski, 1979, 1991). These emotional, intellectual and imaginational characteristics find echoes in the individualism, self-direction, problem-finding and passionate motivation found in gifted achievers, and, as will be shown, they are all characteristics

that Jimi Hendrix displayed from childhood (Black, 1999; Redding & Appleby, 1996; Shaar Murray, 1990; Shapiro & Glebbeek, 1994).

A comparison of findings from the research literature on gifted children and those from the retrospective studies raises interesting issues about the potential pathways leading from early possible to later achievement. A number of authors have noted that there is no guaranteed continuum from childhood giftedness to creative achievement in adulthood, and that apparently nongifted children can grow up to be gifted adults (Feldman, 1982; Feldman & Benjamin, 1998; Gruber, 1986). One explanation for this is that the qualities that have been shown to frequently accompany creative achievement are not essential for identification as a gifted child. Siegler and Kotovsky (1986) argue that *schoolhouse giftedness* is the identification of high, or potentially high, ability based on psychometric assessment or relevant childhood achievement (p. 418-419). It does not require the individualism, originality, determination, and commitment essential to mature creativity. The academic precocity that commonly underlies conceptualizations of childhood giftedness may draw on different attributes than those needed for creative production in artistic, literary or professional fields, or for work at the frontiers of science or mathematics (Csikszentmihalyi & Robinson, 1986; Gruber, 1986; Hoffman, 1995).

Another area of divergence is family background and experiences. Studies of gifted children have found that they frequently come from materially comfortable, stable and supportive family backgrounds, where considerable resources are often marshalled to facilitate their academic or artistic success (Fowler, 1981; Robinson, 1993). In comparison, the lives of creative achievers are more likely to show adversity, conflict, parental loss, and even academic failure (Csikszentmihalyi & Robinson, 1986; Miller, 1998; Simonton, 1998; Van Tassel-Baska, 1995). This suggests that the influences and interrelationships of various factors on the development of gifted potential are complex and subtle, beyond simple classification as negative or positive (Albert & Runco, 1986; Haensley, Reynolds & Nash, 1986).

For example, Piagetian theory emphasizes the role of cognitive conflict and disequilibrium in intellectual development, and it is not difficult to see correspondences between these developmental mechanisms and life experiences requiring the resolution of conflict. Personal attributes such as a propensity for problem-finding, a dissatisfaction with *what is*, and a strong motivation to find or make or do something better, would also fit this model (Feldman, 1982; Hoffman, 1995). In terms of personal motivation, Haensley, Reynolds and Nash (1986) suggest that conflict and obstacles "seem to act as a forge molding the intent of [eminent achievers], intensifying their activities, and driving them to achieve beyond their own or others wildest dreams" (p.141). Creative genius appears to be accompanied by an acute sensitivity to cognitive discrepancies and shortcomings in schema. It actively seeks out problems, applying dedication and commitment to their resolution (Feldman, 1982; Haensley, Reynolds & Nash, 1986; Hoffman, 1995). This implies more than momentary experiences of cognitive dissonance—it implies a whole attitude of mind.

Life and Character of Jimi Hendrix

In life and character, Jimi Hendrix fits closely the picture of the creatively gifted achiever. From early childhood he displayed a strong sense of individuality and self-direction, for example wearing colorful shawls and ponchos made by his Cherokee grandmother "just because I liked [them]," despite the fact that other children would laugh at him (Black, 1999, p. 11). Throughout his school and army days, and as a freelance guitarist, he rarely conformed to group mores, and was often seen as weird by his peers. As Ellis (1996) points out, "in today's eclectic world, it's tough to appreciate how radical he appeared in 1967. He dressed and played and talked and lived differently from the rest" (p. 202).

Despite the rejection and set-backs he experienced in his early career, he maintained belief in his future as a musician. In the years before his "discovery" by Chas Chandler, his dream of being a professional musician, playing his own music, required persistence and faith in his own abilities. At the height of his success, he recalled the struggle of working on and off in New York in 1964: "I'd get a gig once every twelfth of never. Sleeping outside between them tall tenements was hell. Rats running all over your chest.... I even tried to eat orange peel and tomato paste" (Black, 1999, p. 31). He possessed a strong commitment and problem-finding drive, from the beginning setting himself musical challenges. These ranged from getting a tune out of a one-string ukulele, to his expressed desire (in his paratrooper days) to make his guitar sound like the horn players in the swing bands on his father's records, or the rushing wind he heard when making parachute jumps (Shaar Murray, 1990, p. 36).

