Gifted Learners, Dyslexia, Music, and the Piano:

Rude, Inattentive, Uncooperative, or Something Else?

by

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ABSTRACT

About piano students who display disruptive behavior and perform far below reasonable expectations, teachers first conclude that they are lazy, rude, disinterested, and/or lacking intelligence or ability. Most dismiss such students from studios and advise parents to discontinue lessons. In truth, many of these students are both highly gifted and also have a learning disability. Examined literature shows that the incidence of dyslexia and other learning disabilities in the gifted learner population is several times that of the regular learner population. Although large volumes of research have been devoted to dyslexia, and more recently to dyslexia and music (in the classroom and some in individual instrumental instruction), there is no evidence of the same investigation in relation to the specific needs of highly gifted dyslexic students in learning to play the piano.

This project examines characteristics of giftedness and dyslexia, gifted learners with learning disabilities, and the difficulties they encounter in learning to read music and play keyboard instruments. It includes historical summaries of author's experience with such students and description of their progress and success. They reveal some of practical strategies that evolved through several decades of teaching regular and gifted dyslexic students that helped them overcome the challenges and learn to play the piano. Informal conversations and experience exchanges with colleagues, as well as a recently completed pilot study also showed that most piano pedagogues had no formal

opportunity to learn about this issue and to be empowered to teach these very special students. The author's hope is to offer personal insights, survey of current knowledge, and practical suggestions that will not only assist piano instructors to successfully teach highly gifted learners with dyslexia, but also inspire them to learn more about the topic.

DEDICATION

To my beloved son, Edward Quinlan, my friend, inspiration, and an endless, ever giving source of joy and pride.

ACKNOWLEDGMENTS

This work would have never been completed without decades of loving guidance of my late father, Jovan Vladikovic, who was, and always will be, the guiding light in my life, and who taught me that there were no limits to success. I am equally grateful for the support and inspiration throughout my life, especially in all things musical, from my mother, Jelica Vladikovic, a piano teacher and a musical mother to generations of pianists.

I am deeply thankful to my son, Edward Quinlan, for his love, support, encouragement, and inspiration that was at the root of my research interest, and a driving force behind my return to performing and doctoral studies.

I offer my gratitude to the members of my Graduate Committee for their expert guidance and for the inspiration and counsel throughout my studies. A special thank you to Dr. Janice Meyer Thompson who guided me through my pedagogy study journey and provided treasured comments, insights, and advice; and to Dr. Baruch Meir for his support of my performance.

I especially thank Dr. Jere Humphreys who directed my final project and shared his vast expertise selflessly and with much patience, and Dr. Kay Norton for her trust and interest in the unusual hypotheses of my Schumann lecture recital topic. I will forever be grateful for their support and the outstanding professional guidance they provided.

I extend a special thank you to Dr. Ellon Carpenter for her selfless help and expert assistance in the final stages of editing this document.

Finally, I am most grateful to hundreds of former students whom I was honored to teach over the years, and to current students who inspire me every day. I learned from them in the past three decades, and I continue to be inspired by and learn from them. Their special talents, love of the piano, and dedication, were instrumental in the success of my pedagogical and academic work.

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Chapter 1

INTRODUCTION

Looking back at the early days of my teaching career with the knowledge and experience of today, I now see what may have been the real reason for serious lack of progress in a number of students who I knew were highly talented and motivated. As a professor at a ten-year, formal music school in Belgrade, Serbia, I was accustomed to teaching highly gifted students who had been admitted to the school only after an audition and extensive assessment of their performing abilities and aptitude. Service as a member of auditioning panels at the school helped me gain and develop critical evaluation skills and taught me to efficiently and accurately assess the potential of prospective students. This experience, together with my teaching experience at a university, directed my professional focus to pupils of higher ability and with demonstrated high motivation and desire to learn to play the piano.

To continue teaching the same profile of student after moving to North America, I utilized the same audition, interview, and sample lesson system when accepting new students. This process was vital for a final decision on whether to agree to take a new student. Over the years, most of the students enrolled in my studio proved to be in the highly gifted range according to testing conducted in their elementary schools. Testing for most of these students was conducted at their parents' request for placement in the gifted

program. The testing confirmed the accuracy of my initial assessments of their extraordinary ability.

Nevertheless, despite their proven ability, motivation, and work ethic, certain students did not progress as expected and failed to reach customary milestones. Even though they practiced regularly and invested significant effort to complete the required weekly tasks, often with evident parental help, the desired results were not forthcoming.

Notwithstanding natural differences in personalities and learning styles, and necessary variations in preparing each student's yearly development plans, certain similar learning outcomes are expected at regular intervals from students at the same level and taught with the same pedagogical approach. Yet, despite all that and without exception, some students failed to flourish, something that presented me with a conundrum. I taught them through trial and error, experimenting with numerous approaches and strategies, always inventing new ways of presenting a concept, or providing guidance on aspects of playing the piano. I was searching for ways to make every student successful.

It was not until my own son was tested at the age of three and identified as a highly gifted individual that I began to learn and understand the challenges that often come with giftedness. One of the first things I learned was that learning disabilities, and oddly enough also asthma and severe allergies, frequently accompany giftedness.

I began to attend seminars and lectures offered through the Gifted Children's Association of British Columbia (Vancouver, Canada), read suggested articles, and utilize every other resource I could find. This discovery journey continued through seeing my students with a new perspective. It enabled me to apply this newly acquired knowledge and to develop it further to the benefit of many learners.

I am neither a psychologist nor am I formally trained to diagnose either giftedness or learning disabilities. However, becoming familiar with typical characteristics of highly gifted students, as well as dyslexic ones, led me to adjust my teaching methods for students who appeared to belong in these categories. My observations and subsequent deduction that a certain student was both gifted and learning disabled were later confirmed through parent- or school-requested formal testing.

Although there are many extant tests designed to measure both conditions, even experts agree that the process of identifying them is multifaceted and not an exact science. James T. Webb, the founder of the Supporting Emotional Needs of Gifted (SENG) program at the School of Professional Psychology, Wright State University in Dayton, Ohio, writes that giftedness and psychological disorders often overlap or mirror each other, which makes a precise determination difficult. He further explains that practitioners rely on lists of characteristics for each disorder set forth in the *Diagnostic and Statistical Manual of Mental Disorders*, with a stipulation

that the manifestation of a specified number of them is required to make a determination of the presence of a given condition.[1]

Learning to play an instrument requires utilization of complex brain processes because it involves far more than the simple memorization, recognition, and execution of symbols. Learning music and rhythmic notation is but a first step in that process. The complexity of written music language and the execution of the same on any instrument requires the simultaneous employment of a multitude of brain functions. The interpretation of written music text combines not just the act of reading notation, but also comprehension and translation into a physical action of producing the sounds on an instrument. The more complex the instrument, the more challenging it is for learners with dyslexia. Instruments capable of producing harmonies such as string instruments and piano/keyboards, as opposed to wind instruments, pose additional difficulty for dyslexics. Knowing this helped greatly not only to solve the puzzle with my slow-progressing gifted students, but also inspired me to further explore new strategies in teaching them.

In the case of gifted learners with dyslexia, especially those without formal diagnoses, the issue becomes further complicated because of their inherent ability to compensate and thus mask the existence of a learning disability. This prevents a timely, successful intervention and application of

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[1] James T. Webb, Edward R. Amend, Nadia E. Webb, Jean Goerss, Paul Beljan, and F. Richard Olenchak, *Misdiagnosis and Dual Diagnosis of Gifted Children and Adults*, Scottsdale, AZ: Great Potential Press, Inc., 2004, 45

teaching methods that would improve learning and alleviate the frustration resulting from the negative effects of dyslexia on studying to play the piano.

The purpose in writing this paper is not only to review the existing research and literature on the subject, but also to address deficiencies in the music education field as they pertain to the specifics of teaching piano to gifted learners with dyslexia. Based on the findings and almost four decades of personal teaching experience between 1974 and 2013, I have established and utilized alternate modes of teaching and practical methods that other piano instructors can employ in teaching these students. These unique methods are discussed and documented here.

Chapter 2

LITERATURE OVERVIEW

Learning to play the piano is among the most ambitious and difficult tasks a dyslexic can undertake. The synthesis of simultaneous reading, comprehension, and physical execution through coordination of all four extremities is challenging enough for the regular learner population. These challenges multiply exponentially for the learning disabled, especially in learners with dyslexia. Dyslexic learners encounter multiple obstacles because the disorder affects not only the reading aspect of learning, but also decoding, directional orientation, motor ability, sequencing, numbering, and a myriad of other processing skills, all of which are required in piano playing.

Dyslexia is not a single disorder, but instead encompasses several different impairments.[2] The fact that its effects differ widely among dyslexic students creates significant difficulties for those who seek to devise suitable uniform teaching methods that assist both students and teachers in the learning process.

There is a wealth of research literature devoted to the examination, explanation, outlining of interventions, and proposals for mitigating the learning disability itself, as well as special education methods for classroom learning and integration of students with learning disabilities. Despite the

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[2] Kate O'Brien Vance, "Adapting Music Instruction for Students with Dyslexia," *Music Educators Journal* 90, no. 5 (May 2004): 27.

copious literature, however, very little has been published on understanding how dyslexia affects musical learning and even less on how to teach dyslexic learners to play an instrument. Research and practical literature on teaching music and piano playing to gifted dyslexics is virtually non-existent.

While the body of research literature on dyslexia and education is large and originates from throughout the western world, the majority of published research and other writing on dyslexics and music has been done in Europe, mainly in the United Kingdom and the Netherlands.

An examination of articles and books on the topic that most closely match music and dyslexia yielded numerous results from the fields of music therapy, psychology, special education, and medicine. However, the available works tend to focus on explaining specific aspects of dyslexia, especially its origins, mechanics, and characteristics. Some explore the effects music might have on mitigating negative aspects of dyslexia.[3] Others describe the challenges that face dyslexics in learning musical notation, but do not offer specific teaching methods.[4]

Most extant research studies and other publications related to dyslexia and music education describe the problems dyslexics face in learning

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[3] Katie Overy, "Dyslexia, Temporal Processing and Music: The Potential of Music as an Early Learning Aid for Dyslexic Children," *Psychology of Music* 28, no. 2 (October 2000): 218-29.

[4] Brigitt S.Jaarsma, A. J. Ruijssenaars, and W. Van den Broeck, "Dyslexia and Learning Musical Notation: A Pilot Study," *Annals of Dyslexia* 48, no. 1 (December 1998): 137-54.

music. These studies provide helpful information for a general understanding of the characteristics of the disorder, and they provide insights into the ways dyslexics learn. They represent a solid starting point for further research, but by no means do they offer practical solutions, such as teaching methodologies, that would help a piano instructor deal with a dyslexic student, especially an exceptionally gifted dyslexic piano student.[5]

Some authors do offer limited practical advice for meeting the music learning needs of dyslexic students.[6] The most useful suggestions offered to date are contained in the works of two authors, Sheila Oglethorpe and Kate O'Brien Vance.[7]

In addition to the two cited works, both of these authors have devoted time and energy to devising ways of teaching dyslexics successfully, and both have written widely on the subject. In addition, both authors are teachers: Oglethorpe teaches piano and Vance teaches wind instruments and is

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[5] Betty W. Atterbury, "A Comparison of Rhythm Pattern Perception and Performance in Normal and Learning-Disabled Readers, Age Seven and Eight," *Journal of Research in Music Education*, 31, no. 4 (winter 1983): 259-70; and Paula Tallal and Nadine Gaab, "Dynamic Auditory Processing, Musical Experience and Language Development," *Brain* 129, no. 10 (October 2006): 2554-61.

[6] Margaret Hubicki, "Musical Problems? Reflections and Suggestions," in *Dyslexia Matters: A Celebratory Contributed Volume to Honour Professor T. R. Miles*, G. Hales, ed., (London: Whurr Publishers Ltd., 2004), 184-98.

[7] Sheila Oglethorpe, *Instrumental Music for Dyslexics: A Teaching Handbook*, (London: Taylor and Francis, 2002), and Kate O'Brien Vance, "Adapting Music Instruction for Students with Dyslexia," 27-31.

dyslexic herself, which affords her unique insights. Regardless, neither addresses the specific needs of a gifted learner with dyslexia in learning to play the piano.

On the other side of the research spectrum, medical and scientific studies focus mainly on brain functionality and processes as they pertain to the experiencing of music, whether as a listener or performer, as well as the healing properties of music. In general, brain functionality research focuses on explaining and/or understanding brain processes and physiology, rather than investigating and offering possible answers and practical solutions that may assist dyslexics in overcoming obstacles to learning music notation and playing an instrument.

Interestingly, many of the research studies and other literature examined for the present study were authored by the same individuals. This suggests that most of the writing on the dyslexic musician/learner phenomenon is being done by a relatively small group of researchers. This is especially true as it pertains to exceptionally gifted individuals. Regardless, the extant research hopefully will open doors for future investigations. It is all the more important to proceed with work in this field because the need for prepared teachers will grow with increases in the number of the highly gifted students.

Despite differences in estimating the numbers of gifted children with learning disabilities in recent studies,[8] increases my colleagues and I are witnessing in our studios suggest that the number of gifted students with learning disabilities is on the rise. Discussions and experience sharing with colleagues, as well as a recent pilot study I conducted among piano teachers (see appendix A), show that there is a serious lack of adequate formal instruction that would prepare them to successfully teach these special learners.

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[8] Jenny Macmillan, "Music and Dyslexia – and How Suzuki Helps." *European Suzuki Association Web Journal,* available at http://www.europeansuzuki.org/web_journal/Music_and_dyslexia.pdf; Kate O'Brien Vance, "Adapting Music Instruction for Students with Dyslexia," *Music Educators Journal* 90, no. 5 (May 2004): 27; Jayne M. Standley, "Does Music Instruction Help Children Learn to Read?: Evidence of a Meta-Analysis" *Update: Applications of Research in Music Education* 27, no. 1 (2008): 18.

Chapter 3

GIFTEDNESS: ITS CHARACTERISTICS AND CHALLENGES

Over the years, giftedness has been defined and redefined many times. The first mention of the term "gifted" appeared in 1869, when it was put forward by the British scholar Francis Galton. He wrote about adults who demonstrated exceptional talent in one area of achievement, but he also referred to children as being able to inherit giftedness and used the term gifted children. Lewis Madison Terman, an American cognitive psychologist, added in the early 1990s a specification of an intelligence quotient (IQ) of 140 or higher to the criteria for giftedness.[9]

Finally, in her 1926 book titled *Gifted Children, Their Nature and Nurture*, educational psychologist Leta Stetter Hollingworth added yet another dimension to the definition. She speculated that nurturing home and school environments contributed to giftedness as much as inherited factors.[10] After the publication of this book, the term "gifted" was adopted by both mainstream culture and the scholarly world, and remains in use to this day. The nation's first report on gifted education, submitted in 1972 to the United States Congress by Sidney P. Marland, further expanded the definition of giftedness to include extraordinary ability in several areas, such as

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[9] Carol Bainbridge, "Definitions of Gifted: Different Perspectives," Gifted Children, an About.com Guide Site, available at http://giftedkids.about.com/od/gifted101/a/definitions.htm

[10] Ibid.

leadership ability, talent in visual and performing arts, creative or productive thinking, and athletic and/or psychomotor ability.[11] The best description of giftedness, synthesized from a multitude of documents, is that it represents a superior learning and information processing ability, often combined with creative, artistic, or athletic talent that is generally found in 5-7% of the school age population. In addition to superior intellectual, creative, and/or athletic ability, many social and behavioral characteristics are common to all gifted learners, regardless of the presence or absence of learning disabilities (LD). See table 1 for a list of these characteristics.

[11] "The History of Gifted and Talented Education," National Association for Gifted Children Web Site available online from http://www.nagc.org/index.aspx?id=607.

Table 1
Most Prominent Characteristics of a Gifted Child.[12]

1	Heightened sense of social justice and right and wrong
2	Maturity well beyond chronological age
3	Superior ability to grasp concepts, and/or cross reference
4	Frequent struggle with self esteem
5	Unwillingness to extend effort or study
6	Easily discouraged and lacking persistence
7	Lacking motivation, yet easily compensating for LD
8	Disorganization
9	Erratic behavior
10	Frequent frustration and/or anger
11	Often combined with one or more LD

Dyslexic children often exhibit many of the same characteristics. However, as discussed in later sections, this author's experience with highly gifted dyslexics shows that traits in table 1, lines four to seven, are absent in their learning to play the piano, even when they exist in other areas of learning.

A widely accepted social assumption about the gifted that their extraordinary ability automatically translates into ease of learning and guarantees success in any field could not be more inaccurate. In stark

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[12] James T. Webb, et al, *Misdiagnosis and Dual Diagnosis of Gifted Children and Adults* (Scottsdale, AZ: Great Potential Press, Inc., 2004), *Passim.*

contrast to this belief exists an age-old popular desire to devalue the extraordinarily gifted, which has been the topic of many articles, among them those of David Chan and Judith Schlesinger. While fascinated with the idea of an extraordinary ability and desiring to explain, dissect, and define it, the general population believes that superior intellectual and artistic ability "exacts a high price."[13] The ever present human jealousy and the need to invalidate the achievements of high achievers by attaching negative connotations to their superior ability is but one explanation. The other is a consequence of a serious lack of understanding and knowledge about the gifted psyche and inherent behaviors of the gifted. Although attempts to define those with extraordinary abilities have been made throughout history, it is only in recent decades that modern science has been gaining deeper insights into and knowledge about giftedness and gifted individuals.

