

THE DEVELOPMENT OF MUSICAL TALENT IN DIFFERENT LIFE PERIODS: A CASE STUDY

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Through a case study of the internationally renowned organist, Tea Kulaš, we aim to investigate the influence of 29 factors on the development of musical talent at different stages of life, from early childhood to early adulthood (i.e., 3–35 years of age). The results show that in childhood and earlier stages of life, the development of musical talent is significantly influenced by external factors, while the importance of the influence shifts to internal factors in later stages of life.

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1 Introduction

Insight into the development of musical talent requires a number of contextual dimensions of giftedness and talent to be handled, both in the context of musical development (a broader view), as well as the development of musical abilities (a narrower view) and the many factors that influence the development of an individual across the lifespan. Early-developed abilities (Christiner & Reiterer, 2018; Wesseldijk et. al., 2021) and starting to learn music in earlier life periods (Da Costa & Lubart, 2016) influence better developed musical abilities and greater achievement in later life periods. Overall, four key aspects emerge in the field of giftedness, as follows: giftedness in childhood as an exceptional deviation from peers and as an outstanding achievement in a professional domain in adulthood (the relative nature of giftedness), giftedness that gradually develops from potential to professional competence (the developmental nature of giftedness), domains differ depending on the starting and ending points (the temporal nature of giftedness), and the influence of environmental factors in fostering achievement in a specific domain change (the contextual aspect of giftedness) (Olszewski-Kubilius et. al., 2017). According to Gagné (2005, 2009), talent development means the transformation of specifically innate abilities (giftedness) into systematically developed exceptional abilities (talents). This process is influenced by various external and internal factors, which are illustrated by some models of giftedness in the literature (Gagné, 2005, 2009; Heller, 1992, 2001; Heller & Schofield, 2008; McPherson & Williamon, 2006; Mönks, 1992; Mönks & Katzko, 2005; Perleth, 1997, 2000, 2001; Piirto, 2008; Ziegler & Heller, 2000). From these models, a number of factors were extracted in Drovenik Adamec et. al. (2020), which we examined in a case study of the organist Aleksey Vylegzhanin. The results of the case study show that the influence of these factors varies according to different life stages and personality traits, with external factors having a more intense influence at earlier life periods and internal factors having more influence in later life periods.

A large body of literature will be used to support our general thesis that external and internal factors influence the development of musical talent in different directions (positive/negative) and at different stages of life with different intensities. Motivation is important in development. Woolfolk (2016) points out that within the motivational continuum, both extrinsic and intrinsic motivational factors are important for success. Intrinsic motivation in music is explained as the personal

pleasure and satisfaction that comes from performing music (Barry, 2007). This term can also be described as the feeling that an instrumentalist has when performing music out of sheer enjoyment (O'Neill & McPherson, 2002). Hallam et al. (2016) highlight the complexity of musical motivation and the changes in motivation as expertise develops. They cite self-belief; enjoyment and pleasure in musical activities and performance; the level of support from parents, teachers and friends; attitudes towards and perceptions of the value of playing an instrument; and beliefs about the importance of musical ability as important elements of motivation. Encouragement and support from family, teachers and peers; the child's expectations and motivation to become competent on the instrument; the joy of playing the instrument; and the self-regulatory strategies that the child acquires to improve instrument learning are highlighted by McPherson & Zimmerman (2002) and Sloboda et al. (1996) as key factors for playing an instrument. Pereira-Fradin & Dubois (2007) state that motivation and passion are essential for a child's musical performance and play a key role in musical development. Parental encouragement is closely related to aspects of motivation (Bogunović, 2008; Dai & Schader, 2001, 2002; Kiewra & Witte, 2018; Kong, 2021), which is linked to playing an instrument (through frequency and length of practice). It is important that the mother and father are equally involved in establishing the habit of practice at home, especially during the early years of learning an instrument. Parental support is the most important factor at critical life stages (i.e., between the ages of 4–5 and 6–7) for both the development of skills and interest in pre-school development, and for the early identification of talent (Sisk, 1990; Stadler Elmer, 1996) and guidance in learning an instrument at a life stage when children are generally most susceptible to external stimuli and talent has the richest response (Bogunović, 2008).

