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Research Insights
Изследователски проникновения

PEDAGOGICAL CHALLENGES IN WORKING WITH STUDENTS WITH AUTISM SPECTRUM DISORDER – A QUALITATIVE INQUIRY INTO MUSIC EDUCATION

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Abstract. Music education is an essential segment of the Czech school system. The main aim of the paper is to present qualitative research that used a case study method to explore the interaction of a student diagnosed with autism spectrum disorder with the environment of an elementary school of art and to place the results of the research in the context of the legislative framework of elementary art education in the Czech Republic. The findings confirm the considerable potential of playing the musical instrument as a tool for the holistic development of students with autism spectrum disorders. In the discussion, we will outline proposals for modification of the methodology of teaching string instruments and present recommendations for institutions preparing a new generation of music teachers.

Keywords: autistic spectrum disorders; special music education; special educational needs; instrumental play

Introduction

The current inclusive paradigm is based on the idea that everyone is guaranteed access to education. This seemingly self-evident idea, however, is continually met with strong resistance from some members of the general and professional public. The acceptance of inclusive ideals is associated with very heated debates. For some, inclusion is a path to the heights of ideal education; for others, inclusion is a fall into the depths of devaluing the level of education. Moreover, we are talking about mainstream education. What is the situation of elementary arts education in a country that prides itself so much on its musical traditions, the Czech Republic?

It indeed cannot be described as ideal. The issue of music education for students with special educational needs is not one of the key topics of interest to the educational community. We can still encounter opinions that art, including music, is a privilege of the intact population, ideally the intact and talented population. It is as if arts education is resistant to inclusive models of education!

The main aim of this paper will be to present the research results that explore the possibilities of contemporary music and arts education for students with autism spectrum disorders. The paper will be divided into two main sections. First, we will present the theoretical background. We will discuss autism spectrum disorders. We will outline the situation of students with autism spectrum disorders in Czech elementary education and focus on Czech elementary art education. We will outline the fields of study that deal with the use of music and musical activities for children with special educational needs. We will also introduce the Czech elementary school of art[1] system. We will pay considerable attention to a review of current expert resources. We will describe the methodological design and identify the qualitative research model's benefits, advantages and limitations. The key part of the paper will be a detailed case study of an autistic student who has been performing well in a mainstream elementary school of art for a long time. In discussing the results of our research, we will identify the need to modify the educational approach and outline further research activities. We will conclude the paper with an appeal for a more intensive application of inclusive ideas to the educational reality of Czech art education and outline further research activities that we intend to implement in the near future.

Autism Spectrum Disorder

Autism spectrum disorders are complex neurodevelopmental disorders that manifest in a wide range of clinical symptoms and levels of impairment – APA (2017); WHO (2013); WHO (2019). There is currently a process of implementing a new version of the diagnostic manual, the International Classification of Diseases, 11th revision, ICD-11[2]. Here, autism spectrum disorder (ASD) is listed under the code 6A02. According to ICD-11, ASD is characterised by persistent deficits in the ability to initiate and maintain social interaction and social communication and by a series of restricted, repetitive and inflexible patterns of behaviour, interests or activities that are clearly atypical or excessive for the age and sociocultural context of the individual. The onset of the disorder occurs during the developmental period, usually in early childhood, but symptoms may not become fully apparent until later when social demands exceed limited abilities. Deficits are severe enough to disrupt personal, family, social, educational, occupational or other important areas of functioning. They are usually a pervasive feature of an individual's functioning that is observable in all settings, although they may vary according to social, educational, or other contexts. Individuals across the spectrum exhibit a range of intellectual functions and language abilities – WHO (2019).

The autistic triad

Three developmental deficit areas are common to all autism spectrum disorders, collectively called the autistic triad. These are the quality of social contact, communication, and repetitive behaviour, particularly in interests, activities, and play.

Social difficulties are accompanied by a significantly impaired ability to use appropriate nonverbal behaviour in various social situations (related to body posture, gestures, facial expressions, and eye contact) and an inability or reduced ability to form relationships with peers, taking into account the developmental level achieved. Children and students with autism have a reduced, sometimes even minimal, ability to spontaneously share joys and interests with others, to enjoy joint activities, and to lack shared attention.

The lack of social and emotional empathy, resulting in, for example, reluctance or inability to participate in simple social games, a preference for solitary activities, or, on the contrary, extreme social activity, a lack of perception of the needs of other people who can be used as helpers or "mechanical aids", leads to the deepening of problems and exclusion of children and students with ASD from everyday social life. Most affected people are interested in social contact but do not always know how to establish it. Problems arise from a lack of understanding of social contacts, the 'illegibility' of others' behaviour, and the inability to adapt to established norms. All of this is reflected in specific behaviours that may be accompanied by anxiety, feelings of chaos, and inappropriate reactions (Hodges et al., 2020).