Based on explorations of significant challenges that highly gifted individuals experience, Arnold Ludwig argues that creative individuals often exhibit great emotional turmoil early in their lives, certainly long before they produce most of their work and achieve public acclaim.[14] Such characteristics

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[13] David Chan, "The Mad Genius Controversy: Does the East Differ from the West?" *Education Journal* 29, no. 1 (summer 2001): 3, and Judith Schlesinger, "Creative Mythconceptions: A Closer Look at the Evidence for the 'Mad Genius' Hypothesis." *Psychology of Aesthetics, Creativity, and the Arts*. 3, no. 2 (2009): 63.

[14] Arnold Ludwig, "Mental Health Disturbance and Creative Achievement," *Harvard Mental Health Letter* 12, no. 9 (1996): 4.

as easily induced frustration, anger, and self-doubt frequently accompany extraordinary ability and are a constant source of anguish for many gifted individuals. Societal attitudes and misconceptions only exacerbate their problems. Gifted individuals in learning environments often lose interest and/or motivation due to these misconceptions and, more precisely, due to a serious lack of understanding and support on the part of others.

As the ensuing segment reveals, dyslexic children may exhibit many of the same social and behavioral characteristics as the gifted. One can hypothesize then that those symptoms are only augmented in a child who is categorized as both highly gifted and dyslexic. Individual piano lessons can present a powerful opportunity for teachers not only to help these students grow as pianists, but also to offer a safe, understanding, holistic learning environment.

Chapter 4

DYSLEXIA: ITS CHARACTERISTICS AND CHALLENGES

General Characteristics

Similar to giftedness, a number of different definitions of dyslexia have been proffered in the years since it was formally recognized as a real disorder. Because there is such a wide variety of symptoms and dyslexics display them to different degrees, there is no one precise definition. Its name is derived from two Greek words: *dys* (poor or hard) and *lexia* (language).[15] The origins of the name suggest that dyslexia causes difficulties only with using words or language. However, anecdotal information obtained through peer interaction, research, and personal experiences, suggests otherwise.

The following is an example of how a dyslexic sees text:

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[15] Sheila Oglethorpe, *Instrumental Music for Dyslexics: A Teaching Handbook*, 2-3.

> I cdnuolt blveiee taht i cluod aulaclty uesdnatnrd waht i was rdanieg. The phaonmneal pweor of the hmuan mnid aoccdrnig to a rscheearch sduty at Cmabrigde Uinervtisy, it deosn't mttaer in waht oredr the ltteers in a wrod are, the olny iprmoatnt tihng is taht the frist and lsat ltteer be in the rghit pclae. The rset can be a toatl mses and you can sitll raed it wouthit a porbelm. Tihs is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the wrod as a wlohe. Amzanig huh? Yaeh and I awlyas tohguht slpeling was ipmorantt.[16]

Due to the advanced processing ability of the brain, most people could read the preceding paragraph without difficulty. For them, "the written text is simply a symbolic representation of the sounds we use to communicate."[17] However, not only would a dyslexic not be able to process and decode the quoted text, most would actually see regular text in this manner as well.

At first look, dyslexia is conceptually the opposite of giftedness: it is characterized by an inability to process information and it affects from 2% to 8% of the non-gifted young learner population. Yet, dyslexics may constitute as much as 30% of the gifted learner population (15% according to Macmillan; 20% according to Vance; 30% according to Standley).[18]

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[16] Jeremy Polk, "Teaching Dyslexic Instrumental Musicians: The Difficulty is All in Your Mind" (paper presented at the Texas Music Educators Association Annual Convention, Austin, Texas, 16 – 18 February 2006)

[17] Oglethorpe, *Instrumental Music for Dyslexics,* 3.

[18] Jenny Macmillan, "Music and Dyslexia – and How Suzuki Helps." *European Suzuki Association Web Journal,* available at http://www.europeansuzuki.org/web_journal/Music_and_dyslexia.pdf; Katie Vance, "Adapting Music Instruction," 27, Jayne M. Standley, "Does Music Instruction Help Children Learn to Read?: Evidence of a Meta-Analysis" *Update: Applications of Research in Music Education* 27, no. 1 (2008): 18.

Numbers differ significantly from study to study in part because it is difficult to arrive at a definite number; dyslexics differ from one another and have few common traits. Additionally, some dyslexics are never diagnosed and many who fall in the gifted population develop their own covert coping skills to address the challenges of dyslexia.

Dyslexia further causes a range of challenges for those afflicted by it. In addition to having a general deficit in automating a variety of cognitive and motor skills, dyslexics experience difficulty with at least two or more of the characteristics listed in table 2.[19]

[19] Jenny Macmillan, "Music and Dyslexia."

Table 2
Some of the Typical Challenges of Dyslexics.

1	Inability to translate thoughts into written word and vice versa
2	Language, rhythm, memory
3	Letter names and sequencing
4	Visual and spatial perception
5	Delay in information processing and automaticity
6	Omitting syllables
7	Difficulty with multi-meaning words: note, key, bar, sharp, flat, left and right
8	Temporal disorganization that correlates with difficulties in learning to read
9	Spatial/directional confusion and poor left-right tracking
10	Confusion with physical decoding and use of right and left hand
11	Short term memory deficiency
12	Confusion with and/or inability to decode music symbols

While considering the wide range of symptoms and deficiencies in cognitive, processing, and motor skills, it might appear that dyslexia adversely affects the general abilities and potential of dyslexics. However, much like other learning disabilities, dyslexia has no effect on general abilities. The British Dyslexia Association states: "A crucial element in diagnosis is the discrepancy between the intelligence of a child and his/her performance level."[20]

Dyslexia causes some of the same social and behavioral difficulties as giftedness. In her book *Instrumental Music for Dyslexics: A Teaching Handbook*, Sheila Oglethorpe reports the secondary symptoms listed in table 3, which correspond to those of the gifted, as defined by James T. Webb in the previous chapter.

Table 3
Personal Traits and Behavioral Characteristics Shared by Gifted and Dyslexic Students.

1	Poor concentration
2	Low self esteem
3	Frustration
4	Erratic behavior
5	Poor coping skills
6	Anxiety

[20] Ibid.

Despite the sometimes overwhelming challenges, many positives either accompany dyslexia, or result from it. Jenny Macmillan quotes Oglethorpe's observations of dyslexics that led her to conclude that they are usually very resourceful, determined, hardworking, ingenious, inventive, and creative, and adds that "it is a phenomenon of many dyslexics that they never give up."[21] It has been my experience with numerous students that they consistently displayed all of the characteristics identified by Oglethorpe, Macmillan, and others. Considering the high level of persistence my students showed, and because it became evident before symptoms of dyslexia presented themselves, their lack of progress was all the more puzzling. My own understanding of the reasons for these students' lack of progress came only with the confirmation of the presence of dyslexia through parent-ordered formal testing.

Dyslexia, Music and the Piano

> The language of music is one that every child has a right to learn and which every musician, performer or teacher – particularly teacher – must pass on the next generation. The doors must be opened to everyone who wishes to walk in.[22]

Learning to play the piano is probably one of the most difficult, ambitious, and daunting tasks a dyslexic can undertake. Challenges of the synthesis of simultaneous reading, decoding of written information, comprehension, and subsequent physical coordination of all four extremities

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[21] Sheila Oglethorpe, quoted in ibid.
[22] Oglethorpe, *Instrumental Music for Dyslexics.* 1

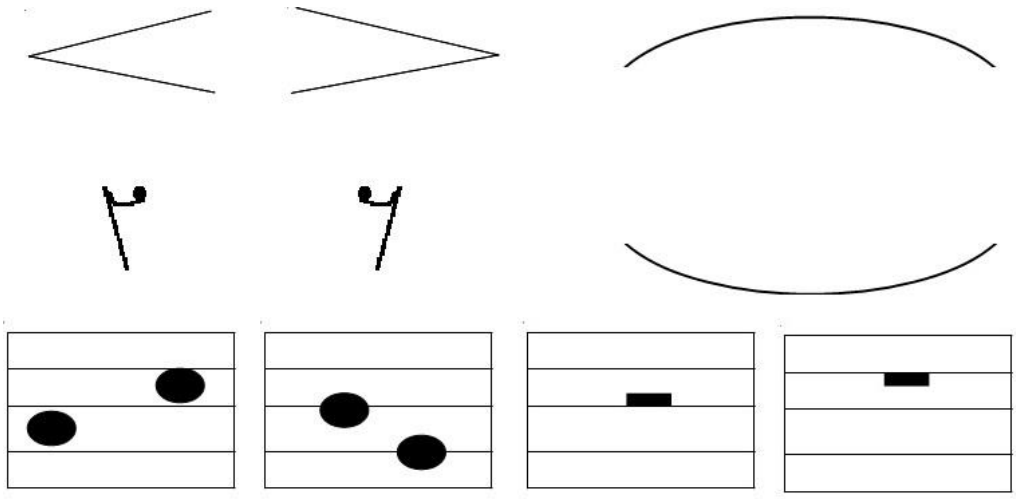
multiplies for dyslexics, giftedness notwithstanding. I observed my students encounter a number of difficulties in learning and reading music notation. They are shown in table 4.

Table 4
Personally Observed Difficulties Encountered by Dyslexic Students in Lessons and Daily Practice

1	Reversal of numbers/letters and left-right coordination
2	Confusion from excessive visual stimulation and complexity of material
3	Confusing formats and multi-meaning words and symbols used in music and notation: the same number can mean an interval, finger, or a beat
4	The staff in small print, with notes on and between the lines, causes them to overlook or misread notes, symbols, dynamics, bar lines, stems and beams
5	Inability to look up and down, at and away from the music, and co-ordinate with playing
6	Confusion with the general extraordinary complexity and detail density of the piano and piano scores

As shown in example 1, just the image reversal from what is written in the musical score can produce significant difficulties in correctly identifying the meaning of music symbols. Such image reversal carries further ramifications for the complete process of decoding of music text. Just the initial errors when first looking at a page then multiplies in terms of translating the symbols into action and execution. The crescendo and

decrescendo signs, if reversed and acted upon as such, produce the exact opposite of the original sign intent. Confusing notes in spaces and on the lines, often accompanied by similar reversal of the meaning of sharps and flats, then causes a domino effect whereby every subsequent step takes a dyslexic further from the actual meaning of the score. Another telling effect of dyslexia is the way some dyslexics interpret slurs (legato markings): if positioned above the notes, they tend to read the slur marking as requiring them to lift their hand off the keyboard, rather than playing the intended legato (see example 1).



Example 1
Personally Observed Frequently Reversed Symbols and Their Meaning in Music Scores.

Dyslexic learners encounter multiple added obstacles in learning to play the piano because the disorder affects not only the reading aspect of learning, but also decoding, directional orientation, motor ability, sequencing,

numbering, and a myriad of other processing skills, all of which are required in piano performance.

The fact that dyslexia encompasses several impairments, and is not one particular disorder,[23] combined with wide differences in its effects among dyslexic students, especially gifted dyslexics, creates a significant additional difficulty in devising suitable uniform teaching methods that would assist both students and teachers in the process. However, as Sylvie Hébert, Renée Béland, Christine Beckett, Lola L. Cuddy, Isabelle Peretz, and Joan Wolforth write, the ability to read, decode, and interpret music is yet another dyslexia variant that was neither addressed nor even acknowledged in scientific literature until 2000, when the term "music dyslexia" first appeared.[24]

All this does not mean that dyslexic learners, especially ones in the gifted spectrum, cannot learn to read music and play the piano. Despite the challenges, foremost among them the fact that music notation often appears cluttered and unintelligible to dyslexics, most succeed in overcoming these obstacles, mainly through hard work and determination.

Previously mentioned studies and this author's experience suggest that the most appropriate approaches to teaching music and piano to gifted

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[23] Vance, "Adapting Music Instruction for Students with Dyslexia," 29.

[24] Neil Gordon, "Developmental Dysmusia (developmental musical dyslexia)," *Medicine & Child Neurology* 42, no 3, (March 2000): 214-15; ; cited quoted in Sylvie Hébert, Renée Béland, Christine Beckett, Lola L. Cuddy, Isabelle Peretz, and Joan Wolforth, "A Case Study of Music and Text Dyslexia," *Music Perception: An Interdisciplinary Journal* 25, no. 4 (April 2008): 369.

dyslexics should be holistic and multisensory. While utilizing recognized methodology that helps dyslexics learn, one must also consistently be aware of specific gifted students' needs and learning styles. These special learners need to experience musical sound and notation together and through a variety of stimuli. Several studies that propose the multisensory approach as the most suitable report that, in the early stages of learning music, the best results can be obtained through methods such as Kodály, Orff, and Suzuki. What these methods provide, somewhat similar to traditional teaching methods, is a mix of individual and group lessons that both incorporate a variety of largely student-centered activities such as rhythm games and singing. In her summary of recent research, Jayne Standley identified Orff, Kodály, and Dalcroze methods as helpful in supporting language literacy training. She also outlined benefits of these methods in overcoming dyslexic obstacles. Sylvie Hébert and colleagues mention the same methods and draw similar conclusions.[25]

Much research has confirmed dyslexics' unusual tenacity, yet none of it addresses or explains the origin of the extraordinary persistence and motivation of gifted dyslexics, and of dyslexics in general. Although it can be partially explained through motivational, developmental, and other psychological theories, the real source of such persistence and motivation

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[25] Standley, "Does Music Instruction Help Children Learn to Read?" 19 and Hébert, et al., "A Case Study of Music and Text Dyslexia," 369.

remains a mystery. Learning and discovering how and why dyslexics maintain such high levels of motivation despite facing much more complex learning challenges than the regular learner population would possibly open new doors in improving and increasing motivation both in the classroom and in individual instruction. Much multidisciplinary scientific work needs to be done in what has, to date, been a largely neglected field, before science provides answers to this question.

Large volumes of research and investigation have been devoted to the issue of dyslexia, and more recently to dyslexia and music. Yet, there is an evident lack of exploration of the specific issues faced by highly gifted dyslexics. Furthermore, there is a pronounced need to expand the investigation to provide answers and support for the specific needs of gifted dyslexic learners in learning to play the piano.

The overwhelming majority of individual piano instructors will likely encounter such students in their studios in the course of their teaching careers. The reasons for this are simple: (1) as scholastic giftedness measurements proliferate, the gifted learner population grows larger, with its much higher incidence of dyslexia than in the regular population; and (2) gifted learners are more likely to engage in music lessons than are regular learners, probably as an additional way of meeting their developmental needs. Despite the need, there is little in the form of education (formal, or informal), including professional development courses and literature, available to prepare piano teachers for the task of teaching these special

learners. The ensuing chapter, which reports the results of a recent pilot study, confirm the need for and interest in the development and implementation of such courses. Much research work still needs to be done and most questions remain without answers for the time being. Alternate modes of teaching and practical methods that piano instructors can utilize in teaching these students should be the next steps developed in this field.

One of those steps could be the design of a different type of notation and score layout and organization for dyslexics that would facilitate more successful reading and decoding of music scores. In my experience with teaching piano to dyslexics, one of the most challenging steps is note identification and the note reading process. For many years I have worked on altering the look and feel of regular scores by enlarging them, changing the shape and regular grouping of notes, using color coding, and even rewriting them in a "stretched" format to minimize clutter and simplify and smooth out the note reading process.

A relatively recent development in graphic and typeface design that could signal a new era in the printing industry is the creation of a special font for dyslexics. Christian Boer, a dyslexic graphic designer from the Netherlands, created a font *dyslexie* that makes reading much easier for those afflicted with dyslexia.[26] Boer employed innovative and creative

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[26] Samples available on Boer's website, http://www.studiostudio.nl/en/information/

treatment of font design that addresses common difficulties dyslexics encounter when looking at a printed word. His design approach incorporates the principle of anchoring letters to the baseline (a bottom line of letter display) and thereby preventing most frequent reading challenges such as seeing mirror image, rotation, and confusing of letters. Such design ultimately makes it easier for dyslexics to distinguish and recognize individual letters, and thus avoid the majority of reading errors.[27]

A master's student at the University of Twente in the Netherlands, Renske de Leeuw, learned about Boer's work and dedicated his master's thesis to examining the effectiveness of *dyslexie*. De Leeuw conducted an independent study of the font and all participants confirmed that *dyslexie*, combined with a light page saturation and more white space, makes reading much easier by decreasing the number of mistakes. Although this particular study had a small sample size (43 participants), the font's effectiveness continues to be endorsed by dyslexics as more of them discover its effects on reading. Although Boer's work to date may not be the ultimate solution, it represents an important shift in and contribution to the design of materials that can significantly diminish reading challenges for dyslexics.[28]

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[27] Renske de Leeuw, "Special Font for Dyslexia?" (Master's thesis, University of Twente, 2010).

[28] Ibid.