The teacher, alongside the family, is another key factor in the child's learning environment. The influence of music and instrumental teachers encompasses two components: 1) the nature and quality of the teacher-student relationship, and 2) the appropriateness of the match between the teacher's teaching style and the child's individual needs (Pereira-Fradin & Dubois, 2007). It is important for the instrument teacher to be familiar with the relationships in the student's home environment, and to encourage collaboration between the school environment and the student's everyday life to stimulate and upgrade the student's musical development (Ho & Chong, 2010). At a later stage of development, the gifted student relies primarily on personal strengths, alongside innate potential (innate predispositions of musical

talent) and other environmental influences, to take charge of their personal, musical, professional and social development (Peterson, 2018).

The literature suggests that there are several links between the different concepts that we see as relevant in the context of the musical talent development. For example, the term musical ability refers to (innate) potential (Bogunović, 2008; Davidson et. al., 1997; Hallam, 2006, 2010; Hallam & Shaw, 2002; Haroutounian, 2009). In addition, it has been shown that there is a significant correlation between musical ability and general intelligence (Rose et. al., 2019). Sternberg (2001) and Shi (2004) find a link between intelligence and creativity in their research, while Oikkonen et al. (2016) cite intelligence and musicality as a common background to a complex phenotype of creativity. Research findings (Kapliyenko-Iliuk, 2019) confirm that musical creativity is a complex process of artistic and creative thinking, whose psychological predispositions are talent, skill, intuition, creativity and improvisation.

Acquisition of musical skills, focus on aural abilities and prior success in public performance contribute to successful outcomes in music (Upitis et al., 2017). Factors such as the cultural environment in which an individual's musical development takes place (McPhee et. al., 2005), social skills and dedicated work (Rinn, 2007; Zhukov & Rowley, 2021), or hard work (Corno et al., 2002; Winner, 2000) are also important factors for outstanding achievement. Pereira-Fradin & Dubois (2007) cite passion as one of the most important factors for success in music. However, the quality and quantity of practice (Da Costa & Lubart, 2016; Dai & Schader, 2001, 2002; Davidson et. al., 1997; McPherson & McComick, 1999; Morrongiello, 1992; Reis, 2009; Sloboda et al., 1996; Williamson & Valentine, 2000) are crucial for achieving a level of expertise, which can influence an individual's musical perception (Ilari, 2002; Madsen & Madsen, 2002; Morrongiello, 1992; Trehub et. al., 1997). Wesseldijk et. al. (2021) confirm that starting musical training in earlier life periods has an impact on greater ability and higher achievement in later life periods. In addition to these factors, self-image (Fiedler & Spychiger, 2017), goal-setting, learning strategies (Green, 2010), realistic evaluation of achievements, performance, commitment, coping with stress, and music performance anxiety (Orlick & Partington, 1988) also influence the development of excellence. Dobos et. al. (2018) show a strong link between music performance anxiety, social anxiety and perfectionism. According to Skoogh & Frisk (2019), music performance anxiety should not be considered as a stand-alone problem but should be understood as a broader structural issue, with a

focus on perfection and virtuosity. Dobos et. al. (2018) state that music performance anxiety (MPA) is complex and multifactorial, and can occur at an early age. Therefore, it is important for the mental health of students that it be identified, intervened and managed in a timely manner by parents, teachers and professionals. Identifying these factors is helpful in understanding why, despite equal potential and similar conditions, not all children achieve at the same level in music (Pereira-Fradin & Dubois, 2007).

It can be concluded that the development of musical talent is influenced by a number of factors, which are the subject of the present case study.

2 Method

2.1 Goals

The purpose of this research is to investigate the influence of the 29 factors of the musical talent development of an excellent musician in different life periods. The participant in the case study is a professional organist, musicologist and artistic deirector of the international organ festival Zadar Organ Fetsival, Tea Kulaš (Croatia/Austria) (hereinafter T.K.).

2.2 Research questions

In the exploratory case study, we were interested in (1) what influence different external and internal factors had on the development of Tea Kulaš's musical talent, and (2) whether and how the influence of these factors changed through the participant's life stages.