He also displayed the sensitivity, perfectionism, and intensity that Dabrowski described as characterizing the creatively gifted. While recording, he would sometimes insist on hundreds of takes, and spend hours in the studio, to produce exactly the sounds he wanted (Redding & Appleby, 1996; Shapiro & Glebbeek, 1994). Producer Eddie Kramer described how "he'd be down there grimacing and straining, trying to get it to come out of the guitar the way he heard it in his head" (quoted in Morthland, 1996). Both Miles Davis (1990) and Linda McCartney (1992) were struck by his personal intensity, while another friend remarked that he "fluctuated so fast from great joy to intense unhappiness" (Shapiro & Glebbeek, 1994, p. 476).

Linda McCartney also witnessed his emotional sensitivity: "He was the sort of man who would break down in tears if he felt moved. One night we were watching *The Hunchback of Notre Dame* on TV and he just started crying" (p. 60). He showed evidence of a range of the sensory, emotional, intellectual, and imaginational overexcitabilities that Dabrowski described as evidence of developmental potential (Piechowski, 1979, 1991). These included extreme sensitivity and emotional responsiveness to stimuli such as sound and colour; tendency to introspection, intellectual preoccupation and daydreaming; capacity for fantasy and invention from childhood; elaborate dreams and strong visual recall; and a focus on moral and spiritual concerns (Black, 1999; Fulton, 2000; Shapiro & Glebbeek, 1994).

Jimi Hendrix also displayed a high level of spiritual aspiration, seeing music as a spiritual experience and a vehicle for opening up his audience to a higher level of awareness. He felt an obligation to continue conveying his spiritual message through performance despite the build up of personal and career stresses that drained his creative energy and threatened his health.

> I've had not time off to myself since I've been in this scene.... Most people would like to retire and just disappear from the scene, which I'd love to do, but then there's still things I'd like to say. I wish it wasn't so

important to me. I wish I could just turn my mind off (Shapiro & Glebbeek, 1994, p. 347).

Dorothy Harding, a family friend, recalled an incident that suggests Hendrix's sense of spiritual aspiration may have begun in childhood. During a particularly bad period of family conflict, she was shocked one evening to find the eight-year-old Jimi crying on the porch. When she asked him what was wrong he replied that when he was big he was "going far, far away" and "never coming back":

> I hugged him and tears were running down my cheek...and I told him about the scriptures and said to him that "Things happen in your life that you don't like but you know what? Children can be stronger spiritually than their parents and one day you're going to reach down and help your parents up." He looked up at me and said "Really?" I said "Yeah. You're really smart and you've got a good heart." (Black, 1999, p. 13)

Dabrowski's theory describes five levels of emotional development, each characterized by different forms of personality functioning (Piechowski, 1991). The first level is dominated by egocentrism and self-interest, with a lack of both empathy and self-examination. An individual functioning at the second level is dominated by group values and lacks self-direction. According to Dabrowski, it is the third level that marks the beginning of higher level personality development, characterized by self-questioning and internal conflict between the higher and lower in oneself. It is this interior struggle that leads to the inner transformation that allows progression towards self-actualization and the personality ideal of levels IV and V.

Where would Hendrix fit in this model? The biographical data indicates a personality functioning beyond the first two levels. Hendrix certainly did not display the egocentric, dog-eat-dog mentality of Dabrowski's Level I, and neither would his exceptional individualism and self-direction fit the Level II personality. Rather, his idealism, spiritual concerns, and strong sense of purpose suggests the developmental potential that leads to the "spontaneous multilevel disintegration" that is found at Level III.

The last year of Hendrix's life was a time of personal crisis, and while we cannot know with certainty his inner state at the time, the biographies (Black, 1999; Shaar Murray, 1990; Shapiro & Glebbeek, 1994) consistently describe the anxiety, depression, dissatisfaction with self and struggle towards the ideal that characterize the process of *positive disintegration* that Dabrowski saw as essential to inner transformation.