Inspired by the discovery of this design, and motivated by my own work and the changes I made for my piano students in music scores, I contacted Boer to discuss the possibility of creating an alternate notation and system that could make reading music less daunting for dyslexics. He was very interested in the suggested project and agreed that our collaboration could produce some changes of the music score design, perhaps a completely new system that addresses the challenges that traditional scores pose for dyslexics.

Due to the inherent complexity of the written music language, which integrates several levels of signage, this endeavor will be entirely different than Boer's work on font design and page layout. However, some of the basic graphic design principles he utilized in creating *dyslexie* can be easily applied to note and score design for dyslexics. Lessening the clutter, changing the look, shape, and visual presentation of symbols, to name just some possibilities, could remove a significant number of reading and decoding challenges that dyslexics encounter when facing a music score. When combined with multisensory approaches to learning and work on strengthening short memory and improving coordination, such alternate score design could make a significant difference in the way both gifted and non-gifted dyslexic students learn to play the piano.

Although this collaboration is only in the early stages of consultation between us, we are both almost certain that we will produce satisfactory

results. If we are successful, then the first and strongest obstacle dyslexics face in learning to play the piano, which is reading the notes and decoding them correctly, may be removed.

Chapter 5

A SURVEY OF PIANO TEACHERS ABOUT GIFTED LEARNERS WITH DYSLEXIA AND/OR ADHD

Introduction

Numerous indicators in literature reviewed for this research paper show that the incidence of dyslexia and attention deficit hyperactivity disorder (ADHD) has been on the rise in recent years. Whether this is a result of the advancement in scientific research and better diagnostic methods so that more cases are reported, or whether there is an underlying environmental, physiological, or medical agent that causes the increase is a question for future research. Regardless of the cause, anecdotal reporting through peer interaction and personal experience indicates that piano instructors are seeing a consistently increasing number of students with these learning disabilities in their studios and classes.

Motivated by personal experience with dyslexic and/or ADHD students and the absence of teacher resources, I set out to learn about the experiences of a wider population of teachers. First, I wanted to find out whether the piano teachers have witnessed an increase in students who display at least some of the symptoms of one or both learning disabilities, and how interested they were in teaching and helping students with dyslexia. Second, I wanted to investigate whether my observations of the deficiencies in the music education field, as they pertain to the specifics of teaching piano to gifted learners with dyslexia and ADHD, were indeed true. The main focus in this

investigation was the question of whether, in the course of their education, teachers had opportunities to take classes that addressed the highly gifted and learning disabled music students' needs, and whether they had discovered teaching methods specifically for this population.

Finally, the survey aimed to find out whether piano teachers were interested in learning more about this issue and whether they would welcome opportunities for professional development that would give them the tools to understand dyslexia and ADHD and provide them with specific advice and teaching methodology.

Purpose/Goal and Hypotheses of the Survey

The purpose of the survey was to discover whether there was an interest in, and need for, professional development courses and seminars for beginning and experienced piano teachers on teaching gifted students with learning disabilities. The motivation for this research stems from the rise in incidence of dyslexia and ADHD witnessed by my colleagues in recent years, and my own encountering of ever increasing numbers of gifted students with dyslexia and ADHD. I was also motivated by what seems to be an absence of university courses on this topic for future private piano instructors. Since these learning difficulties occur more frequently among the gifted population as compared to the population of non-gifted learners, the need for such professional development and courses will only grow in time.

The author proposed to test the working (not null) hypotheses listed in table 5.

Table 5
Working Hypotheses.

1	There is a consistent increase in the numbers of gifted students displaying symptoms of dyslexia and ADHD in piano studios and those already diagnosed with learning disabilities.
2	There will be no significant difference between female and male piano teachers in the numbers of gifted students with learning disabilities they encounter in their practice.
3	There is absence of university/college courses that teach future piano instructors about these learning disabilities and provide them with practical teaching methods.[29]
4	Teachers will show significant interest in attending professional development seminars or university courses on this topic.
5	There will be no significant difference between female and male piano teachers in the level of interest in these courses.
6	Teachers will consider the cost of these professional development seminars or university courses and worthwhile investment.
7	There will be no significant difference in opinion about the worth of investment in these courses between female and male piano teachers.
8	There will be no significant difference between male and female piano teachers' level of education.
9	There will be no significant difference in educational levels between female and male piano teachers.

[29] Although there are courses in music therapy and music education that address learning disabilities and classroom teaching methods, they do not provide specific piano pedagogical methods. Piano performance and pedagogy majors are not required to take these courses, and may be excluded from them due to lack of space availability.

Method

After years of informal conversation and consultations with colleagues both in Canada and in the US, I chose to conduct a written survey of local piano teachers (see appendix A), which would seek to confirm and support anecdotal reports. The survey consists of 30 questions, divided into two sections: demographics (four) and detailed subject matter questions (26).

To obtain input from a wide variety of instructors in a small sample (n=15), the teachers were chosen through the following demographic criteria: the total number of subjects had to represent female and male genders relatively equally, have teaching experience from under one year to 35 years or more, and have at least a Bachelor of Music degree (equivalent to 16 years of formal education).

Results and Review of Collected Data

Demographics:

Gender: 46.66% of subjects were male and 53.33% were female

Teaching experience: ranged from six to 42 years; with male teachers having between 11 and 42 years of experience and female teachers between six and 39.

Level of education and years of formal education:

There was a small difference in the mean number of years of formal education between the female and male teachers. While female teachers reported a mean of 21.86 years (from 20 to 24 years), the male teachers all reported 20 years of formal education.

Of the male teachers surveyed, 75% held a master of music degree with some doctoral level study as the highest educational level, and 25% reported bachelor of music degree with a performance diploma. Of the female teachers surveyed, 71% reported a master of music degree as the highest educational level, and 29% held a bachelor of music degree.

Attitudes toward studying about dyslexia

Regardless of their teaching experience levels, a majority of the subjects reported they would be interested in taking the suggested piano pedagogy courses, whether through a university or a professional association. Some 47% of teachers gave a positive response, 40% were neutral on the issue, and 13% denied having had students of such learning profile.

Respondents who would not consider enrolling in college courses that would address the principles and methods of teaching these special learners, still thought the courses would be a worthwhile investment. While not interested in attending college courses, they indicated that they would participate in professional development seminars on the topic sponsored by the Music Teachers National Association or other professional organizations. Even respondents who reported that they were not very interested in teaching gifted students with dyslexia and ADHD were interested in learning more about these learning disabilities and students affected by them.

Even though 33% of the respondents definitely suspected the presence of learning disabilities in their students, and 47% were not sure, only 13% of them brought the issue to the parents' attention.

A majority of respondents did not have any instruction on how to deal with this type of student (67% strongly disagree and 33% agree with having had instruction on how to teach learning disabled students). In follow-up interviews the respondents revealed that although no formal education on the issue was available to them, they resorted to self-instruction and learning about the various learning disabilities to better equip themselves for teaching students affected by them.

Unfortunately, the majority of respondents reported little success in finding resources that would provide guidance and information and thus help them teach these students, with 67% having found no resources and only 20% reporting being successful in locating some relatively appropriate and helpful resources. Again, the follow-up interviews revealed that the located resources were largely geared toward classroom teaching, rather than individual piano studio instruction.

A majority of respondents (73%) reported that they felt strongly about helping gifted students with learning disabilities. Similarly, a majority of respondents (53%) expressed a desire for available appropriate courses during their previous studies. They confirmed that they would take such piano pedagogy courses if they were in school today, and would be interested in teaching these students. However, 33% of respondents reported a neutral position, and 13% reported not being interested in the subject at all. A majority of respondents would consider learning more about the issue and believe that there is a need for piano pedagogy courses for future educators

that would provide them with the tools to successfully teach highly gifted students with dyslexia and/or ADHD.

A majority of respondents believe that many gifted learners with dyslexia and/or ADHD stopped taking piano lessons due to inadequate resources and inadequate preparation of teachers who were not able to meet their needs. In my experience, a number of students who were formally diagnosed with dyslexia and have studied with other teachers previously, began piano lessons again only after joining my studio. A majority of respondents (73%) believe that many of these students abandoned piano study because of lack of resources and preparation for teachers, with 0.7% being non-committal and 20% disagreeing.

A majority of respondents (80%) are interested in taking professional development piano pedagogy courses on how to teach these students. Further, a majority of the teachers surveyed consider the cost of the same to be a good investment (53%), with 47% returning a neither agree/nor disagree reply.

Analysis and Conclusion

The survey results have confirmed the author's theses concerning gifted learners with learning disabilities and experiences of a varied cross section of piano teachers with them. Taken collectively the answers to the first seven survey questions reveal that the majority of the surveyed piano teachers have encountered students who displayed one or more symptoms of dyslexia, ADHD or both. A majority of them have also noticed a general increase in the number of gifted students with these symptoms. However, very few have had students who were formally diagnosed with learning disabilities, and equally small numbers of them have shared their observations and concerns with students' parents.

It is difficult to ascertain the reliability of the responses to the question about whether respondents had encountered students with one or more symptoms of these learning disabilities. Based on later responses about the availability of resources and teacher training in this field, it can be assumed that those surveyed did not have enough expertise to positively identify students who were affected by dyslexia and/or ADHD. Regardless, follow-up conversations with respondents, and also previous exchanges with colleagues, confirmed that the majority of teachers had in the past seen such students with similar difficulties who made slow progress despite their normal or superior intelligence, motivation, and schooling.

It is the responses to the second part of this section of the survey that raise more questions. As most respondents reported, they have not brought

their observations to the students' parents. As well, most of the respondents' students were not formally diagnosed despite clearly displaying symptoms of dyslexia and/or ADHD. Further study would be useful in positively identifying reasons for this phenomenon.

The underlying reasons for the two responses are somewhat related. Not bringing their observations to the parents could come from teachers' general discomfort of confronting them with a possibility that their child might have a learning disability, especially if there are no previous indications of it, and if the child had not been diagnosed. Thus, gifted children who are not diagnosed and whose performance remains on a satisfactory level, rarely raise concerns. Rather, they remain undiagnosed, and their parents remain unaware of a possible problem. In my own experience, this lack of parental awareness is not caused by willful blindness or denial. There simply were no other indicators present that a child's learning ability was impaired in any way in other areas of learning.

The absence of such indicators comes from the fact that highly gifted learners can easily compensate for deficiencies caused by a learning disability. They continue performing at a higher than average level and, thus raise no concerns. No matter how high their compensatory ability is and how successful these students are in other areas of learning, dyslexic impairment inevitably becomes apparent in the process of learning to play the piano. In some cases of a more severe dyslexia, problems surface much sooner in piano lessons than in those with less pronounced dyslexic impediments. Regardless

of how far into the learning process these difficulties remain hidden, there always comes a time when a student can no longer compensate adequately, regardless of their giftedness. As the material becomes more complex and increasingly requires a new set of skills, its challenges eventually become too demanding and, in most cases, virtually insurmountable for a dyslexic student.

Knowing the complexity of these learning disabilities and of the instrument they teach, a majority of respondents, in answers to several questions pertaining to the availability of teacher education and resources, reported that there is a growing need for these new skills. Regardless of their age and experience, none of the respondents reported having had any formal education on specific methods for teaching gifted students with learning disabilities to play the piano, and only a few have been able to locate resources and relevant information. It is significant to note that, despite the gap in educational resources, a majority of responding teachers are committed to helping these students and are personally interested in teaching them. In follow-up discussions with individual teachers, and in conversations following my presentations on the topic at various professional conferences, it became evident that most instructors were not initially interested in the subject. For most of them, the emergence of interest coincided with acquiring students who presented symptoms of dyslexia. The surveyed teachers first identified the connection between a student's lack of progress and symptoms of dyslexia, and only after that looked for resources

that would not only provide them with a better understanding of the impairment, but also furnish more information and tools on how to most successfully teach these special learners.

Regarding the surveyed teachers' opinion on and interest in professional development seminars and/or university courses that would provide information and practical guidance for teaching gifted with learning disabilities, a majority of respondents indicated that, although such resources are not available at present, they were interested in such opportunities, considering them both a necessity and a worthwhile investment. Yet again, in the course of professional discussions with colleagues at conferences and in various professional groups, the absence of training and information on how to teach piano to highly gifted (and regular) learners with this type of learning disability is a regularly recurring topic.[30]

In my opinion, the reasons for this situation are numerous. As recently as 35-40 years ago, there was very little known about dyslexia in general. This is confirmed by the fact that most of the available literature and research originated in the past three to four decades. It has been only in the past two decades or so that specific teaching methods have been developed in and for the classroom setting, but research in piano pedagogy and other performance fields is still in its infancy. There remains a large field of

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[30] Conferences include: Arizona Music Teachers Association and Music Teachers National Association annual conferences, and The College Music Society international conference.

research that has barely been touched as it pertains specifically to highly gifted learners with dyslexia and learning to play the piano.

A uniform pedagogical approach has not been developed due to the lack of research data to date. However, uniformity is ill-suited to learning disabilities, which is why most states require specialists to create individualized learning plans for students with special needs. Further a uniform approach might not work in piano pedagogy because of the vast difference among dyslexics in what represents chief challenges for them in learning to play the piano. Nevertheless, some common strategies can ameliorate the situation. In my teaching experience, I arrived at such additional modes of instruction through years of trial and error. Most have proven useful and have made it possible for me to provide these special students with appropriate guidance that has alleviated levels of frustration for them and kept them enthusiastic about and involved in continuing to learn to play the piano.

Chapter 6

PERSONAL EXPERIENCE AND METHODOLOGIES IN TEACHING PIANO TO DYSLEXIC STUDENTS

Introduction

Due to the nature of my teaching positions in special music schools in Serbia, and later in a university, I did not encounter cases of students not progressing as expected until well into my teaching career – after the move to Canada. The progress expectations stemmed both from the Serbian school standards and curriculum, but also from students' attitude and abilities that were assessed at the auditions conducted prior to their enrolling in the special music schools. From the very early stages of my piano teaching career, I have been accustomed to students' smooth progression through learning stages and levels, and thus was unprepared for the experience of an entirely different trajectory in student development that presented itself in my Vancouver studio.

Very few students left the music school program, but there were no indications of learning disabilities impeding their progress either. In the rare cases where students left the program, their interest in playing the piano simply gave way to other, less time-demanding interests. Whether that was the real reason, and whether a learning disability may have been involved, is impossible to discern with hindsight. However, such possibility exists. Given the level of knowledge about learning disabilities at the time, and with

little known about relationships between learning disabilities such as dyslexia and learning to play the piano, even today a precise explanation eludes us.

As stated above, upon opening my Vancouver studio, I accepted only gifted and intellectually mature students, and only after an audition, interview with both the child and parents, and a sample mini-lesson, all of which served to assess student's intellectual abilities and maturity, readiness for lessons, potential for success, and the personal compatibility between the prospective student and the instructor. In the interview, questions about parental attitudes and plans helped determine the level of parental involvement that could be expected, including whether they were willing to participate, support, and provide practice assistance to the child. All of these elements, in essence a collaborative approach to learning to play the piano, are crucial for a child's success that is smooth (and fast) progress in a learning and creative activity that is largely solitary work. Especially for a very young learner, parental assistance is invaluable, and only families that were prepared to invest effort equal to my own and that expected of the student were considered for the studio.

In addition, the North American system of costly piano lessons (as opposed to tuition-free schools in Serbia with two or three weekly piano lessons I was accustomed to) prevents all but a few financially advantaged families from having more than a single weekly session. Having a parent assist facilitates progress similar to the one of the system I was familiar with

and wanted to continue using with my students. This assurance of parental involvement and the knowledge of a child's adequate practice time and effort that did not produce expected results, played an essential role in generating my motivation to look further into possible reasons for difficulties my students experienced. Learning to play the piano became stressful for them, and the unsatisfactory progress generated enough frustration to cause both the loss of interest and confidence.

Learning to play the piano is a complex and difficult task for any learner, and it becomes overwhelming for a dyslexic. The challenge of the synthesis of simultaneous reading, comprehension, and physical coordination of all four extremities multiplies for learners with dyslexia, despite their giftedness, extraordinary ability to compensate, and high level of persistence. (Difficulties that they encounter in learning and reading music notation were discussed in chapter 4.) Despite all the challenges dyslexics face in learning to play the piano, they, especially those in the gifted spectrum, can learn to read music and play the piano. Indeed, most succeed in overcoming these obstacles, mainly through hard work and remarkable persistence and motivation. If altered teaching approaches are added into the mix, success is attainable, as I experienced in my own teaching. Perhaps the level of dyslexia may prevent some from actually developing a professional music career, but music and the piano can become a lifelong interest and enrichment activity for these individuals.

John's Case

John N. and his younger brother came to me as seven- and six-year old new students.[31] In the initial audition and interview it was easily apparent that both children fit the highly gifted category. They both showed maturity, patience, love for music, and readily answered questions without hesitation or struggle for words. As well, their parents were equally enthusiastic and ready to participate in their sons' lessons and later help them at home. The father also played the piano on an instrument in the home, and music was a part of their daily lives. Therefore, all elements crucial for success were present.