2.3 Measurement instruments

For the purpose of this research, we developed and used a measurement instrument (i.e., a questionnaire). The questionnaire includes a set of 29 factors that influence musical talent development, and for which it is necessary to make a note of influence's intensity at different stages of life: early childhood (3–6 years), middle childhood (6–8 years), late childhood (9–11 years), early adolescence (12–14 years), middle adolescence (15–17 years), late adolescence (18–20 years), and early

adulthood (20–35 years). Intensity of influence is assessed by life stages using a seven-point rating scale containing the following levels: 1. not at all important influence, 2. low important influence, 3. slightly important influence, 4. neutral, 5. moderately important influence, 6. very important influence, and 7. extremely important influence. These 29 factors are divided into two areas to assess their influence on the development of a musical talent: external factors (9 items) and internal factors (20 items). The external factors are: mother (1), father (2), family encouragements (3), parental education (4), music instrument teacher (5), quality of music instruction (6), class climate (7), peers (8), and critical life events (9). The internal factors are: motivation (10), interest (11), passion (12), intellectual abilities (13), creative abilities (14), emotional intelligence (15), hard work (16), perseverance (17), perfectionism (18), perception (19), intuition (20), social competence (21), psycho-motor skills (22), musicality (23), learning and working strategies (24), achievement motivation (25), coping with stress (26), performance anxiety (27), assessment anxiety (28), and control expectations (29).

2.4 Data collection procedure

The research was conducted remotely. Data collection took place in April 2024. A questionnaire was administered to the study participant T.K. and was sent in an electronic form (in English). The participant returned the electronic form after one week. The review of the answers was followed by a consultation conversation with the participant via videoconference (Zoom application). T.K. read the case study before publishing and approving the publication of the findings.

2.5 Participant

Tea Kulaš (Croatia/Austria, 1994) is the artistic director of the Zadar Organ Festival and Artistic Organisation *Zara*, organist and musicologist with a Master's degree from the Music Academy in Zagreb (Croatia). She started her artistic journey at the age of 6 as a piano student at *Blagoje Bersa* Music School, Zadar. Apart from her piano studies, she finished contemporary dance, music theory and organ (M. Lazar). She graduated her organ high school studies at *Pavao Markovac* Music School in Zagreb (P. Mašić), which resulted in awards at regional and national competitions. She continued her award-winning education of organ and chamber music at Zagreb Music Academy with Lj. Očić and graduated in July 2018. Within the artistic and

scientific project *Religiophony* (2016) she has performed as a soloist accompanied by Orchestra of the Zagreb Music Academy in Zagreb, Čakovec and Ljubljana, and had held a lecture called *Josip Štolcer Slavenski – composer on the margins* in collaboration with her colleague, Daniela Perković. In 2019, she performed as a soloist with the Zadar Chamber Orchestra and the Croatian Radiotelevision Choir (HRT). Her versatile artistic affinities and curiosity have also led her to the School of Applied Art and Design in Zadar, where she finished a graphic design course. She started studying organ under G. Rost at University of Music and Performing Arts in Graz (Austria) after receiving an Erasmus scholarship in 2016. For two years in a row, she has been a prize-winner at *Martha Debelli* Competition (Graz). She has regularly performed throughout Croatia and foreign countries, as well as at several international festivals. She has attended numerous organ interpretation masterclasses (H. Fagius, M. Schmeding, T. Ospital, R. Prieto Ramirez, K. Volostnov, T. Sevšek Šramel, N. J. Laube, S.-Y. Lee, W. Reisinger, H. Fairs).

3 Results

3.1 External factors

T.K.'s mother (1) had an extremely important influence on the development of her musical talent throughout her childhood. At the beginning of adolescence (12–14 years), T.K.'s mother still had an extremely important influence, which later (15–17 years) decreased to a very important influence, and at the end of adolescence (18–20 years) became a moderately important influence. From early adulthood (20–35 years), her mother's influence has been neutral. The influence of T.K.'s father (2) was moderately important throughout her childhood. Her father had a moderately important influence in adolescence (12–17 years), which became neutral in early adulthood (20–35 years). Throughout T.K.'s childhood, family encouragement (3) had an extremely important influence on the development of her musical talent. In adolescence (12–17 years), family encouragement still had an extremely important influence, which decreased to a very important influence at the end of adolescence (18–20 years). From early adulthood (20–35 years), T.K.'s reported influence of family encouragement was moderately important. Parental education (4) had a very important influence on the development of T.K.'s musical talent in early childhood (3–6 years) and middle childhood (6–8 years). In late childhood (9–11 years), significance of the influence of parental education decreased to moderately

important influence. In adolescence (12–17 years), the influence of parental education was moderately important. It was fairly neutral at the end of adolescence (18–20 years) and remained neutral from early adulthood (20–35 years).