Children and students with ASD have significant communication difficulties. Their speech development is either delayed or speech does not develop at all. Those so affected have problems in speech's expressive and receptive components. However, they often cannot compensate for their communication deficiencies through alternative means of communication (facial expressions, gestures, and other nonverbal means). Individuals who have developed speech are significantly impaired in initiating or sustaining meaningful conversations with others. Often, there are stereotyped and repetitive speech patterns or jargon. Varied, spontaneous and socially functional communication appropriate to the developmental level is lacking.

Repetitive behaviours can be observed in children with ASD, which is particularly evident in the areas of interests, activities and play. Deficits in imagination are particularly evident in the preference for activities typical of a younger developmental age. Often, there is a strikingly pronounced preoccupation with one or more abnormal activities in intensity or subject matter (e.g. astrology, meteorology, statistics, means of transport). Activities tend to be fixated on specific, non-functional rituals and routine work, sometimes manifested by an unreasonably prolonged preoccupation with objects or body parts. Many children and students with ASD have difficulty coping with change, and younger children may have panic reactions to minor changes such as changes in seating arrangements, changes in furniture, and changes in routes. These problems are mainly related to reduced adaptability and

lower flexibility of thinking and behaviour. Some people develop stereotypical and repetitive motor manoeuvres such as shaking or wiggling movements of the hands and fingers or complex specific movements of the whole body.

The issue of ASD has become the subject of increased research interest in recent decades (Guldberg 2010; Šporclová, 2018). A recently published study conducted in the USA reports that in a population of 8-year-old children, 1 in 36 children have been diagnosed with ASD, representing approximately 2.8% of this age group (Maenner et al. 2023). The finding from this research is considerably higher than global average estimates, which typically range from 1.5% to 2%. Such a high prevalence value points to possible differences in the quality of diagnostic methods in the US, and we can also point to the increased awareness of ASD in society there, as well as potential environmental and genetic factors that may influence the prevalence of ASD. We see this difference as an acknowledgement of the uniqueness of individual societies, which is somewhat forgotten in today's globalised world. Although it is an identical diagnosis, it is challenging to fully apply the American understanding of ASD to Central European conditions and vice versa. We can take inspiration, not unthinkingly copy.

Furthermore, there is a statistically significant difference in the frequency of ASD between the sexes, with ASD being four times more common in boys than in girls. This gender disparity can be explained by several theories, including biological and neurodevelopmental differences that may make boys more likely to develop ASD. In the Czech Republic, it is estimated that between 1 500 and 2 000 children are born with ASD each year. The development of diagnostic and intervention strategies is continually evolving, to provide the most effective support for individuals with ASD (Kabot et al., 2003; Wilson, 2013). Research in this area is essential to further understanding the aetiology of ASD and to refine approaches to improve the quality of life of affected individuals and their families (Ospina et al., 2008).

ASD in the Czech educational system

In the 2023/2024 school year, 122,822 students with disabilities were registered in Czech elementary schools[3], including 4,399 diagnosed with autism spectrum disorder - MEYS (2024). Integrating students with ASD into mainstream schools is central to inclusive education, promoting equal opportunities while adapting learning environments to individual needs (Bazalová, 2017). Schools in the Czech Republic cooperate with pedagogical-psychological counselling centres[4] and special education centres[5]. However, challenges remain in identifying the needs of students with ASD and providing adequate support services.

Schools must implement effective strategies for educating students with ASD, such as individualised education plans, visual supports, structured learning, and therapies to develop social and communication skills (Anderson, 2020). Teacher preparation is equally vital. Ongoing professional learning should equip educa-

tors with knowledge about ASD and practical skills to adapt teaching methods and materials. Individualised attention and tailored instructional strategies are critical for addressing diverse student needs (Mateos-Moreno, 2013; Fong and Lee, 2012).

Despite these challenges, integrating students with ASD brings benefits. Students gain from peer interactions, while classmates develop empathy and an appreciation of diversity (Van der Steen et al., 2020; Osgood, 2023). Inclusive programs enhance social adaptation and educational success for students with ASD. The Czech education system must address these demands with a coordinated approach to ensure quality conditions for inclusive education.

Theoretical background

Music education, music therapy, and musicophiletics are key fields addressing the needs of children with special educational needs, including ASD. Music education for these children is primarily discussed in Anglo-Saxon literature, while it is becoming a more prominent topic in the Czech Republic. Yanochkova (2020) offered valuable insights into the foreign perspective on music education for students with special needs and ASD. Our earlier research highlights the positive impact of music education on developing educational and social skills in children with special needs (Daněk, 2023). Similarly, Kmentová (2015) developed a specialised approach to using music education to support speech development in these children. However, educators often face challenges adapting curricula for special needs students, partly due to inadequate preparation during their studies (Merck and Johnson 2017). This issue is particularly evident in the differing curricular practices between mainstream and elementary schools of art, focusing more on instrumental training.