The first few months of instruction confirmed John's extraordinary intellectual ability, as did his later placement in the gifted program after testing conducted at his school. However, while John initially progressed at a very good pace, the younger brother soon surpassed him despite the fact that, by parents' account, John practiced more and without any prompting on their part. That John was a year older, practiced daily, and approached learning the piano with much more enthusiasm and love of music than his younger brother would lead to expectations of greater progress by John than his brother. In reality, however, the exact opposite happened. Yet, despite slow or almost no progress and the awareness that his younger brother achieved a much higher level of competence with almost no practice, John remained

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[31] Name changed to protect the student's identity.

enthusiastic, motivated, and persistent, and a smile never left his face during every lesson. His love of music and desire to excel were confirmed by my own observations, his comments, and comments by his parents. An apt illustration and proof of this came from his father who gave me a call late one Friday night, hours after John's lesson. He asked me to speak to John and tell him to stop practicing and go to bed. Apparently, John returned from his piano lesson, had dinner, and immediately headed for the piano. He was still playing more than three hours later, showing no signs of frustration or fatigue. This is probably a good example of the extraordinary tenacity and persistence that is so characteristic of most dyslexic learners.

John displayed difficulties in sight reading, hand coordination, finding the right octave on the keyboard, and mixing up notes between lines and in spaces, which soon led me to suspect the possibility of dyslexia. He showed all the symptoms listed in chapter 4 and, at about the same time, his parents reported that he was experiencing similar difficulties both at school and with his homework. They also mentioned that John could not sit still and read, or do any written homework, for longer than 10 to 15 minutes at a time, although he had no problems focusing and staying at the piano for hours on end.

There were additional difficulties. John would often reverse notes with and without accidentals. The music might have an accidental in one hand, but he would persist in playing the accidental in the other hand, even if the "wrong" hand was not in a natural position for it. The error would return

even after we made a note of it, marked it to draw his attention to it, and successfully played the segment correctly several times in the lesson. A week later, he would revert to the erroneous execution, despite clearly indicating that "this just doesn't sound right." It seemed as if his brain was reversing what his eyes recorded, but his ears were telling him his brain's interpretation of the music was wrong.

John also frequently reversed the notes when two appeared as a blocked interval, and one of the notes had an accidental, such as, for example, an A/C-sharp harmonic third. He would struggle to play it as an inversion of the interval: a C-sharp/A, instead. Another difficulty was that John would play a much larger interval than written, especially when one of the notes was marked with a sharp. For example, if a passage in the one hand had an interval of augmented second, such as G to A-sharp, he would play G to C-sharp, or even reverse the interval. It appeared that his brain translated the meaning of a sharp as a major leap, much higher than the half step written in the score. These errors appeared well after he learned the concept of sharps and flats, was correctly identifying them in the score, and finding them on the keyboard. Interestingly, John displayed nearly perfect relative pitch but it did not help him in such cases. The interval reversal/inversion usually did not "sound wrong" to him because it still belonged to the same harmonic function. It was only when there was a dissonant clash of a raised note in the wrong hand and the notes of that hand played in the other one, that John's brain raised a red flag for him. Yet, he could neither identify the

source of the dissonance, nor correct the error without help. Usually, when guiding him through the process of correcting, I would not tell him what was incorrect, but would instead ask him a series of questions that would lead him to a solution in order to foster self-correction in practice.

Although by this time I was almost convinced that John was dyslexic, I decided to wait before suggesting this to his parents, simply because he was still young and many children outgrow such dyslexia-like symptoms by age eight or nine. Further, since for years I had observed that boys also develop full small muscle control and hand coordination later than girls, I remained on the cautious side and delayed the final conclusion about the possible presence of both dyslexia and ADHD. However, during a brief conversation after one of his lessons, his mother inadvertently provided me with a perfect segue into a conversation about learning disabilities. She said she only wished he would be as focused and patient as he was with the piano when it came to reading and math. She shared with me that teachers at school were increasingly mentioning his poor focus, lack of desire to read, and failure to follow instructions in homework and math assignments. Yet, none of these issues was present in his piano lessons. I used this opportunity to inquire whether anyone had mentioned the possibility of dyslexia and ADHD, to which she burst into laughter and said that, although he had never been tested by a developmental psychologist, she and her husband had no doubt that John had both. The possible presence of learning disabilities was not suggested by teachers at his school, and his difficulties were usually written

off with the "boys will be boys" characterization. Because of his giftedness, his already highly developed coping mechanisms carried him through school and piano lessons for another year. He remained successful in school through private tutoring and parental help, although he was still not formally tested for either dyslexia, or ADHD. His teachers occasionally noted the same difficulties I did, but he was still compensating and, with limited tutoring help, continued to perform at a satisfactory level.

Being fairly confident that my suspicions about John having dyslexia were correct, I changed my approach to teaching him, and began employing the methodology I developed over the years of teaching other highly gifted dyslexic children. The strategies combined advice from many sources, including the fields of education and psychology, all of which focused on holistic and multisensory approaches. John responded well and immediately began to improve.

A year later, the younger brother lost interest in the piano, discontinued lessons, and simultaneously began to underperform at school as well, despite his early success and progress in both. John, however, continued to improve, albeit slowly, and displayed undiminished enthusiasm, persistence and motivation. Nothing would deter him from playing the piano, no matter how difficult and frustrating the whole process was for him. He was always the first to sign up for student recitals, always the first to play at school at various fairs and talent shows, always asking for new pieces and bringing his repertoire ideas to me. Yet, three years after he began piano

instruction, he was barely at the level students of comparable ability and with similar practice habits reach after only one year. John appeared not to notice a sharp difference in his level of competency and the level of complexity of his pieces and that of other students of the same age and same length of time in piano lessons. He continued to love the piano and his pieces, chose them enthusiastically, and even extended his practice hours. His parents' late night calls asking for advice on how to get John away from the piano and to sleep continued. A few months into his fourth year of piano study, John was finally formally tested and his high level of giftedness, together with both ADHD and dyslexia, were confirmed.

According to current studies, both as a highly gifted and dyslexic learner, John should have exhibited lack of motivation, sagging self-esteem, and serious lack of interest in a task that seemingly produces a high level of frustration and little satisfaction. Yet, much like all other gifted dyslexics I taught, the exact opposite was true.

Before addressing the strategies used in teaching John, I will first look into other factors that made him successful in overcoming the challenges of dyslexia. I was intensely interested in the source and basis of John's unprecedented persistence and tenacity. Although I knew by this time that it was one of the distinct characteristics of dyslexic learners, I wanted to learn more about motivation in general and then see how it reflected on John's case.

Figure 1 depicts the process model of motivation and interrelationship of self and social systems, actions, and outcomes. The model partially explains the strength and scope of this particular dyslexic's outstanding level of motivation.[32]

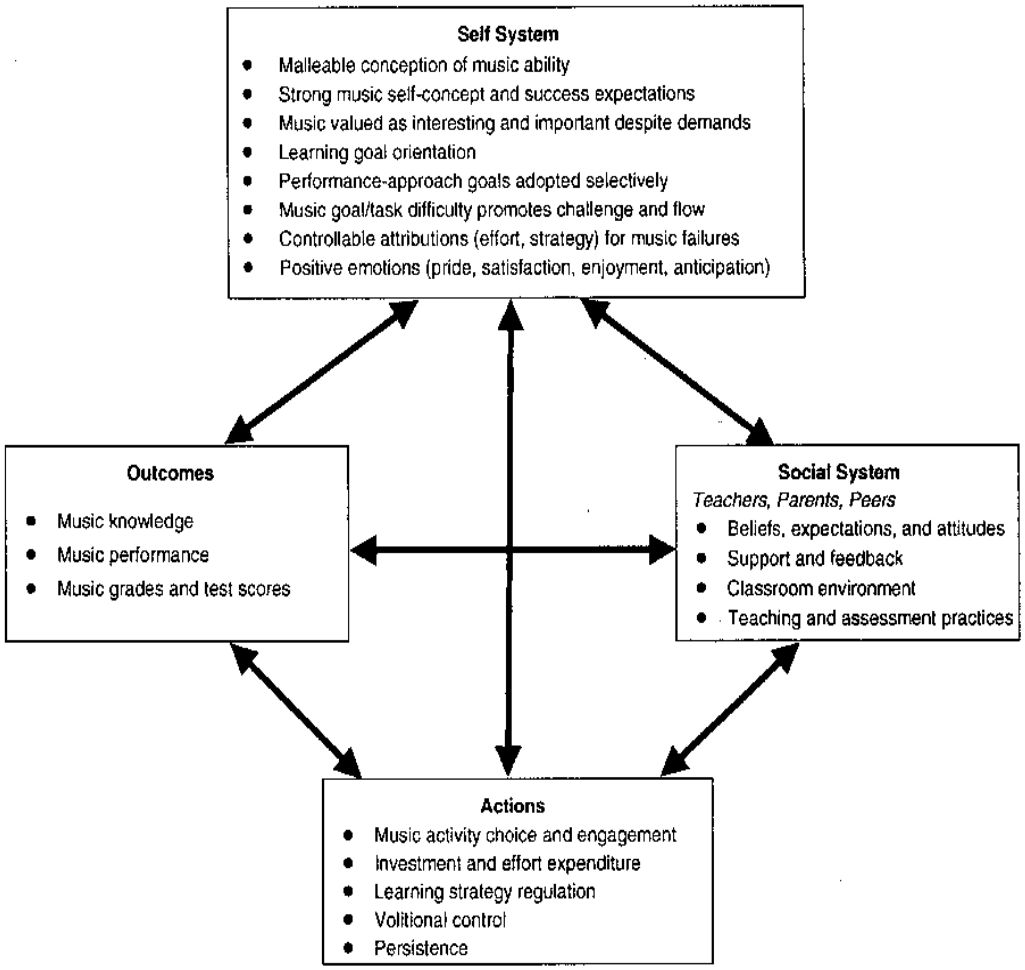

Figure 1
Systems Profile for Optimally Motivated Music Students.

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[32] James Austin, James Renwick, and Gary E. McPherson. "Developing Motivation," in *The Child as Musician: A Handbook of Musical Development*, Gary E. McPherson, ed. (New York: Oxford University Press, 2006), 232.

John's self-system includes strong music self-concept and success expectations, without considering failure as an option in anything he does. His inherent belief in his own ability to achieve success is quite strong and he considers music and piano worthy and interesting despite the demands and challenges. Further, he definitely has unusually powerful emotions toward music and clearly sees learning the piano as an extremely valuable and satisfactory activity despite the difficulties he has to deal with on a daily basis. The ever-present smile on his face when he plays shows that he derives a high level of pride, satisfaction, and enjoyment from playing the piano. His motivation is further enhanced by the personality traits of both the highly gifted and dyslexics – the love of a good challenge. The complexity of the task and the challenge of problem solving involved explain his consistent desire to play more complex pieces than would be suitable considering his learning disability. Finally, the presence of the learning goals and selective adoption of performance goals complete John's self-system.

His social system contains all the necessary elements: his parents are very supportive and encouraging, and his peers and extended family all provide positive feedback for his efforts and results. He receives the same support and encouragement from me, combined with the adapted teaching method that allows him to learn more efficiently and overcome most of the obstacles presented by dyslexia. All of the above brings about his action (e.g., hard work, long practice hours, persistence) and reinforces his choice of piano as a highly desired activity. The outcomes are continued improvement,

performance, and his success, defined and identified both by those around him and John himself.

Beyond any motivational theory, from conversations with John and from observing him in action, it appears that his motivation is entirely intrinsic. In fact, despite the presence of positive external factors and influences, such as parental, peer, family, and teacher encouragement and praise, it seems that the source of his motivation is largely internal: he loves music and plays for his own satisfaction and pleasure.

Regardless, none of the previously discussed elements can fully explain the extent and source of the extraordinary strength of John's motivation. It is quite common for the highly gifted to shy away from tasks that require exertion of effort, hard work, and hours of practice. Accustomed to accomplishing almost everything without much effort, gifted students tend to steer clear of tasks that require more work than they think they should invest. This is mainly because the gifted view the need to work hard as an expression of inferior ability and often end up abandoning such activities to preserve their self-perception and self-esteem.

Such was the case with John's younger brother in piano and in school; he is still not capable of reconciling the awareness of his own giftedness and the need to invest effort in learning and problem solving. In his case giftedness became an impediment instead of a source of satisfaction and joy. Perhaps with maturity he may change. Conversely, although highly aware of his giftedness, John does not consider that having to invest extra work and

effort "makes him stupid," an often heard comment from the gifted when facing the need for more work than they consider appropriate. It appears that difficulties he encounters due to dyslexia only strengthen his resolve; the more difficult and complex the task, the more determined he is to succeed in solving and completing it.

Another explanation that comes close to shedding more light on John's extraordinary love for the piano and music in general comes from a chapter in *The Child As Musician*, in which McPherson and Williamon explore giftedness and talent (see figure 2).[33]

In the section of the chapter on intrapersonal catalysts they discuss motivation as an integral part of the learning process. They conclude that "the level of child's motivation affects both the quantity and quality of their engagement in music."[34] In John's case this appears to translate into an exceptionally pronounced intrinsic motivation because the quantity and quality of his engagement in the piano study are unusually high.

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[33] Gary E. McPherson and Aaron Williamon. "Giftedness and Talent." In *The Child as Musician: A Handbook of Musical Development*, Gary E. McPherson, ed. (New York: Oxford University Press, 2006), 239-56.

[34] Ibid. 241.

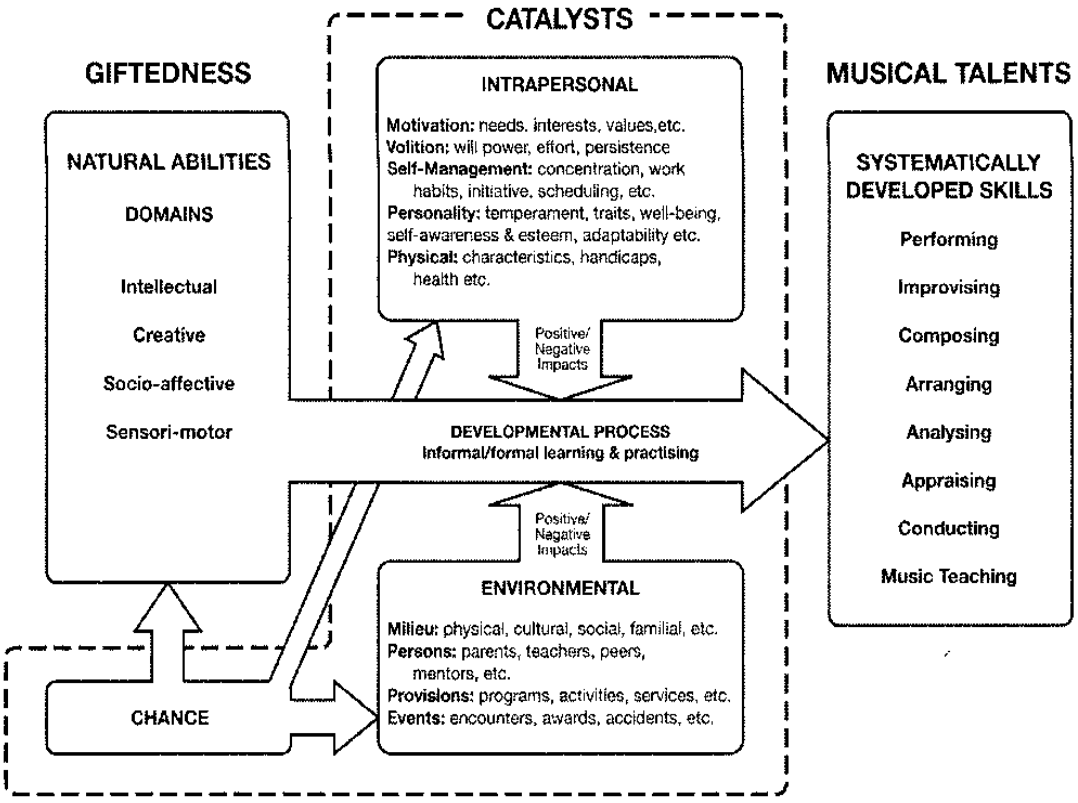

Figure 2
Differentiated Model of Giftedness and Talent in Music.[35]

McPherson and Williamon also examine volition, self-management and personality. Volition is defined as a child's willingness and will-power that helps him or her focus and concentrate on the task at hand despite external and environmental distractions. In John's case, volition not only helps in terms of time and task management, but is equally important in keeping him focused and countering the effects of ADHD, a diagnosis that

[35] Ibid. 241.

was confirmed through formal testing at his school. Although ADHD causes focusing deficiencies, if the task is one of great interest to a highly gifted ADHD-affected learner, his or her focus will remain strong far longer than if interest does not exist, or is weak. Because John's interest is deep and strong, it easily counteracts the ADHD tendency to easily distract.

The need for presence and employment of self-management is equally important, especially in multi-talented students, because it allows students to focus their learning and efforts on a chosen task for extended periods of time. Without a doubt John belongs in this group because he shows giftedness and intense interest in several areas, both in academic and creative realms. However, he has as yet to learn to prioritize and manage time based on school requirements and obligations, instead of on his personal interests only.