Part of this personal struggle involved his use of drugs. While he was not an addict, he recognized the negative effects of drugs in his life, and expressed the desire to free himself from them. An aunt recalled his last visit to her, shortly before his death, when he himself raised his concerns, saying to her: "I'm really, really tryin' to get off this, because it's controlling my mind and I don't need it" (p. 428). As they talked "tears came into his eyes and he said to me, "Aunty, I really want you to do some serious prayin'.... I'm gonna do better. I've *got* to do better" (p. 430). In the last weeks of his life, Hendrix showed signs of beginning to resolve the personal and career crises that were causing him great stress. He had also started to take his music in new directions and had enthusiastically begun work on a project with Gil Evans's jazz orchestra. Part of the tragedy of his death was that it came at a time when he appeared to be on the brink of personal and artistic renewal (Shaar Murray, 1990; Shapiro & Glebbeek, 1994).

Family Background

Hendrix's background was characterized by adversity—poverty, racial prejudice, parental divorce, and the virtual emotional abandonment by his mother in early childhood, followed by her death when he was fifteen. While these experiences were a source of anguish and frustration, other influences were operating in surprisingly beneficial ways on the development of his particular attributes and abilities. Both Hendrix's parents were talented jazz dancers, and through his family and community he was exposed to the rich musical traditions of gospel and blues, as well as Cherokee stories, music and dance through his grandmother (Shapiro & Glebbeek, 1994). The absence of a black radio station in Seattle until 1958, meant that he listened to white rock and roll musicians such as Elvis Presley and Buddy Holly, as well as Bob Dylan (Shapiro & Glebbeek, 1994). Thus, belonging to a minority community in a predominantly white city meant that he was aware of, and inspired by, a range of musical styles, and they all fed into his music (Shaar Murray, 1990; Shapiro & Glebbeek, 1994; Wilmer, 1994).[2]

Like other sensitive children faced with conflict or loss, he retreated into his imagination, developing an elaborate fantasy life, often expressed through art (Shapiro & Glebbeek, 1994; Van Tassel-Baska, 1995). Life with his father and younger brother was difficult and disrupted, his father in some respects "failing to attune himself to his son's sensitivity" (Shapiro & Glebbeek, 1994, p. 28). On the other hand, his father also presented a powerful model of emotional commitment and determination in bringing up his sons in the face of often overwhelming difficulties (Black, 1999; Shapiro & Glebbeek, 1994). These were qualities that Hendrix himself brought to the development of his music.

Musical Development

The development of Jimi Hendrix's innate musical ability clearly demonstrates how personal qualities such as persistence, imagination and self-direction can interact with even adverse environmental circumstances, to transform potential into unique achievement. When first drawn to the guitar at eight years of age, his family could not afford to buy an instrument or pay for lessons, so the young Hendrix resorted to autodidactism and improvisation. His first guitar was "symbolic," a straw broom that he carried around continuously, pretending to play it:

> [A social worker] could see Jimmy was so obsessed with playing that *not* to have a guitar was actually damaging him psychologically. After about a year of watching him hold on to that broom all day, she talked to the school about providing Jimmy with a guitar to assist his development. The school authorities were less than convinced that Jimmy was in psychological need of a guitar. (Shapiro & Glebbeek, 1994, p. 36)

Hendrix progressed to a cigar box with elastic band, then a broken one-string ukulele his father found on a rubbish dump, on which he was able to work out a number of tunes he had heard on the radio. Eventually, when he was fifteen, his father was able to buy a five-dollar second-hand guitar from a family friend. Because he was left-handed, he had to restring the right-handed guitar and then retune it: "I didn't know a thing about tuning so I went down to the store and ran my fingers across the strings on a guitar they had there. After that I was able to tune on my own" (Shapiro & Glebbeek, 1994, p. 38).

The history of Hendrix's early encounters with the guitar demonstrates extraordinary sensitivity to sound, and a powerful intrinsic motivation and interest at a young age. What must have been the joy of finally having his own guitar is reflected in his lifelong, often literal, attachment to his instrument (Shaar Murray, 1990; Thomson, 1996). As with many blues musicians, he was faced with the initial challenge of producing sounds and music through very basic means (Shapiro & Glebbeek, 1994), and the lack of formal teaching and proper instruments may have significantly influenced the individual direction of his musical development. For several years in childhood Hendrix was hearing, creating and reproducing music in his head, through imagination, the broom acting as a rudimentary symbolic prop. This meant that apart from what he heard, such as on the radio or his father's records, much of his initial experience of music involved abstract, imagined possibilities that could be expressed concretely only at a later time.