Music instrument teacher (5) in early childhood (3–6 years) had no influence on the development of T.K.'s musical talent because the participant had not yet attended instrumental music lessons at that time. In middle childhood (6–8 years) and late childhood (9–11 years), the instrument teacher had a very important influence, which became neutral at the beginning of adolescence (12–17 years). At the end of adolescence (18–20 years), the influence of the music instrument teacher increased again to become a very important influence and remains very important in early adulthood (20–35 years). As with the music instrument teacher, the quality of music instruction (6) in early childhood (3–6 years) did not have an influence on the development of T.K.'s musical talent because she had not yet attended musical instrumental lessons at that time. In middle childhood (6–8 years) and late childhood (9–11 years), as well as early adolescence (12–14 years), the influence of the quality of music instruction was very important, while in the middle of adolescence (15–17 years) it decreased significantly to a slightly important influence. At the end of adolescence (18–20 years), the quality of music instruction again had a very important influence on the development of T.K.'s musical talent. The influence of quality of music instruction remains very important in early adulthood (20–35 years). Classroom climate (7) in early childhood (3–6 years) had no influence on the development of T.K.'s musical talent because she was not involved in any institutional music education during this period. In middle childhood (6–8 years) and late childhood (9–11 years), as well in early adolescence (12–14 years), class climate had a very important influence, which increased to an extremely important influence in later adolescence (15–20 years) and decreased significantly to neutral in early adulthood (20–35 years).

Peers (8) in early childhood (3–6 years) had no influence. However, peers had a very important influence in middle childhood (6–8 years) and late childhood (9–11 years), and throughout adolescence, which decreased to a moderately important influence in early adulthood (20–35 years). The influence of critical events (9) was neutral throughout childhood. At the beginning of adolescence (12–14 years), critical life events still had a neutral influence on the development of T.K.'s musical talent, while later in adolescence (15–17 years) their influence became moderately important, and

at the end of adolescence (18–20 years) it increased to a very important influence. Finally, even in early adulthood (20–35 years), the influence of critical life events remained very important.

3.2 Internal factors

Motivation (10) and interest (11) had a very important influence on the development of T.K.'s musical talent throughout her childhood. At the beginning of adolescence (12–14 years), motivation and interest had a very important influence, which increased to an extremely important influence for both factors later in adolescence (15–17 years). Both motivation and interest were still extremely important at the end of adolescence (18–20 years) and remain extremely important in early adulthood (20–35 years).

Passion (12) had a moderately important influence throughout childhood, which increased to a very important influence in early adolescence (12–14 years). Later in adolescence (15–17 years) passion began to have an extremely important influence on the development of T.K.'s musical talent, and it also had an extremely important influence at the end of adolescence (18–20 years) and in early adulthood (20–35 years).

Intellectual abilities (13) had a moderately important influence in early childhood (3–6 years). It was still moderately important in middle childhood (6–8 years), but increased to very important influence in late childhood (9–11 years). Throughout adolescence (12–20 years), intellectual abilities thus have an extremely important influence on the development of T.K.'s musical talent, and they also have an extremely important influence in early adulthood (20–35 years).

Creative abilities (14) and emotional intelligence (15) had a very important influence on the development of T.K.'s musical talent throughout childhood. In early adolescence (12–14 years), the influence of creative abilities and emotional intelligence increased to an extremely important influence, and remained extremely important in later adolescence (15–17 years and 18–20 years) and early adulthood (20–35 years).

Hard work (16) had a moderately important influence in early childhood (3–6 years), increasing to a very important influence in middle childhood (6–8 years). In late childhood (9–11 years) and early adolescence (12–14 years), hard work had a very important influence on the development of T.K.'s musical talent. Later in adolescence (15–17 years), the influence of hard work increased to an extremely important influence, and remained extremely important at the end of adolescence (18–20 years) and at the beginning of adulthood (20–35 years).