In terms of personality, McPherson and Williamon cite over-excitability of the gifted in many aspects of their development. The presence of over-excitability certainly explains "an almost fanatical love gifted develop for certain genres, composers or instruments."[36] John's love of the piano and music in general definitely borders on obsession, and it can explain his extraordinary persistence in the face of challenges caused by learning disabilities.

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[36] Ibid. 246.

The two authors offer an interesting conclusion about intrinsic motivation, emphasizing the importance of parental involvement and valuation of a child's activity and/or success.[37] This characterization may apply to John because both he and his parents view music and piano as an important enrichment of the overall learning, rather than a performance and/or competition oriented activity, despite the fact that his motivation appears to be largely intrinsic. Therefore, in terms of the source of his motivation and persistence, John has a very strong combination of every possible element and influencer that contributed to his outstanding tenacity and success to date.

Although substantial efforts have been devoted to research on dyslexia, and more recently to dyslexia and music (both in the classroom and some in individual instrumental instruction), none of it addresses or explains the source of the extraordinary persistence and motivation of the highly gifted dyslexics, or of dyslexics in general.[38] While it can be partially explained through motivational, developmental, and other psychological

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[37] Ibid. 247.

[38] Violet Brand, "Music and Dyslexia," *Perspectives* 26, no.1, (2000): 36-37; Katie Vance, "Adapting Music Instruction," *Music Educators Journal* 90, no. 5 (May 2004): 27-31; Jayne M. Standley, "Does Music Instruction Help Children Learn to Read?: Evidence of a Meta-Analysis" *Update: Applications of Research in Music Education* 27, no. 1 (2008): 17-32; Sue Wrigglesworth, "Music and Dyslexia: How Dyslexia Can Affect Musicians and How Music Can Help." *Dyslexia International – Tools and Technologies* 19, (spring 2005): 4-5.

theories, the real source remains a mystery. Learning and discovering how and why both gifted and regular dyslexics maintain such high levels of motivation despite facing much more complex learning challenges than the regular learner population would possibly open new doors toward improving and increasing motivation both in the classroom and in individual instruction. Much multidisciplinary scientific work still needs to be done in this what to date has been a largely neglected field.

Having researched highly gifted personality characteristics and their emotional and intellectual needs, together with the same insights into dyslexia and ADHD and the benefits of multisensory learning, over the years I have gained valuable understanding about my students and learned which pedagogical approaches work best for them. This has helped tremendously in John's case, not only because he is highly gifted, but also because his giftedness is accompanied by relatively severe dyslexia, as well as an ADHD disorder that now requires management with medication. When one considers that he exhibits all of the pertinent characteristics and behaviors for all three learner categories, his case is probably one of the most interesting ones I have encountered in my pedagogical career. His highly positive personality and his unusual acceptance of both his giftedness and his learning disabilities played important roles in his development, overcoming of obstacles, and beating the odds more than any other student with a similar profile that I taught. At the same time, the knowledge gleaned from recent research gave me, as his instructor, invaluable tools to craft the most suitable

approach to teaching him and continuing to support John in living his passion.

John is 14 years old now, having completed approximately six years of piano instruction. He has just successfully completed Arizona Study Program's Level 8 piano and theory examinations, and is well on his way to completing equivalent exams through the Royal Conservatory Music Development Program. His progress and achievement are exemplary for any student, but absolutely astounding for a dyslexic learner, his giftedness notwithstanding.

Cathryn's Case

A similar case in terms of giftedness and presence of dyslexia, but one that has taken an entirely different path, is an adult student who came to me two years before John. At the time, Cathryn B.[39] was a nurse in her late thirties, a new mother with a seven-month-old son. She told me in our interview that she took piano lessons but discontinued them in her teens because her parents were experiencing financial hardship. She also shared that at the time she was becoming discouraged due to what she saw as a lack of challenge and uninteresting musical selections her teacher assigned, all without asking for her input and opinion. She also explained that, even though the selected repertoire was neither interesting, nor challenging, she

[39] Name changed to protect the student's identity.

was beginning to have problems learning new pieces. In hindsight, Cathryn justified her feelings as being the result of diminishing interest.

The real reasons surfaced later, about two years into our lessons. By that time we had become close friends and the student-teacher relationship was transformed into a much less formal association. From the start, Cathryn was excited that I accepted her, because all the instructors she contacted before me refused to teach an adult. I was quite happy to have an adult student because their level of commitment and maturity usually produced accelerated progress and allowed for much more in depth discussions in lessons and a higher level of teaching and study. This was especially true with Cathryn because she was not a raw beginner, but had taken about six years of piano lessons in her youth.

We began with an eclectic mix of pieces, most at an early advanced level. Despite having a full time job and a young son, Cathryn progressed well and learned her repertoire fairly quickly. It did not take long to recognize her as a highly gifted person. This realization did not only come as a result of her progress, conversations, and general observation about life, arts, and family that we shared. Cathryn revealed that she was formally tested for giftedness at age nine and had scored 136 on the Stanford-Binet test, just nine points below the genius category (145). After a few months, Cathryn seriously injured her back on the job and was no longer able to work in a hospital environment. Instead, she was given an administrative position, with regular office hours. Within the next few months, she changed positions

and began working from her home. This was the time when her giftedness was confirmed yet again. She increased her practice time simply because, as she put it, "there's so much time left after I finish my work for the day." She meant that she finished an eight-hour work day in two or three hours. Her office computer and telephone remained on, but she began spending more time with her son and increased her practice time. This was also the time when problems that appeared to be dyslexia-related fully surfaced.

As Cathryn had more time to practice and because she was highly enthusiastic and motivated, we quickly moved into more complex repertoire. However, despite increased practice time and her abilities, Cathryn began experiencing difficulties and her progress all but halted. First came rhythm problems, then coordination of hands became progressively difficult, all of which both of us initially attributed to the leap in level of repertoire, until she began doing the exact opposite of what was written in the music. Then, during one lesson when we were working on sight reading, she suddenly began to make errors typical of dyslexia. Since this had not happened before, I jokingly told her "not to go dyslexic on me." She paused for a brief moment, looked at me, and simply said that she always suspected she was dyslexic, but did not experience typical difficulties at school because, as a gifted learner, she invented her own ways of adapting and compensating.

This ability to compensate masked the presence of dyslexia in our lessons as well. As long as the repertoire was at the same or somewhat higher level than it was when she abandoned her piano lessons as a teenager,

compensatory strategies worked for her. When she began working on higher level pieces, suddenly her compensatory abilities could no longer counteract the challenges of dyslexia that by then had been confirmed by formal testing. From this point on, my own approach to teaching Cathryn changed significantly. Although she did not need the same strategies as would have been indicated in the case of a young beginner dyslexic, such as color coding the score and keyboard to ease the reading process, I employed many elements of multisensory teaching for all stages and layers of learning, from reading the score, to putting hands together, and ensuring accuracy in every aspect of playing. Cathryn was able to overcome most of the challenges dyslexia caused in her piano playing. Further, she was also able to recognize the root of most the problems she encountered and solve many of them on her own by utilizing the strategies she learned in lessons.

A Brief Summary of Another Case

In the case of both John and Cathryn, aside from modified teaching, their intrinsic motivation and extraordinary tenacity, characteristic of many dyslexic learners, played a significant role in their progress and success in overcoming most of the challenges. In addition, they both reported that when they applied the strategies used in learning music to other areas of learning, they achieved similar results, namely an easier handling of material, more accurate decoding of text, and improved memory recall. Another important factor that kept their motivation high was strong family and social support

for their endeavor. The same can be said about all other cases I encountered over the years, except one.

Myrna M.[40] and her older brother, exceptionally bright six- and eight-year olds, came to my studio a little over two years ago. They both had had just a few months of instruction prior to that and had only basic music literacy skills and ability to play very short and simple pieces. Initially, it appeared that the parents would be quite involved in supervising their practice, closely following their progress, and working with me in a collaborative manner. This was not to be the case. In reality, the children were cared for by two nannies, and the parents were absent well into the evening hours. They were available to their children only on weekends when no work was done at all.

While her brother showed immediate progress, albeit somewhat slow, Myrna was not moving in that direction even after several months of instruction. She had consistent problems with note names and finding them on the keyboard, note values, fingering, and articulation. Further, she had no concept of hand coordination, right-left tracking, identifying which staff is for right hand, and which for the left hand, and a myriad of other problems that were all too familiar to me as symptoms of dyslexia. Regardless of how many different ways each concept was explained, practiced, and seemingly

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[40] Name changed to protect the student's identity.

understood and learned during the lesson, by next week Myrna would forget everything.

I strongly suspected she was dyslexic but I wanted to be certain before approaching her parents about it. Initially, I also attributed this to a possibility of inadequate practice time, and inquired whether Myrna practiced regularly and followed my instructions for practice. The mother did not seem very concerned, and confirmed that Myrna was indeed doing her work as instructed. She explained Myrna's lack of progress by reporting that Myrna does exactly the same at school and that it is just part of her rebellious nature. She did say that teachers at school had already approached parents with the same suspicion I had, but they refused to even consider the possibility of dyslexia and have her tested.

With time, Myrna's brother began improving in leaps and bounds, quickly attaining level 4-5 skills and performing with confidence, and adding another instrument as well. Yet, Myrna remained in the beginner stage for almost two years, despite now being taught in alternate ways and my use of strategies for dyslexic students for a year and a half. In this time three facts became abundantly clear: (1) the parents were not involved, not present, and not supportive of Myrna and her practice; (2) the parents refused to consider the possibility of presence of dyslexia, preferring to explain away her problems as her character traits; and (3) Myrna was practicing alone, with no help, no more than two to three times per week for 10 to 15 minutes.

As discussed previously, parental recognition, involvement, and encouragement played a crucial role in my other dyslexic students' success. Acceptance of their child's learning disability and giftedness, and recognition of the importance of their role were important factors also. Parental participation in the learning process helped the students along, thus greatly diminishing the challenges of dyslexia and enabling their continued piano playing. Myrna had none of that support and, left to her own devices, did not make any progress. In time, she lost both confidence and interest, yet was forced by the parents to continue with lessons. Naturally, her resistance to piano and music grew until she refused to practice at all. At this point parents did nothing else but punish her for it, using withdrawal of other cherished activities for weeks on end.

Despite lack of parental understanding and support, as well as their refusal to consider the presence of dyslexia, I continued teaching both children until recently. I hoped that Myrna would respond, especially with my and even her nanny's help. (The nanny, who had played the piano herself as a child, sat in on many lessons.). Finally, Myrna's situation became too stressful to handle, and I informed the parents that, under present conditions, I would no longer remain their children's teacher.

This case is a strong confirmation that without adequate help, regardless of how intelligent and gifted young dyslexic students may be, they will not only suffer but will also fail to thrive and overcome, or at least lessen, the negative effects of their learning disability. It is a particularly sad

fact in this case because Myrna came from a family of highly educated, enlightened, and successful parents and grandparents. Precisely because of their position and achievements, Myrna's parents were not ready to accept her disability, which unfortunately is not unusual. Such parents see their child's disability as somehow being their failure. They choose to deny and ignore it, rather than get the necessary help that would have made a difference in the child's life. Conversely, this case confirms the importance and positive effect of parental involvement and support, not only on the overall child's development, but also in overcoming the challenges of a learning disability, as was evident in John's case.

Method and Strategies

As discussed in chapter 2 and elsewhere in the document, researchers and pedagogues agree that the best method for teaching dyslexic students is multisensory learning. Very early in my teaching career I intuitively employed such strategies with young students with excellent results. Acting on instinct, and before I embarked on my long discovery and learning journey about dyslexic students, I began using the same strategies with them. Without exception, they responded positively. How multisensory learning is applied to dyslexics is summarized table 6.

Table 6
Multisensory Learning Elements.

1	"Brick by brick" approach with patience using tactile and auditory channels (listening and imitating)
2	Tracing the melody with a finger on the score, then drawing it in the air, and on paper
3	Singing: creates a strong memory trace and helps with phrasing and feeling the shape of the melody
4	Singing in one's head before playing
5	Physical response to pitch by raising and lowering hands
6	Use of color: both in the score and on the keyboard
7	Simple memory games to practice musical terms
8	Dramatic movements to demonstrate Italian terms
9	Use of mnemonics such as "sharps shoot" and "flats fall"
10	Rhythm: awareness of time values helped by physical activities, e.g. walking, marching, clapping etc.
11	Rhythm: tactile approach – tapping the rhythm on a student's forearm or shoulder before and while they play a musical segment/phrase

When teachers apply these strategies it is helpful for them to keep in mind cumulative conclusions and results of studies examined in this document. A full understanding of how the strategies work in concert with dyslexics' strengths and weaknesses helps in exploiting the former and supporting the latter. It is also noteworthy that the majority of subjects surveyed in studies display both text and music dyslexia which creates additional challenges when teaching them to read music and play the piano.

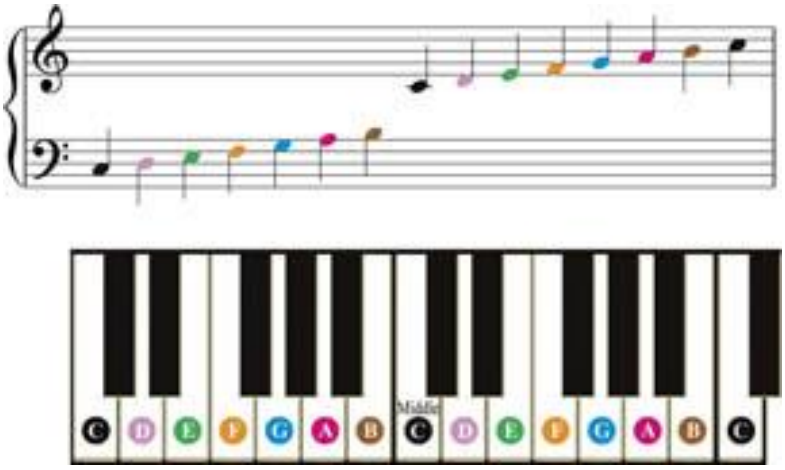
All studies identify high intelligence in the majority of dyslexic subjects, particularly musicians, and high levels of compensation. The pitch and rhythm reading scores of dyslexics are far lower than those of the control groups, while pitch and rhythm repetition scores are at par or above. Not surprisingly, visual input in dyslexic learners produces results significantly below "normal," while the auditory input generates equal, or higher, results in dyslexics. Finally, dyslexic subjects with musical training scored higher on various brain function and cognitive tests than those without the benefits of music instruction.

The strategies in table 6 offer practical solutions for problems faced by dyslexics in learning music, especially the "brick by brick" strategy, which is important for several reasons. It segments the task and divides it into layers, making it easier to remember later; it also provides building blocks that will be much simpler to integrate into a complete concept or task. Although such an approach benefits all learners, it is invaluable for dyslexics because it streamlines the overcrowded score, which is full of multi-meaning symbols and layers of information that confuse dyslexics. Using the first four strategies in the table in conjunction with one another and in various combinations provides most potential for success. Simultaneously singing and playing the melody while guiding a students' hand in tracing the melody in the score, then asking the student to trace the melody in the air before attempting to play it, are invaluable tools. Regardless, care must be taken however not to use any directional terminology such as, left, right, high, or

low; instead, it is necessary to focus on the student's physical and auditory experience, expression, and acceptance of such stimuli.

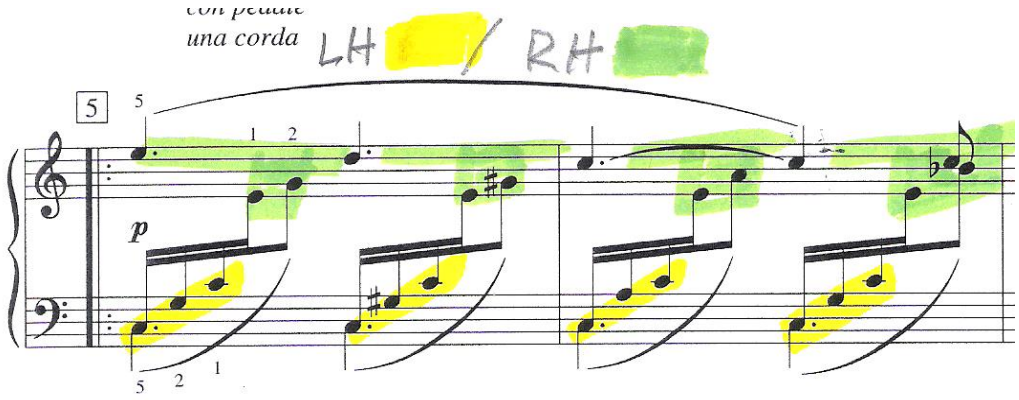
Use of color both in the score and on the keyboard was originally developed by Margaret Hubicki, a British composer, pianist, and theory teacher (see example 2.). While I do use it with young learners for easier note name identification (together with other tools), it does not solve the problem of confusion over the appearance of the same note in different octaves and registers. The color coding then must be supported with mnemonics or associations to be fully effective.

Other uses of color coding can also reduce errors and mitigate difficulties for dyslexics who are learning to play the piano. For example, it can address poor left-right tracking and hand coordination, and it can help in memorizing when recurring themes or sections are colored the same way (see examples 3 and 4).