According to the Russian psychologist Vygotsky (1978), what we call play "is an imaginary, illusory world in which the unrealizable desires can be realized" (p. 93). This imaginative activity develops over time, so that "the old adage that child's play is imagination in action must be reversed: we can say that imagination in adolescents and school children is play without action" (p. 93). Through this imaginative activity, the child becomes able to free themselves from the constraints of their immediate situation, and can act according to meaning or ideas. This aptly describes the young Hendrix and his pretend guitar. Through imagination, he acted on the idea of himself as "guitar player", rather than according to the situational reality of the absence of an instrument. Vygotsky (1978) states that "In play, it is as though [a child] were a head taller than himself" (p.102). For the child Hendrix, it was as though, through his imagination, he had projected himself into his own future, in his head playing the music he heard on record or radio, and already beginning the development of his own musical ideas (Shapiro & Glebbeek, 1994). Here he was at the level of the abstract, beyond the constraints of concrete reality, in a place ruled by imagination.

The priority of the abstract and imagined is evident throughout Jimi Hendrix's musical career. On arrival in London, he swiftly made use of musical and studio resources previously unavailable to him, bringing to fruition the musical ideas that he had been carrying around in his head for years (Shapiro & Glebbeek, 1994; Brown, 1997). Composition was very much a mental process for him (Brown, 1997). According to producer Eddie Kramer, on arriving at the recording studio "he knew exactly what he was doing. Every overdub, every backward guitar solo, every double-tracked thing was carefully worked out...in his own head" (Shapiro & Glebbeek, 1994, p. 217).

This mode of composition may also have been the source of much of his originality, in that for him the guitar was an instrument for the expression of imagination, rather than something mastered technically for the reproduction of an existing canon. Along with this imaginative capacity, his acute sensitivity to sound and strong problem-finding drive can be seen as sources of the innovative musical and electronic sounds that he used to deliberate effect: the impatient drivers of *Crosstown Traffic*; the haunting and melancholic sea sounds of 1983...(*A Merman I Should Turn to Be*); the howling wind of *All Along the Watchtower* (Hendrix, 1968, tracks 3, 11, & 15). In The Star Spangled Banner (Hendrix, 1969, track 20) and *Machine Gun* (Hendrix, 1970, track 2), Hendrix used music and sound to evoke human casualty and social fracture in two powerful political statements on the Vietnam War and its effect on America.

Hendrix's early autodidactism and lack of formal teaching is in marked contrast to the classical education of most child musical prodigies. Bamberger (1982) describes the prodigy's early experience of music as likely to be "a particular felt path, a kinaesthetically encoded sequence of actions", where the "emphasis on teaching is on the development of technical skills—that is, action knowledge; musical decisions...given beforehand, or acquired by imitating the teacher's example" (p. 70). While Bamberger considers this figurative knowledge an essential part of the prodigy's training, she speculates that the crisis that many endure in adolescence may be due to the new demands of musical maturity for abstract, formal apprehension, where for the performer "conception...becomes one with its physical realization in performance" (p. 71). She also notes that personal and social factors are likely to play a role, the adolescent prodigy needing to find his or her own musical and personal identity, independent of the expectations and guidance of others. Certainly for Hendrix, there was no such crisis. To the adolescent Jimi, the guitar represented his individual identity, and future possibilities away from the disadvantages and difficulties of his childhood (Shapiro & Glebbeek, 1994).

Van Tassel-Baska (1995) has proposed that the autodidactism of writers Charlotte Bronte and Virginia Woolf assisted them in breaking with fictional convention. Hoffman (1995) notes the association between creativity and nonconformity and "intellectual playfulness" (p. 205), arguing that conventional educational practices can stifle creativity. It is feasible that Hendrix's autodidactism was an important foundation for his later musical innovation.