Music therapy is a rapidly developing discipline that uses musical interventions to achieve therapeutic goals – AMTA (2005). Its evolution is shaped by local customs, sociocultural environments, and the influence of various music therapy schools (Kantor et al., 2009; Gerlichová, 2014).

Musicophiletics has emerged in the Czech Republic in the last decade, emphasising creative and reflective approaches to music in education. This discipline aims to enhance cognition and self-knowledge through musical activities, exploring the self, others, and the world (Friedlová et al., 2020). Its growing popularity stems from music educators' interest in integrating music therapy elements into education. However, its future role and ability to address educational challenges remain open questions.

There is extensive literature on music education opportunities for ASD students. Notable contributions include works by Adamek and Darrow (2005), Drapper (2022), Scott (2016), and Hammel and Hourigan (2013). Music and ASD are increasingly recognised as global topics (Elsabbagh et al., 2012), exemplified by

research from Japan (Kunihira et al., 2006). A recurring theme in the literature is that music educators are not sufficiently prepared to work with special needs students (Bernard, 2023). Thus, exploring the educational realities of Czech elementary schools of art has relevance beyond Central Europe.

Research problem: ASD in the context of music education in the Czech Republic

Although numerous publications suggest that the intersection of ASD and musical activities has been well-covered, our research targets an unexplored area: the situation of ASD students in music education within the Czech Republic. The Czech art education system is distinctive, notably its network of elementary schools of art fully integrated into the formal education system. As the inclusion of students with ASD increases, it is crucial to examine how many such students attend these schools, whether they have undergone professional diagnoses or exhibit ASD traits. Insights into the practices and experiences of Czech music teachers working with ASD students remain largely unmapped.

For this article, we focus on the educational reality of a Czech elementary school of art and the case of a student with ASD who excelled at playing the double bass. This case stems from long-term experience shared by a music teacher.

We approached the research problem interdisciplinarily, involving a music education specialist, a special educator, and an expert in Czech elementary music education. All team members are active musicians and have professional and practical experience in the Czech system. By combining music and special education perspectives, we aim to uncover insights that might be missed in a single-disciplinary approach.

We chose a case study as the primary research method. A case study involves an in-depth analysis to generate new knowledge and theories, rather than summarising information (Chrastina, 2019). This qualitative method includes document analysis, direct observation, and interviews (Bakan, 2018). It is highly flexible, accommodating typical and atypical cases, and particularly suitable for longitudinal and interdisciplinary research (Carter, 2024).

The strength of this approach lies in its ability to provide a deep understanding of phenomena without strict standardisation of methods (Crowe et al., 2011). This flexibility enables diagnostic and exploratory studies (Rashid et al., 2019; Yin, 2014). However, the lack of standardisation and the researcher's direct interaction with the subjects may influence the data and limit generalizability (Chrastina, 2019). Despite these challenges, the case study method is invaluable for exploring pedagogical issues, offering detailed insights within the natural context of the target group (Izen et al., 2023). Given our focus on understanding music education patterns for ASD students, the case study approach is highly appropriate (Kim et al., 2009).

Limits of research, ethical aspects of research

The main limitation is the difficulty of generalizability, but the depth of new knowledge balances this. Furthermore, we were aware of our intensive contact with the student under study. This could lead to subjective conclusions. We eliminated this danger by creating a research team in which two researchers objectively analyse and control the information captured during the research activities by the researcher operating in the educational reality under study. During our research, we were aware of the ethical aspects of the research. All information is presented anonymously, and tracing the boy's identity from the case study is impossible. We understood informed consent as an essential fact during the research. We obtained it not only from the boy's legal guardians but also from the boy himself. After conducting the research, we presented the results to everyone involved and obtained their consent to publish our findings.

Case report and findings of the case study

The subject of this case report is a 16-year-old boy diagnosed with autism spectrum disorder. The boy is in his ninth year at an elementary school of art where he plays the double bass. The student grows up in a supportive family environment and, in addition to a sustained and intense interest in playing the instrument, he also shows an interest in transport and technology in general. The student attended a mainstream elementary school but transferred to a school for students with special educational needs[6] for the last two years of his attendance, where he completed his compulsory schooling. Currently, he is attending the second year of the secondary school of horticulture, where he is – according to his own words – satisfied and is mastering both theoretical teaching and practical teaching, implemented on work experience in the school garden.

In personality terms, he is withdrawn and shy, with difficulties asserting himself among his peers. At the same time, however, he is friendly and helpful to his surroundings. This characteristic can be well documented in the context of his artistic education, which is mainly based on individual tuition and participation in small groups of children of different ages. In contrast, in a familiar environment – the boy feels more secure.