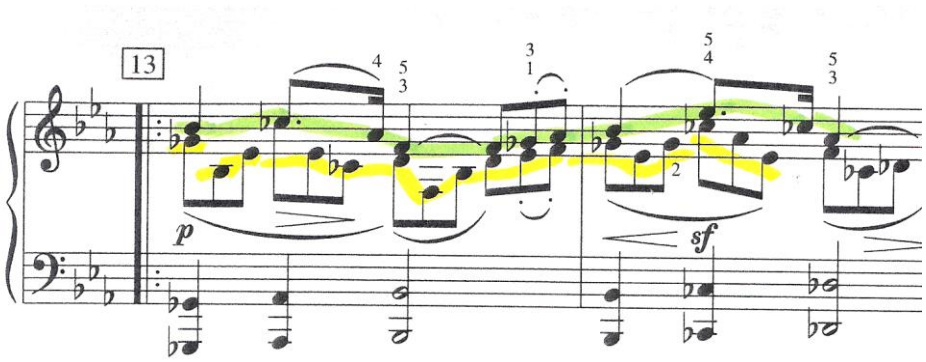
Example 2
Margaret Hubicki's Color Scheme. (Created based on Hubicki and Miles, *Musical Notation and Multisensory Learning*, 66-67.)

The following examples illustrate some of the problems Cathryn experienced in learning specific pieces and the use of color coding strategies that helped her overcome those difficulties. See examples 3. a and 3. b.



Example 3. a
Problem with Hand Tracking and Coordination Cathryn Experienced and Color Coding Solution. Heinrich Hofmann *To the Lute,* mm. 5-7. Source: Frederick Harris Music Celebration Series, Perspectives, Level 9 Etudes, 8. Used by permission.

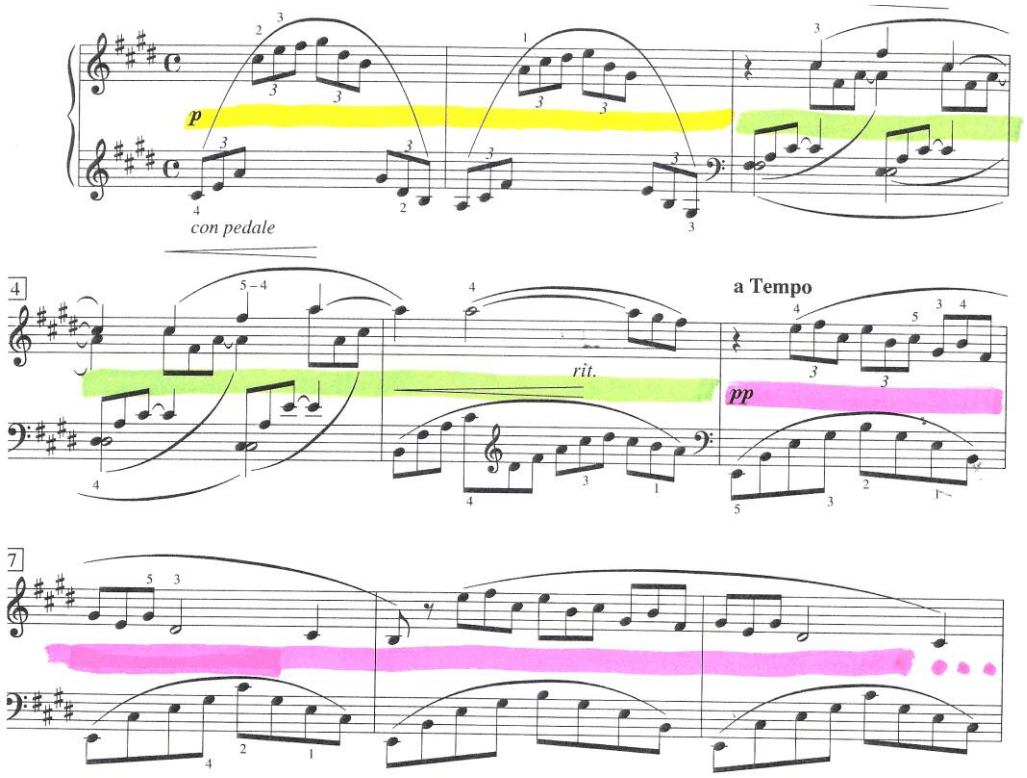
In this example (example 3. a), the accompaniment is distributed between the left and right hands, with the last notes of each figure printed in the top (right hand) line. The continuation of the beam confused Cathryn and she attempted to play it with her left, instead of her right hand. Once the color coding was applied to separate the figure between the two hands, she had no more difficulty with this particular problem.



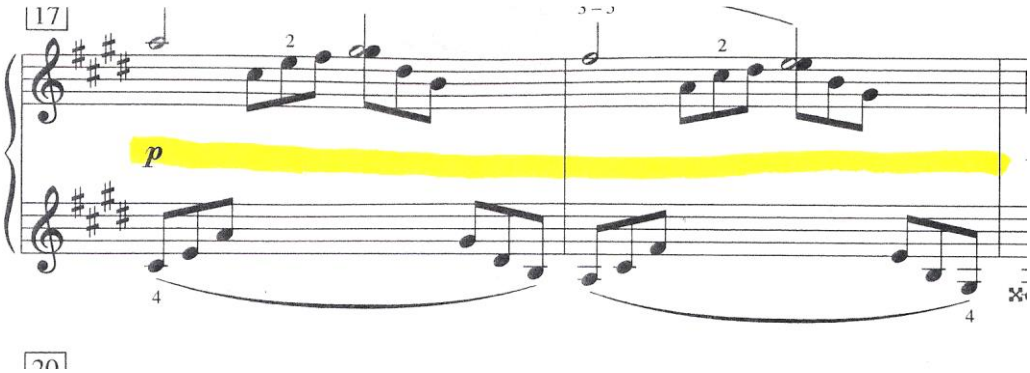
Example 3. b
Distinction of Two Voices Played by the Same Hand that Created Difficulties for Cathryn and Color Coding that Solved Them. Felix Mendelssohn, *Song without Words Op. 30 No. 1,* mm.13-14. Source: Frederick Harris Music Celebration Series, Perspectives, Level 9 Repertoire, 88. Used by permission.

In this case (example 3. b), the color coding was used to separate the two voices written in the same hand. Interestingly, when stems on the notes of the two voices were written in the same direction, Cathryn encountered no difficulties either reading/decoding, or executing the passages. However, the application of color to this section helped in each of the repeated instances of the material, and it also facilitated recall when similar text was encountered in other works.

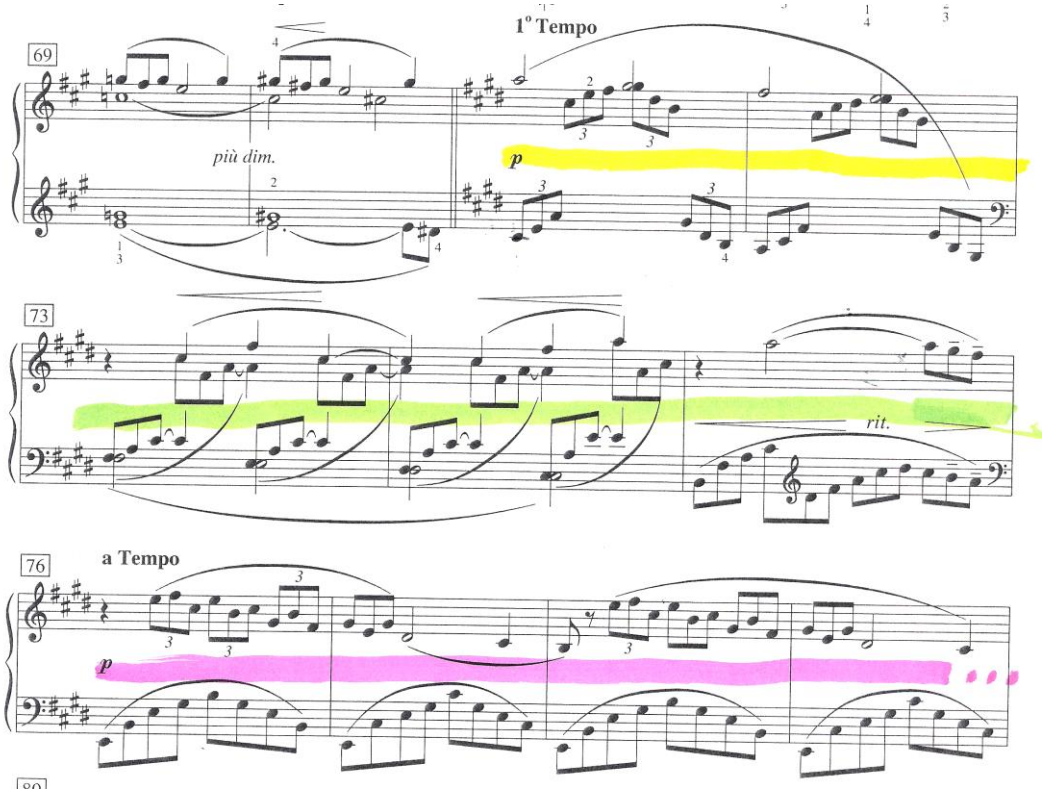
Examples 4. a, b, and c show the use of color coding as an aid in structural analysis and memorization. Several colors were used to mark instances of recurring thematic material. Difficulty in recognizing recurring patterns is characteristic in dyslexics due to short memory deficiencies. Color coding connected each recurrence of the same material and simplified reading and memorization.



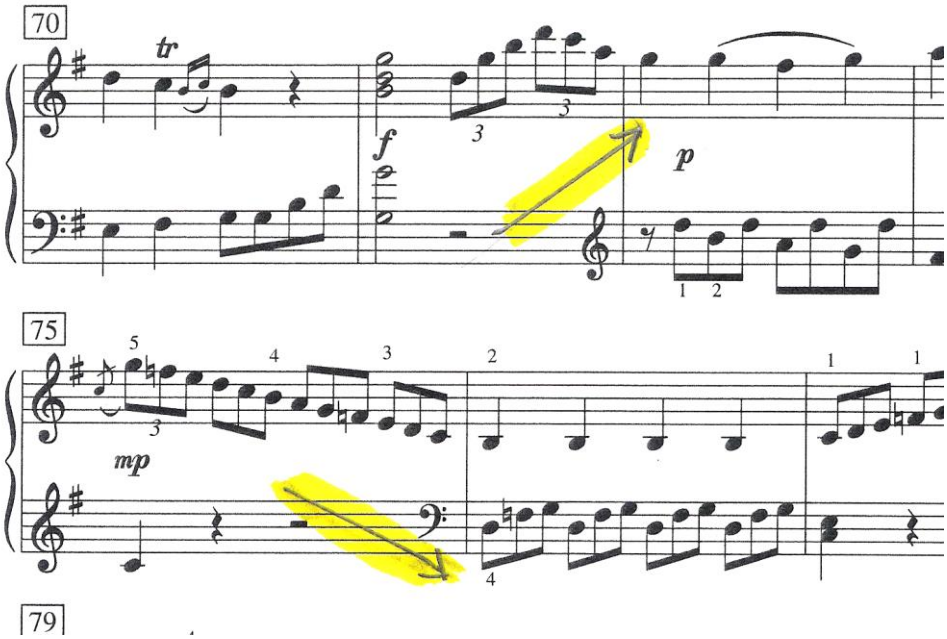
Example 4. a
Claude Debussy, *Arabesque No. 1,* mm.1-9. Source: Frederick Harris Music Celebration Series, Perspectives, Level 10 Repertoire, 86. Used by permission.



Example 4. b
Claude Debussy, *Arabesque No. 1,* mm.17-19. Source: Frederick Harris Music Celebration Series, Perspectives, Level 10 Repertoire, 87. Used by permission.



Example 4. c
Claude Debussy, *Arabesque No. 1,* mm.71-80. Source: Frederick Harris Music Celebration Series, Perspectives, Level 10 Repertoire, 89. Used by permission.

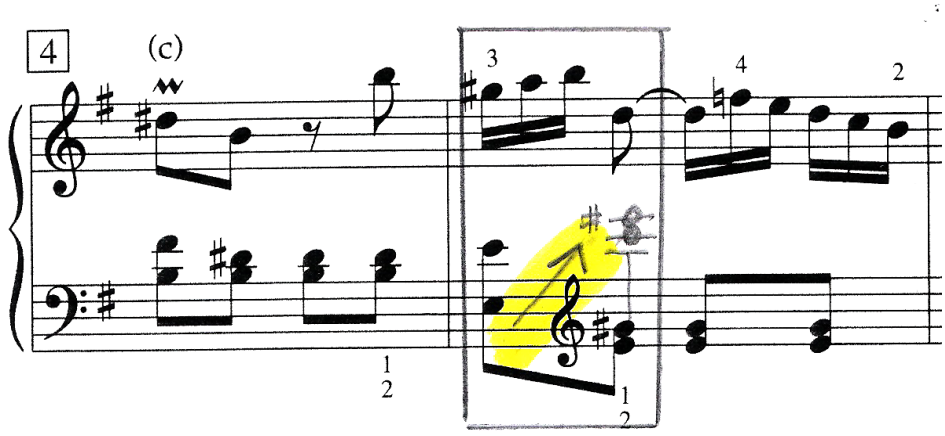


Example 4. d
Difficulty Cathryn Encountered in Changing Clefs and Range. L. van Beethoven, *Sonata Op.49, No. 2, movement I,* mm.71-72 and 75-76. Source: Frederick Harris Music Celebration Series, Perspectives, Level 8 Repertoire, 20. Used by permission.

An example of a typical error for many dyslexic learners is represented in example 4. d. While the pitch changes from lower to higher octave (mm. 71-72) indicated by the clef change, the look and position on the page is often interpreted as a motion in the opposite direction. For Cathryn, the inclusion of a color highlighted arrow solved the problem.

John experienced the same problem but, as indicated in the example 4. e, the highlighted arrow did not provide sufficient help. Writing in the

notes in the clef that preceded the clef change was the added help he needed to get used to the register changes.



Example 4. e
Difficulty John Encountered in Changing Clefs and Range. Joseph-Hector Fiocco, *Suite in G Major Op. 1 No. 1, movement XI,* mm. 5. Source: Frederick Harris Music Celebration Series, Perspectives, Level 7 Repertoire, 8. Used by permission.

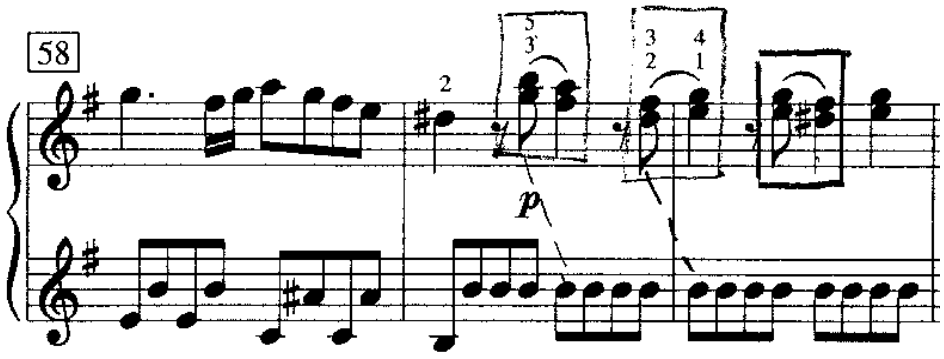
John faced a somewhat similar problem in another piece. However, it was not a matter of confusing the registers, but an inability to transition smoothly from one line to the next. He experienced this difficulty only rarely, and there were examples in other pieces he played at the time that could be seen as more challenging. I have not been able to detect the source of confusion in this particular instance. As depicted in example 4. f, a simple solution of writing the first two beats of the next bar in the continuation of the line and adding a color guide solved the problem. The idea came from

doing the same for myself in scores that had inconvenient page turns before I had the piece memorized.

Example 4. f
Difficulty John Encountered Following Text From One Line to the Next. Giuseppe Concone, *Study in C Major Op. 24 No. 22,* mm. 12-13. Source: Frederick Harris Music Celebration Series, Perspectives, Level 7 Etudes, 7. Used by permission.

When it comes to both rhythm and memorizing Italian terms, physical activities such as walking, marching, and/or gently stepping while singing the melody will allow a student to experience and feel a rhythm pattern, tempo, and overall character of a phrase, section, or even a whole piece. Such activities reinforce the concept through internal experience and often make it easy to recall when a similar challenge appears in another piece. The teacher tapping a rhythm pattern with a pencil on a hard surface, while counting and having a student rest his or her hand on teacher's hand is often the first step in learning more complex rhythm patterns. The second step is asking the

student to mimic the procedure, with the teacher tapping the student's shoulder as he or she repeats the pattern. The final step, before applying it on the keyboard, to a specific melodic section, is to get the student to play just one note, with one finger, on the keyboard in the rhythmic pattern that was done in other ways. These two strategies, movement and tapping/clapping variants can be alternated and combined for a stronger effect.