In early childhood (3–6 years) to middle childhood (6–8 years), persistence (17) and perception (19) had a moderately important influence on the development of T.K.'s musical talent. In late childhood (9–11 years), the influence of persistence in perception increased to a very important influence, and remained very important into early adolescence (12–14 years). Later in adolescence (15–17 years), the influence of both factors increased to an extremely important influence. Persistence and perception also had an extremely important influence at the end of adolescence (18–20 years) into early adulthood (20–35 years).

The influence of perfectionism (18) was neutral in early childhood (3–6 years) but increased to a very important influence in middle childhood (6–8 years). Perfectionism had a very important influence on the development of T.K.'s musical talent in late childhood (9–11 years) and early adolescence (12–14 years). Later in adolescence (15–17 years) the influence of perfectionism became extremely important and had an extremely important influence also at the end of adolescence (18–20 years) into early adulthood (20–35 years).

Intuition (20) had a neutral influence in childhood but in adolescence its influence is moderately important. Throughout adolescence (12–20 years) into early adulthood (20–35 years), the influence of intuition is moderately important. Social competence (21) had a very important influence in childhood, decreasing to a moderately important influence in adolescence. Throughout adolescence (12–20 years) into early adulthood (20–35 years), the influence of social competence is moderately important.

Throughout the all of her life periods (early childhood, middle childhood, late childhood, adolescence and early adulthood), psycho-motor skills (22) and musicality (23) had a very important influence on the development of T.K.'s musical

talent. Learning and working strategies (24) had a moderately important influence in early childhood (3–6 years) and middle childhood (6–8 years). In late childhood (9–11 years), the influence of learning and working strategies increased to a very important influence.

At the beginning of adolescence (12–17 years), learning and working strategies still had a very important influence on the development of T.K.'s musical talent. At the end of adolescence (18–20 years), the influence of learning and working strategies became extremely important and remained extremely important in early adulthood (20–35 years).

Achievement motivation (25) had a neutral influence in early childhood (3–6 years), which increased to a moderately important influence in middle childhood (6–8 years). In late childhood (9–11 years), achievement motivation still had a moderately important influence on the development of T.K.'s musical talent. The influence of achievement motivation became very important in adolescence (12–17 years), increased to an extremely important influence at the end of adolescence (18–20 years), and remained extremely important in early adulthood (20–35 years).

Coping with stress (26) had a neutral influence in early childhood (3–6 years), increasing to a moderately important influence in middle childhood (6–8 years). Coping with stress still had a moderately important influence in both late childhood (9–11 years) and early adolescence (12–14 years), which increased to a very important influence later in adolescence (15–17 years). It had a very important influence on the development of T.K.'s musical talent at the end of adolescence (18–20 years) and in early adulthood (20–35 years).

Performance anxiety (27) had not at all important influence in early childhood (3–6 years) and middle childhood (6–8 years), which became slightly important in late childhood (9–11 years), and in adolescence moderately important. Throughout adolescence (12–20 years) and early adulthood (20–35 years) performance anxiety had a moderately important influence on the development of T.K.'s musical talent.

The influence of assessment anxiety (28) was neutral throughout childhood. Similarly, assessment anxiety had a neutral influence in early adolescence (12–14 years), increasing to a moderately important influence later in adolescence (15–17

years). Even at the end of adolescence (15–17 years) and in early adulthood (20–35 years), the influence of assessment anxiety remains moderately important.

Control expectations (29) had a moderately important influence on the development of T.K.'s musical talent in early childhood (3–6 years). In middle childhood (6–8 years), the influence of control expectations is very important, and remains very important throughout the remaining life period considered (late childhood (6–8 years), adolescence (12–20 years), and early adulthood (20–35 years)).

4 Discussion

4.1 External factors

During her childhood and early life periods, external factors were in the foreground and had a more significant influence on the development of T.K.'s musical talent. Among these, mother and father, parental education and family encouragement had an extremely important to moderately important influence on the development of T.K.'s musical talent. Her musical instrument teacher also had a very important influence on T.K.'s musical development. As Pereira-Fradin & Dubois (2007) and Reis (2009) cite, the role of parents and teachers is crucial in the development of a child's talent. Parents contribute to the development of a child's talent through early recognition of talent and ongoing support of the child's potential. During adolescence, parents help talented teenagers to cope with the identity issues and pressures that are associated with their musical development.