Miles Davis (1990), himself classically trained, points to Hendrix as an example of a musician whose achievements may be due in part to their *lack* of conventional training: "...all the rest of that technical stuff...it might have gotten in their way, and they might have done something else had they known all that other stuff" (p. 379). Walters and Gardner (1986), in a survey of eminent gifted achievers, found that while self-teaching was common in mathematicians (of the past anyway), Hayden was the only self-taught musician. They speculate that "self-training is found only in those areas marked by the fewest conventional restraints (the frontiers of mathematics, writing, jazz, etc.), simply because the conventional constraints can only be learned through rigorous formal training" (p. 316). On the other hand, in the later stages of his career, as his musical ambitions broadened, Hendrix felt his lack of technical knowledge, and became frustrated with his inability to read and write music, expressing a desire to take time off for formal study: "I've got a lot more to learn about music because there's a lot in this hair of mine that I've got to get out.... I want to be a good writer" (Shaar Murray, 1990, p. 200).

School Experience

As a child, Jimi Hendrix was not an academic achiever. He left school early and was apparently not seen as gifted by his teachers. There are a number of factors that could have influenced his progress at school: his disadvantaged and minority background; a disrupted home life with frequent change of schools; and the possible presence of mild disabilities—he stuttered for many years, and as an adult he was found to have a significant hearing loss in one ear and poor eyesight (Redding & Appleby, 1996; Shapiro & Glebbeek,

1994). But there are also hints in the biographical data of the exceptionality to come. Some members of his family saw him as smart (Black, 1999; Shapiro & Glebbeek, 1994), and like many gifted children he was fond of playing chess (as an adult he was an expert player of strategic games) (Black, 1999; Redding & Appleby, 1996). He was seen as good at art, and reportedly won a prize for designing cars in a competition run by the Ford Motor Company (Shapiro & Glebbeek, 1994). Generally, however, the young Hendrix found school uninspiring and irrelevant.

The contrasts between his life in and out of school is illustrated by two stories, one from a friend and the other from a cousin. The schoolfriend remembers Hendrix spending most of his seventh-grade English lessons sitting under the teacher's desk for talking to friends during class (Black, 1999), while his cousin remembers him in the same year as writing a lot of poetry, and reading some of it to her: "Sometimes I would have to ask him to re-read a line, or maybe an entire poem. He poured his heart into those poems. They were deeply philosophical. I had to concentrate so totally to understand them" (Black, 1999, p. 16). In regard to his schooldays, Shapiro and Glebbeek (1994) note that we cannot know for sure if Hendrix had the potential for high academic achievement, "but he undoubtedly had an immense innate intelligence" (p. 46).

Conclusion

The biographical literature clearly shows that from childhood, Jimi Hendrix possessed both the attributes of the creative gifted achiever described in the retrospective literature, and the characteristics associated with Dabrowski's emotional, imaginational and intellectual overexcitabilities. The significance of his achievements lies in his originality, and his musical and technical innovation, made possible by his complete mastery of his instrument. The biographical material shows an interesting interplay of personal and environmental influences on the development of this originality, and raises interesting issues about the identification and nurturance of creative potential. Particularly enlightening is the episode of the perceptive social worker, who identified in the young Hendrix the intense motivation and persistence that is a hallmark of gifted achievement, and unsuccessfully attempted to provide support for his incipient gift. This example demonstrates the highly predictive significance of a child's intense motivation in an area of interest, and raises questions about what we should look for as indicators of future potential. Are intellectual and motivational characteristics such as passionate commitment, imaginative capacity, individuality, and self-direction as significant and reliable markers of gifted potential as academic or artistic precocity? And if so, is this because not only are such attributes essential adjuncts of future achievement, but also, as Dabrowski would argue, because they are intrinsic to the very nature of gifted creativity?