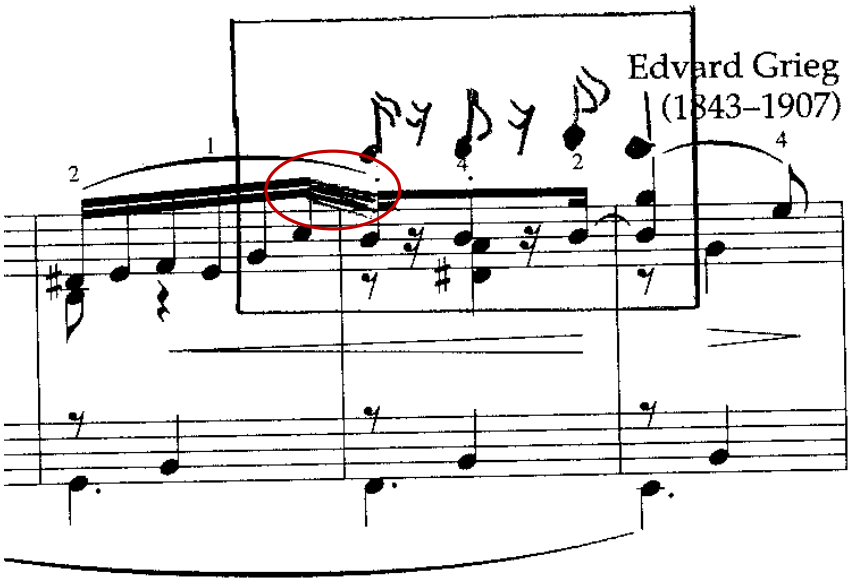


Example 5. a
Rhythm problem Encountered by Cathryn. L. van Beethoven, *Sonata Op.49, No. 2, movement I,* mm 59-60. Source: Frederick Harris Music Celebration Series, Perspectives, Level 8 Repertoire, 20. Used by permission.

In this instance (example 5. a), Cathryn had particular difficulty playing the pair of double thirds in the right hand on the second half of the second beat, as written in the score. Instead, she would play the first third in the pair on the third beat as the dashed lines show. It took some time to discover the cause of this difficulty, especially since the eighth-note rhythm in the left hand could serve as an anchor and guide. After several failed attempts to correct this error, I finally decided to white out the slur, which solved the problem. It was then that Cathryn herself finally realized the

source of confusion: it was the slur, because in most examples of the two notes connected by a slur that she was familiar with, either both, or the first of the two notes appeared on the beat, rather than off.

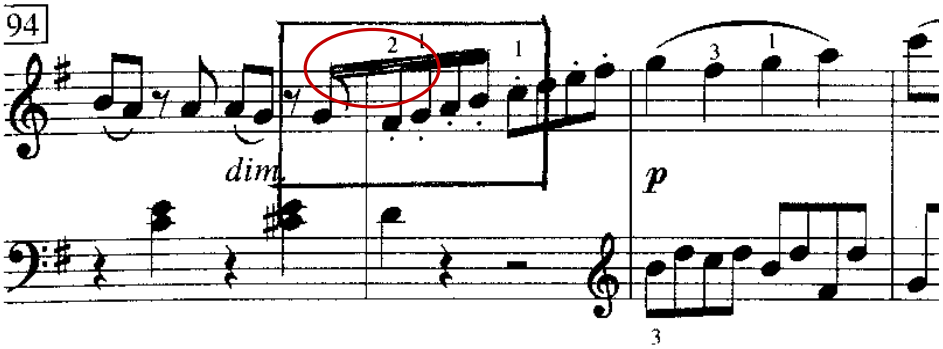
Example 5. b shows John's problem with decoding the rhythm pattern in a section with two voices written in the right hand.



Example 5. b
Rhythm Problem Encountered by John. Edvard Grieg, *Poetic Tone Picture Op.3, No. 1*, mm. 5-7. Source: Frederick Harris Music Celebration Series, Perspectives, Level 8 Repertoire, 48. Used by permission.

When the top voice notes remained under the same beam, John was not able to correctly interpret the rhythm. Once the beam was removed and the line rewritten as indicated in example 5. b above, John played the pattern correctly. Further, he had no difficulty incorporating the accompaniment (D-sharp/A), although I was concerned about that possibility. However, another

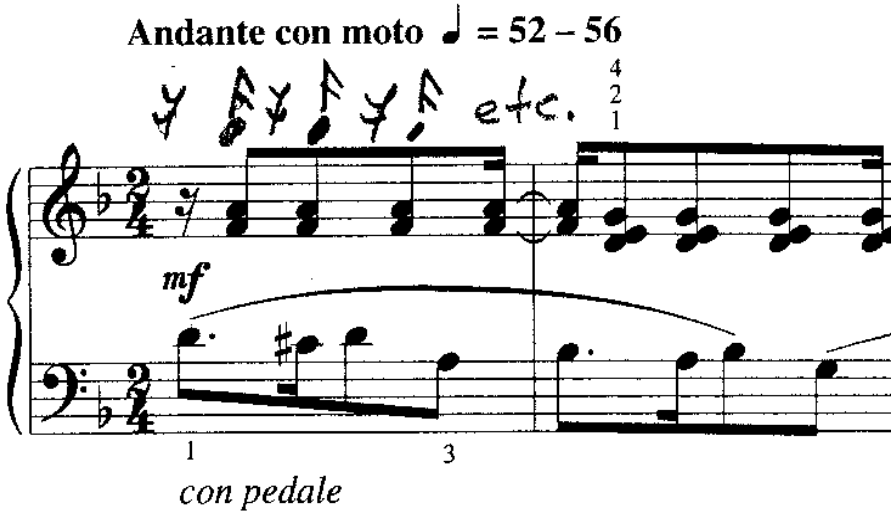
problem surfaced. When trying to play the whole phrase from mm. 3-7, he would stumble and pause at the transition from mm. 5 to mm. 6. It was as if there was a chasm between the two measures and the pause could not be removed for a couple of lessons. Then I remembered a similar incident with Cathryn (see example 5. c) and, in her case, extending the beams from the last note in the previous bar to the first bar in the next removed the obstacle. Once I did the same in John's score (red outline in example 5. b), the problem went away immediately.



Example 5. c
Rhythm problem encountered by Cathryn and the solution. L. van Beethoven, *Sonata Op.49, No. 2, movement I,* mm 94-95. Source: Frederick Harris Music Celebration Series, Perspectives, Level 8 Repertoire, 21. Used by permission.

Similar to the challenge shown in example 5. b was the rhythmic figure in example 5.d, although the latter was more complex because it included a syncopated right hand accompaniment to the melody in the left hand. However, with this piece, the solution was already in place, and a short time interval between the times the two pieces were learned made it much easier and more efficient to solve the issue of rhythm and hand

coordination. John had tremendous difficulty learning hands together, but when the beams were removed and the line rewritten in an alternate (albeit not quite correct manner), he was able to play hands together fluently within a week.



Example 5. d
Hand coordination encountered by John. Hienrich Hofmann, *Elegie Op. 77, No. 2,* mm 1-2. Source: Frederick Harris Music Celebration Series, Perspectives, Level 7 Etudes, 12. Used by permission.

In addition to score alterations discussed here, another simple solution that easily alleviates the difficulties dyslexic learners experience, regardless of their giftedness level, is a simple photocopying in a larger, or "stretched" format to increase the white space and make distances between notes wider. In some cases such de-cluttering of the score is a sufficient solution, especially for high-compensating dyslexics, or those with milder forms of the learning disability.

Interestingly, despite vast differences among dyslexics in terms of severity of the disability, learning styles, and strategies that work for them, the examples described in this chapter worked for both John and Cathryn, and equally well. However, one has to keep in mind that, when it comes to teaching dyslexics, the rule should be that there are no rules, that one size does not fit all, and that only in rare incidences will the same strategy work equally well for more than one student. In addition to patience and creativity, teachers should be prepared to experiment, alter existing solutions as needed for each student, and try different solutions on a regular basis.

Chapter 7

BRAIN PLASTICITY, MUSIC, AND PIANO: AN ANSWER AND HOPE FOR DYSLEXICS?

One of the more thought-provoking studies in recent years comes from Ian McDonald, a British neurologist specializing in multiple sclerosis and neuro-ophthalmology. It is a self-reporting, self-observation McDonald published after a debilitating embolic cerebral infarct (a stroke-like event that prevents blood flow and causes tissue necrosis) that was accompanied by chronic migraines for 18 months. He chronicled the disease progress with the benefit of hindsight, from the first symptoms, to the cerebral infarct, and the road to recovery.[41] The symptoms McDonald experienced in the period before and after the cerebral infarct are listed in table 7:

Table 7
McDonald: Self-Reported Symptoms of Embolic Cerebral Infarct.

1	Disorientation, spatial and directional confusion
2	Short term memory deficiency
3	Inability to deal with alpha-numeric symbols
4	Reversal of letters and numbers when writing

[41] Ian McDonald, "Musical Alexia with Recovery: A Personal Account," *Brain* 129, no. 10 (October, 2006): 2554-61. *Passim.*

These and additional neurological and functional symptoms experienced by McDonald matched the dyslexic impairments, suggesting that the brain incapacitation he suffered may be consistent with the brain wiring of dyslexics. McDonald reports experiencing the following neurological symptoms that match those of dyslexic learners, previously identified in a number of studies about dyslexic difficulties in reading and reproducing music (see table 8).

Table 8
McDonald: Self-Reported Symptoms Mimicking Dyslexia.

1	Music "made no sense"
2	McDonald recognized notes by sound, not reading
3	McDonald reported absence of musical/emotional content when trying to play
4	Hand and right-left coordination was all but impossible
5	Inability to understand and recognize accidentals
6	Complete disorientation in terms of correct octave position of text and hands on the keyboard

In describing his recovery, McDonald states that his brain function recovery, as it pertained to music reading, comprehension, and playing, began with his determined return to piano practice. McDonald studied music and piano for decades and was an accomplished pianist. He describes that the ability to perform and read polyphony came before the ability to perform and read homophonic music. Although initially McDonald thought that

homophony would be easier to recreate than polyphony, when attempting to play he found it extremely difficult to coordinate a distinct melody in one hand and the accompaniment in the other. He also reported that his memory recovery was much faster and easier in recreating the music of J. S. Bach than for any other repertoire.

McDonald did not delve deeper into the reasons why memory and execution for polyphony was the first to return. However, that phenomenon may provide clues and ideas for future research that would link benefits of studying and performing Baroque music to memory recovery, and also furnish some new ideas about using music learning to ameliorate negative aspects of dyslexia. In his account of deficiencies and challenges after the cerebral infarct and recovery, McDonald also provides an illustration of music reading difficulties he experienced (see figure 3).

He reports being perfectly capable of recalling by ear specific piano pieces he played prior to the infarct. However, the written score and his interpretation of it was laden with a myriad of text transformations and erroneous decoding that is representative of the way dyslexic learners see written music score. He included the following figure in his article that illustrates difficulties in reading. Once McDonald regained his faculties, he was able to reconstruct and describe in detail the exact alterations his brain made to the written score and his decoding of that score.

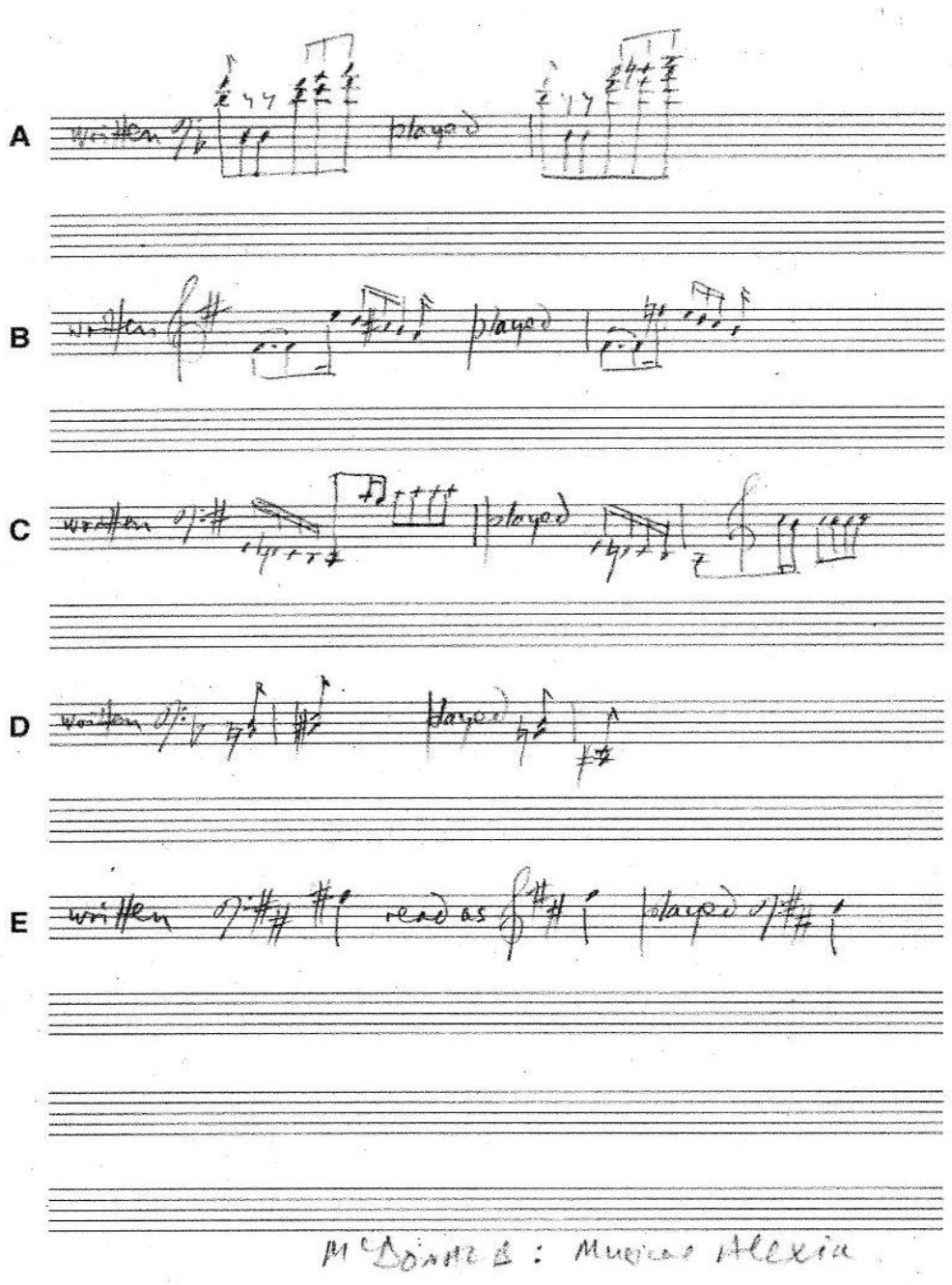


Figure 3
Ian McDonald's Illustration of His Post Cerebral Infarct Manifestation of Music Alexia.[42]

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[42] Ian McDonald, "Musical Alexia with Recovery: A Personal Account," *Brain* 129, no. 10 (October, 2006): 2559

My personal experience with dyslexic students mirrors McDonald's findings. Looking at his illustration of typical errors in reading and decoding, I see the same common oversights and confusion my students exhibited. As well, students were quite capable of learning and performing J. S. Bach's two- and three-part inventions, and later even three-part fugues, as fitting their level of learning, while having extreme difficulties with some of Muzio Clementi's and W. A. Mozart's less complex sonatas. Generally, any passages with Alberti bass and its variants as the accompaniment to the melody created almost insurmountable hand coordination challenges. While playing hands separately did not pose any problems, learning hands together was difficult and slow.

As practice results and recent scientific studies confirm, it is already known that music therapy provides not only relief, but also improvement in many learning and behavioral disabilities.[43] It is then natural to extrapolate that music instrument instruction and practice can provide dyslexics with a possible tool to eliminate some or all symptoms and obstacles that this

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[43] Marie Forgeard, Gottfried Schlaug, Andrea Norton, Camilla Rosam, Udita Iyengar, and Ellen Winner, "The Relation between Music and Phonological Processing in Normal-Reading Children and Children With Dyslexia," *Music Perception: An Interdisciplinary Journal* 25, no. 4 (April 2008): 383-90; Michel Habib, and Mireille Besson. "What do Music Training and Musical Experience Teach Us About Brain Plasticity?" *Music Perception: An Interdisciplinary Journal* 26, no. 3 (February 2009): 279-85; and Jenny Macmillan, "Music and dyslexia – and how Suzuki helps." *European Suzuki Association Web Journal*. Available at http://www.europeansuzuki.org/web_journal/Music_and_dyslexia.pdf.

learning disability places in their way. My more than three decades experience with dyslexic students, including observation of their progress, and listening to their anecdotal reporting confirms the effectiveness of music and alternate piano learning methods in helping mitigate negative effects of dyslexia on learning in general. Without exception, students encountered positive changes and higher success in other areas of learning when they employed the same or similar strategies we used in piano lessons to reading, playing, and memorizing material in other subjects.