Teachers become role models for many students, encouraging their musical development and contributing to their musical performance and success. Therefore, it is important that both parents and teachers recognise and understand the challenges that accompany each stage of a student's development of musical talent (Reis, 2009). Recent research also confirms the importance of parent-teacher collaboration in supporting children's musical development, which benefits not only the children but also parents who do not have a musical background or education (Kong, 2021).

The results of our research are consistent with Peterson's (2018) findings that family and teacher support are particularly important in the earlier stages of musical talent development. Wesseldijk et. al. (2021) confirm the important role of family factors in the period between the onset of musical training in childhood and skills in adulthood. In addition, Huisman Koops (2018) cites the crucial importance of family influence on a child's motivation to learn an instrument. Hallam (2002) also sets out the role of peers as one of the factors influencing a child's motivation. In this study, peers had very important influence on the development of T.K.'s musical talent in middle and late childhood and throughout adolescence. The influence of critical life events on T.K.'s musical development became moderately important in adolescence (15–17 years) and very important from late adolescence (18–20 years). In this regard, we can refer to Peterson et. al. (2009), who found that gifted students may face critical life situations (e.g., coping with stress, upsetting events and experiences in the home or school environment, school transitions, difficulties in interpersonal relationships, lack of self-confidence, behavioural problems, etc.) but persist in their high achievement in spite of these critical life situations.

4.2 Internal factors

At later stages of life, the importance of influence shifts to intrapersonal catalysts (Garret & Moltzen, 2011), as shown in our results. In adolescence (15–17 years), motivation, interest, passion, intellectual abilities, creative abilities, emotional intelligence, hard work, perseverance, perfectionism, perception, and in late adolescence (18–20 years) learning and working strategies and achievement motivation had an extremely significant influence on the development of T.K.'s musical talent. The influence of internal factors on T K's musical development increased with age and with the increasing influence of intrinsic motivation. Intrinsic motivation is the most important factor of enjoyment, persistence and musical self-efficacy in highly engaged students (Upitis et al., 2017). Pereira-Fradin & Dubois (2007) cite that motivation and passion play a key role in musical development and are indispensable for a student's musical performance. Focusing on fundamentals and hard work are also crucial for the development of musical talent (Kiewra & Witte, 2018). This was shown by our results because hard work had a moderately important influence on T.K.'s musical development from childhood onwards, escalating to extremely important influence.

The results of our research suggest that there are positive links between creative abilities and other internal factors. According to Kapliyenko-Iliuk (2019), creative tasks are realised through creative-psychological settings, among which emotions, intuition, reason, logic, rational principle, intelligence and fantasy play an important role. Based on our results, we can confirm the findings of Den Hartigh et al. (2016) that excellence comes from the dynamic interplay of interacting components, such as genetic endowment, motivation, practice and coaching. However, in the education of a contemporary music performer, it is essential to develop all of the elements of performance expression, such as technique, musicality, emotionality, awareness and artistry (Šeduikytė-Korienė & Meilūnaitė, 2018).

5 Conclusion

The results of our case study showed that some external factors (e.g., mother and family encouragement) had an extremely important influence throughout childhood. Meanwhile, in adolescence, in addition to external factors (mother, family encouragements and class climate), other internal factors began to come to the fore and thus had an extremely important influence on the development of T.K.'s musical talent (e.g., intellectual abilities, motivation, interest, passion, creative abilities, emotional intelligence, hard work, perseverance, perfectionism and perception). At the end of adolescence (18–20 years) and in early adulthood (20–25 years), in addition to all the internal factors mentioned above, learning and working strategies, and achievement motivation had an extremely important influence. These results are consistent with the findings of the case studies of a renowned organist Aleksey Vylegzhanin, which showed that external factors have a greater influence on the development of musical talent at earlier life stages, while internal factors have a greater influence later stages of life (Drovenik Adamec et. al., 2020). In addition, with sufficient support of environmental factors, the expression of the characteristics of musical talent intensifies over the years and becomes increasingly above average when compared to peers (Drovenik Adamec & Kovačič, 2022).

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