Imagination played an important role in Hendrix's musical development, inviting consideration of the pros and cons of different forms of musical training in relation to the varieties of musical expression. Mike Stern, sometime guitarist with Miles Davis, is quoted in Milkowski (1996):

> There I was, thirteen years old...learning everything from jazz to bossa nova to classical from my mentor and this guy comes out with underwater guitar sounds! It was so revolutionary at the time. Hendrix was such an innovator.... And this is what is gradually slipping away in the music industry today. (p. 98)

The review of literature indicates that those who work at the frontiers of their field are characterized by vision, individuality, and self-direction, along with the courage and self-belief necessary to attain the goal that others have not yet imagined or understood. Ellis (1996) reminds us how much Hendrix needed such attributes to realize his musical potential: "Jimi's music made perfect sense, once you got over the shock. But imagine how Hendrix must have felt as he nurtured his vision, alone and unknown" (p. 20). Chas Chandler, in the documentary on rock and roll history *Dancing in the Street* (Thomson, 1996), talked of the passion, commitment and hard work that Jimi Hendrix brought to the development of his innate abilities. What he said about Hendrix could equally apply to all those who have turned gifted potential into creative achievement:

"It wasn't by accident he was that good. Nobody gets that good by accident."

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End Notes

1 As well as fans of blues and rock, the audience for the performance of the *Jimi Hendrix Experience* at Helsinki's *Kulttuuritalo* in May 1967 included followers of modern jazz and classical music. This explains these (rare) reviews of Hendrix by serious musical commentators from Finland.

2 As an adult Hendrix also developed an interest in classical music and he was particularly excited to discover that his London flat was the former residence of the composer Handel: "Music students would come to visit the flat only to be struck dumb when they found their tour guide to be none other than Jimi Hendrix" (Shapiro & Glebeek, 1994, p. 327).

Developing Young Children's Multidigit Number Sense

Carmel M. Diezmann
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Enrichment for mathematically gifted students in the elementary school needs to extend beyond puzzles or busywork and support the development of mathematical power through a differentiated curriculum. This article describes a series of enrichment experiences that were designed to develop young gifted children's understanding of large numbers, which was central to their investigation of space travel. Although large numbers are not traditionally included in the mathematics curriculum for young children, the children in this group responded enthusiastically to the enrichment experiences. These experiences provided the children with an opportunity to understand the large numbers they encountered in science resource material and to develop their mathematical power.

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Large numbers are a source of fascination for many children and mathematicians alike. However, unlike mathematicians, most young children have a limited understanding of large numbers and use place value terms indiscriminately to express the enormity of a quantity or measure ("There were thousands of people at the party;" "The house cost millions of dollars." Traditionally, large numbers have not been part of the mathematics curriculum in the early school years. However, a lack of understanding of large numbers can be problematic for young gifted children because large numbers are an integral part of topics that are of interest to them, such as space travel.

In our work with enrichment classes of 5- to 8-year-olds, we found that children were hampered in their investigation of space travel when large numbers were encountered in resource material. Even though these young gifted children were more mathematically competent than their chronological peers in their regular classrooms, they had difficulty in appreciating the number of people who watched the first moon landing; the size of the space mission team; the cost of a space mission; and the distances from the earth to the moon, the planets, and the stars. When children lack an understanding of large numbers, they are unable to reason effectively with the information given. For example, one child reasoned that the moon must be closer than a city because "You can see the moon at night but you can't see Sydney." Thus, for children to take advantage of the information in the space resource material, there was a need to develop their number sense with large numbers, that is, their multidigit number sense.

> Multidigit number sense refers to: Children's understanding of and flexibility in using multiunit numbers should also include intuitive feelings for numbers and their uses as well as the ability to make judgements about the reasonableness of multidigit numbers in diverse problem situations (Jones, Thornton, & Putt, 1994, p. 118).

Because multidigit number sense is complex (Jones et al., 1994), it was necessary to develop a series of meaningful activities that enabled young gifted children to make sense of large numbers in context. Enrichment classes provide the opportunity for gifted students to engage in tasks that are beyond the scope of the regular curriculum (Lupkowski-Shoplik & Assouline, 1994). The following enrichment activities were designed to help a class of 20 young gifted children to:

- read (i.e., label) large numbers in symbolic form;
- develop referents for large numbers and understand their relative magnitude (National Council of Teachers of Mathematics, 1998); and
- understand large numbers that represent quantity (e.g., size of a space mission team), distance (e.g., distance to the moon) and money (e.g., cost of a space mission).

Reading Large Numbers

In the first activity, children were introduced to the pattern in reading large numbers. Numbers of increasing magnitude were displayed for the children. We began with the one's period, progressed to the thousand's period, and finally, displayed the million's period. The name of each period was added to facilitate children's reading.

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