Yet, authors like Tim Miles and John Westcombe consider this question to be invalid. They suggest that music training may provide appropriate strategies to minimize adverse effects of dyslexia, but it cannot be considered a cure.[44] While it is true that a cure for dyslexia is still not within reach, it is necessary to look deeper and in more detail into the difference that instrument training does make for many dyslexic students. In a recent study, Marie Forgeard, Gottfried Schlaug, Andrea Norton, Camilla Rosam, Udita Iyengar, and Ellen Winner explored the relationship between musical discrimination abilities and language-related skills.[45] They reported

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[44] Tim R. Miles and John Westcombe, eds.*Music and Dyslexia: Opening New Doors*, London and USA: Whurr (2001) quoted in Jenny Macmillan, "Music and dyslexia – and how Suzuki helps."

[45] Marie Forgeard, Gottfried Schlaug, Andrea Norton, Camilla Rosam, Udita Iyengar, and Ellen Winner, "The Relation Between Music and Phonological Processing in Normal-Reading Children and Children With Dyslexia." *Music Perception: An Interdisciplinary Journal* 25, no. 4 (April 2008): 383-90.

that non-dyslexic and dyslexic groups of students with musical training surpassed their respective peer control groups, which did not have the benefit of music instruction, in both language skills and music skills.

They concluded, "Taken together, these findings suggest that a music intervention that strengthens the basic auditory music perception skills of children with dyslexia may also remediate some of their language deficits."[46]

In a somewhat similar 2009 study Joseph Piro and Camilio Ortiz also explored the relationship between music and language and the effects of piano lessons on the language skill development. Although they did not investigate dyslexic learners and the effect of music on their development, the authors recognized the crucial positive role music lessons play in the overall development. They concluded, "the study of how music may also assist cognitive development will help education practitioners go beyond the sometimes hazy and ill-defined 'music makes you smarter' claims and provide careful and credible instructional approaches that use the rich and complex conceptual structure of music and its transfer to other cognitive areas."[47] It is this last part of the statement that gives hope for the future. Learning how and why skills attained through music study transfer to other learning areas

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[46] Ibid. 384.

[47] Joseph M. Piro and Camilo Ortiz, "The Effect of Piano Lessons on the Vocabulary and Verbal Sequencing Skills of Primary Grade Students," *Psychology of Music* 37, no. 3 (2009): 341.

would open new doors into a deeper understanding of how dyslexics learn and to developing methods of helping them overcome the challenges of their learning disability.

Mathias S. Oechslin, Dimitri Van De Ville, François Lazeyras, Claude-Alain Hauert, and Clara E. James in their 2012 study that explores brain function in musically trained individuals, in contrast to those who did not have musical training, suggest that there is a direct correlation between higher order brain functioning and musical training. They further suggest that this is a clear indication of brain plasticity, which can be used in a variety of ways not only to improve brain function, but possibly also to mitigate negative effects of injuries and other disabilities.[48]

Perhaps the most informative source dealing with the topic of music and brain plasticity is a 2010 article by Ana Carolina Rodrigues, Maurício Alves Loureiro, and Paulo Caramelli, published in Brazil. The authors reviewed dozens of recent studies on the relationship between music and brain plasticity. It is an enlightening compendium of study results and conclusions that generally confirms the positive effects of music on brain,

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[48] Mathias S. Oechslin, Dimitri Van De Ville, François Lazeyras, Claude-Alain Hauert, and Clara E. James, "Degree of Musical Expertise Modulates Higher Order Brain Functioning," *Cerebral Cortex* (2012), available at http://cercor.oxfordjournals.org.ezproxy1.lib.asu.edu/content/early/2012/07/23/cercor.bhs206.long

cognitive and overall development.[49] From this article, and also from examples described in the previous chapter of the present document, one can extrapolate that, as much as learning to play a musical instrument is a challenge to dyslexic learners, it also provides tools and skills transferrable to other areas of learning, and thereby alleviates at least some of the adverse effects of dyslexia in general.

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[49] Ana Carolina Rodrigues, Maurício Alves Loureiro, and Paulo Caramelli, "Musical training, neuroplasticity and cognition," *Dement Neuropsychol* no. 4 (2010): 277-86.

Chapter 8

CONCLUSION

Although many volumes of research and investigation have been devoted to the issue of dyslexia, and more recently to dyslexia and music (both in the classroom and some in individual instrumental instruction), there is no evidence of the same in relation to the specific needs of gifted dyslexic learners in learning to play the piano.

As the survey of piano teachers revealed, the overwhelming majority have come across gifted students who either displayed symptoms of dyslexia or were formally diagnosed. Recent trends show that piano instructors will continue seeing an increase of these special learners in their studios in the course of their teaching careers. The reasons for this are simple. The gifted learner population will continue to grow with the technological advancements and stimuli children are exposed to from early childhood. When the growth of the gifted population is coupled with the fact that the incidence of dyslexia among them is several times higher than that of the regular population, the need for specialized methodology for teaching this population becomes all the more acute. Additionally, gifted students are more likely to engage in music/piano lessons than regular learners, as an additional way of meeting their developmental needs and enhancing their overall development.

Yet, as the survey of music teachers and informal investigation of pedagogy course offering in numerous universities show, formal education, professional development courses, research findings, and literature are

unavailable to help prepare future piano instructors for the task of teaching these special learners. Much multidisciplinary scientific work needs to be done in this largely neglected field. The current body of knowledge represents a solid founding block and a departure point for further research. It is my hope that information presented in this document will shed more light on the issue and inspire and invigorate future investigation, thus opening doors to finding additional and more appropriate strategies for teaching highly gifted learners with dyslexia to play the piano.

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APPENDIX A

SURVEY OF PIANO TEACHERS ABOUT STUDENTS WITH DYSLEXIA AND/OR ADHD

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October 9, 2011

Dear Colleague,

I am in the process of preparing my thesis at ASU Herberger Institute School of Music, for the Doctor of Musical Arts degree in piano performance and pedagogy. My topic is new and specific methods of teaching gifted learners with Dyslexia and ADD/ADHD to play the piano. This is an entirely new and exciting field with very little research done to date. I already presented on this topic at the MTNA national conference and the reception I received confirms that there is a great need for this kind of work. As part of the process, I am taking a course in research in music education for which I had to design the attached survey and analyze its results.

I need your help in this endeavor and I thank you in advance for your cooperation.

Please fill out the survey and send it back to me in the enclosed SASE envelope. The survey is anonymous, it will take approximately 15 minutes to complete, and it is the initial pre-test of and the basis for a much broader study that will be conducted through both Canadian and US music teachers associations in the future. Based on your responses and comments, the survey will be further fine-tuned and adapted to provide insight in the current situation in the music education field on this issue.

My deadline to collect and analyze the results of this survey is the end of this month. I would greatly appreciate your prompt response so that I can complete the statistical analysis and work on the collected data in time to meet the paper deadline. Please feel free to contact me with any questions you might have and I will gladly supply any additional information you might be interested in.

Thank you for your time, help and cooperation in completing this survey.

Musically yours,

Jelena Vladikovic

Survey of the Arizona Music Teachers Association members of the MTNA, specialty: piano

Jelena Vladikovic

Please tell us about yourself:

A. I am a: ☐ woman ☐ man

B. Years of formal education (please circle the appropriate number):

12 13 14 15 16 17 18 19 20 21 22 23 24 25

C. Type of formal professional education in music/piano – indicate the highest degree earned

☐ High school ☐ Undergraduate degree ☐ Masters degree ☐ Doctoral degree

Other (please specify) _____

D. Years of piano teaching experience, including the present year: _____

Please read the following statements carefully and indicate the degree to which you agree or disagree with each as:
5 (strongly agree), 4 (agree) 3 (neither agree nor disagree), 2 (disagree), 1 (strongly disagree) and N/A (not applicable)

	Strongly agree				Strongly disagree	
	5	4	3	2	1	N/A
1. I have taught students who did not progress as expected despite their talent and regular practice.	☐	☐	☐	☐	☐	☐
2. I have taught students who had problems focusing and staying on task.	☐	☐	☐	☐	☐	☐
3. I suspected these students were simply undisciplined.	☐	☐	☐	☐	☐	☐
4. I suspected these students may have had learning disabilities such as Dyslexia and/or ADD/ADHD.	☐	☐	☐	☐	☐	☐
5. I brought this suspicion to the attention of their parents.	☐	☐	☐	☐	☐	☐
6. I learned that my students in questions 1 and 2 were later diagnosed with Dyslexia and/or ADD/ADHD.	☐	☐	☐	☐	☐	☐
7. I have seen the numbers of such students increase over the years.	☐	☐	☐	☐	☐	☐
8. I have **not** encountered students with such problems.	☐	☐	☐	☐	☐	☐
9. In the course of my education, I had instruction on how to teach gifted learners with learning disabilities.	☐	☐	☐	☐	☐	☐
10. I am determined to help such students by conducting self-directed study of pedagogical methods applicable to working with gifted learners with Dyslexia and/or ADD/ADHD.	☐	☐	☐	☐	☐	☐

11. I have been successful in finding the resources to gain skills and knowledge most applicable to working with gifted learners with Dyslexia and/or ADD/ADHD. ☐ ☐ ☐ ☐ ☐ ☐

12. I believe strongly in helping gifted learners with Dyslexia and/or ADD/ADHD learn to play the piano. ☐ ☐ ☐ ☐ ☐ ☐

13. I believe I am **not** prepared to deal with and teach gifted learners with Dyslexia and/or ADD/ADHD.

14. I wish courses on teaching gifted learners with Dyslexia and/or ADD/ADHD had been available when I was preparing for a piano teaching career. ☐ ☐ ☐ ☐ ☐ ☐

15. I am **not** interested in teaching gifted learners with Dyslexia and/or ADD/ADHD ☐ ☐ ☐ ☐ ☐ ☐

16. I would have taken courses on teaching gifted learners with Dyslexia and/or ADD/ADHD had they been available when I was preparing for a piano teaching career. ☐ ☐ ☐ ☐ ☐ ☐

17. I believe many gifted learners with Dyslexia and/or ADD/ADHD quit piano lessons because of lack of adequate resources for teachers. ☐ ☐ ☐ ☐ ☐ ☐

18. I think the current prevalence of these learning disabilities among the gifted learners creates the need for this type of education for future educators. ☐ ☐ ☐ ☐ ☐ ☐

19. I would consider learning more about teaching gifted learners with Dyslexia and/or ADD/ADHD by attending college or university courses. ☐ ☐ ☐ ☐ ☐ ☐

20. I am **not** interested in learning about teaching gifted learners with Dyslexia and/or ADD/ADHD ☐ ☐ ☐ ☐ ☐ ☐

21. I am interested in professional development seminars on teaching gifted learners with Dyslexia and/or ADD/ADHD if offered through local MTNA chapters. ☐ ☐ ☐ ☐ ☐ ☐

22. I believe the knowledge about teaching gifted learners with Dyslexia and/or ADD/ADHD would help retain these students in piano studios. ☐ ☐ ☐ ☐ ☐ ☐

23. I believe that paying a tuition fee for college courses on teaching gifted learners with Dyslexia and/or ADD/ADHD would be a very good investment. ☐ ☐ ☐ ☐ ☐ ☐

24. I would enroll in college courses on teaching gifted learners with Dyslexia and/or ADD/ADHD. ☐ ☐ ☐ ☐ ☐ ☐

25. I believe that paying a tuition fee for seminars on teaching gifted learners with Dyslexia and/or ADD/ADHD offered through local MTNA chapters would be a very good investment. ☐ ☐ ☐ ☐ ☐ ☐

26. I would enroll in seminars on teaching gifted learners with Dyslexia and/or ADD/ADHD offered through local MTNA chapters. ☐ ☐ ☐ ☐ ☐ ☐

Thank you for participating and completing this survey!

APPENDIX B

PERMISSION TO USE MATERIALS

Date: Wednesday, May 15, 2013 1:04 PM
From: Jelena Vladikovic <jvladikovic@cox.net>
To: jgilchrist@frederickharrismusic.com
Subject: Request for permission to publish

Hello Jennifer,

Thank you for taking my call today. It was a pleasure talking to you. As discussed, please find attached my request for permission to publish excerpts from the Celebration Series (perspectives) in my DMA dissertation. Included is also the detailed list of pieces that will be used for illustrations. Thank you so much for your help.

Jelena
--
Musically yours,
Jelena Vladikovic, B. Mus., M. Mus. A.B.D.
Adjunct Faculty, Grand Canyon University, College of Fine Arts & Production
Founding Teacher, NMCP/Royal Conservatory Music Development Program
Member, College of Examiners: RCM/Royal Conservatory Music Development Program
Center Representative, Royal Conservatory Music Development Program
Cell: 602-402-7516
Email: jvladikovic@cox.net
https://webapp4.asu.edu/directory/person/1008193

Open Frederick Harris copyright letter.pdf

JELENA VLADIKOVIC, B. Mus., M. Mus. A.B.D.

6118 N. 12TH Place, Unit #2, Phoenix, AZ 85014

Telephone: 602-402-7516 ❖ Email: jvladikovic@cox.net

In Phoenix, May 15, 2013

Dear Jennifer Gilchrist :

I am a Doctor of Musical Arts student at the Arizona State University, Herberger Institute School of Music. I am currently finishing my dissertation titled *Gifted Learners, Dyslexia, Music, and the Piano: Rude, Inattentive, Uncooperative, or Something Else?* This dissertation deals with teaching piano to highly gifted learners with dyslexia and/or ADHD and will also include description of methodologies and strategies I used in the last three decades.

I have been an RCM teacher in Vancouver, I continued with the RCM program in all its guises here in the US. I am also an examiner and Phoenix Centre representative, so I use RCM materials extensively. Rather than searching for other publishers for bits and pieces of scores, I would like to use samples of music from the Celebration Series in which I would draw and colour examples of score alterations that help dyslexics read faster and more accurately.

I would appreciate receiving permission to include samples from the Celebration Series in my dissertation at your earliest convenience. Please feel free to contact me either by telephone, or email, should you need any further information. Please find attached the list of pieces for which the permission is requested. Thank you.

Musically yours,

Jelena Vladikovic, B. Mus., M. Mus. A.B.D.
Adjunct Faculty, Grand Canyon University, College of Fine Arts & Production
Founding Teacher, NMCP/Royal Conservatory Music Development Program
Member, College of Examiners: Royal Conservatory Music Development Program
Center representative: Royal Conservatory Music Development Program
Cell: 602-402-7516
Email: jvladikovic@cox.net
https://webapp4.asu.edu/directory/person/1008193

List of pieces for which publishing and use permission is requested

All examples are from Celebration Series: Perspectives

Level 7, Repertoire:

1. Fiocco, Suite in G Major, XI. p.8-9
2. Beethoven: Bagatelle Op. 119 No. 1, p.30-31

Level 7, Etudes:

1. Concone: Study in C Major Op. 24 No. 22, p. 6-7
2. Hofmann; Elegie Op.77 No. 2, p. 12-13

Level 8, Repertoire:

1. Beethoven: Sonata in G Major, Op. 49 No. 2, p.18-21
2. Grieg: Poetic Tone Picture, Op 3 No. 1, p. 48-49

Level 9, Repertoire:

1. Chopin: Nocturne in c sharp minor, Op. Posth. p.71-73
2. Mendelssohn: Song without Words, Op. 30 No. 1 p. 88-90

Level 9, Etudes:

1. Duvernoy: Study in C Major, Op. 120 No. 10, p.6-7

Level 10, Repertoire:

1. Tsitsaros: Gallop, p.30-31

Level 10, Etudes:

1. Debussy: Arabesque No. 1 p. 86-90

Date: Thursday, May 16, 2013 8:17 AM
From: Jennifer Gilchrist <jgilchrist@frederickharrismusic.com>
To: Jelena Vladikovic <jvladikovic@cox.net>
Subject: Re: Request for permission to publish

Dear Jelena,

Thank you for your request, I am pleased to let you know that only one of the pieces which you have listed requires Frederick Harris Music's permission, and I have attached a letter of permission below: Please ensure that the copyright notice included in this letter appears in your thesis.

Feel free to let me know if you have any questions.

With best wishes,

Jennifer Gilchrist
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Jelena Vladikovic
6118, N. 12th Place, Unit 2
Phoenix
AZ, 85014

May 16, 2013

Dear Jelena,

The Frederick Harris Music Co., Limited, is pleased to grant you permission to print material from the following publication:

From *Celebration Series Perspectives®, Piano Studies / Etudes 10*:

- "Gallop" by Christos Tsitsaros (excerpts)

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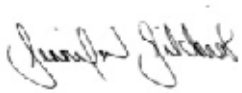
With best regards,



Jennifer Gilchrist
Editorial Project Manager
416-673-1426, x. 249
jgilchrist@frederickharrismusic.com

APPENDIX C

IRB EXEMPT STATUS APPROVAL

ASU Knowledge Enterprise Development

Office of Research Integrity and Assurance

To:	Jere Humphreys MUSIC
From:	Mark Roosa, Chair Soc Beh IRB
Date:	03/25/2013
Committee Action:	**Exemption Granted**
IRB Action Date:	03/25/2013
IRB Protocol #:	1302008875
Study Title:	D.M.A. Research Paper: Gifted Learners, Dyslexia, ADHD, Music, and the Piano: Rude, Inattentive, Uncooperative, or Something Else?

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(1) .

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.