Since the age of seven, he has attended an elementary school of art, where his parents brought him based on his interest in the double bass. From the beginning, the boy has pursued all his musical activities with his parents' constant and very empathetic support. However, the parents have no musical training and have never participated in music as amateurs. Only in the early years of attending elementary school of art did they help the boy practice his elementary skills at home; otherwise, all progress is due to his efforts and diligence. The question of home training is somewhat obscure. From interviews with the boy and his parents, we know that he plays at home frequently and happily, but we have no relevant information on how he practices and, if so, whether he follows the instructions given in class.

The educational process has been specially adapted to reflect the specific needs and abilities of the student, with an emphasis on supporting his individual and emotional development. As indicated above, he came to the school intrinsically motivated and perhaps literally fascinated by the double bass, especially its sound. In keeping with his personality characteristics, he was not a typical inquisitive child experimenter at the beginning of his lessons. However, he allowed himself to be guided through this discovery process naturally and non-violently. For this reason, there was no need to divide the lesson (45 min) into two short units on different days, as is often the case with seven-year-old students. Thanks to his motivation, the boy managed the whole lesson with full concentration from the beginning, and in the last three years, the same has been confirmed for the 90-minute lesson.

During his years of attendance at the elementary school of art, his instrumental lessons are implemented in the form of clearly structured teaching units: It starts with the "ritual" of greeting and preparing the instruments (he plays both electric and acoustic double bass), continues with playing bass lines to songs from the field of popular music and jazz (to some extent they replace etudes and technical exercises and are further used in public performances) and then we move on to playing the acoustic double bass (from etudes and technical exercises to the final phase of the teaching unit – practicing recitations). Playing the instrument with the teacher's singing has been very successful in the first two years. Given the initial very small scale of the max. major third, the repertoire consisted of elementary exercises-songs reflecting the student's text or, depending on the current level of playing, exercises based on well-known songs. Although the boy persistently refused to sing, he remembered the exercises years later and could repeat them with vigour. Suppose there are changes in the organization and structure of the lessons. In that case, it is tried to inform the boy in advance what the lesson will look like (a typical example is the accompaniment with the pianist). Particularly at a younger age, it was evident that even minor changes were unpleasantly 'surprising'. It sometimes led to a loss of concentration and a general reduction in the level of playing in the lesson.

Visual demonstrations, detailed verbal instructions and pragmatic analysis of the musical material proved effective methods, enabling the student to learn and improve his musical skills effectively. Thus, from the beginning of teaching to the present day, all the elements of playing need to be demonstrated and verbally described (usually repeatedly) and structured (e.g. divided into right and left-hand actions). A significant help in this respect is his excellent long-term memory, which allows him to direct his attention to other aspects of the game and to be able to master the necessary hand movements precisely (this is more evident in the position of the left hand on the fingerboard and, consequently, in the relatively precise intonation). The weaker aspects of the boy's playing of the instrument undoubtedly include, above all, the question of the emotional experience associated with the reproduction of the

musical work and then also the impaired coordination of movements affecting the ability to play at faster tempi (we believe that this may be related to the boy's care and the desire not to make any mistakes, if possible).

The process of transformation of communication during his attendance at the elementary school of art can be described as a several-year journey from the initial almost exclusive speechlessness and closedness to the last four years, when significant changes have taken place in the sense of a more pronounced will to communicate with the environment (teacher and closest teammates). Even so, we must remember that his verbal communication has limits and limitations. Communication is not very immediate and is very often driven by the desire to assure oneself of the correctness of thinking and acting and, in the instrumental teaching environment, of the correctness of the technical aspects of playing, and is, therefore, sometimes repetitive. His interactions with the environment vary more frequently with the teacher of the primary discipline – the instrument – and the other teachers and students he encounters.

As part of this elementary school of art regular activities, the boy participates in group lessons, competitions and concert performances, contributing significantly to his social integration and musical development. In past years, he has played in a string ensemble, is currently a member of a dulcimer band, and participates ad hoc in an annual trio reproducing popular songs. In addition, he regularly performs as a soloist at school and after-school concerts and events. His participation in music competitions and public performances shows his ability to overcome some of the social and emotional barriers associated with his diagnosis (Mazurek, 2023).

His strong motivation and ability to concentrate enabled the boy to cope with time-consuming and physically demanding rehearsals and performances during his participation in the Janáček Philharmonic Orchestra Ostrava[6] project with students of elementary schools of art. Surprising was also the playing readiness, quick orientation in the music notation and the ability to echo the playing of a teammate, a member of the Janáček Philharmonic Orchestra Ostrava, when he (understandably, not with 100% certainty, and on the contrary, with more than one mistake) joined the parts of the piece he was playing for the first time. A similarly positive experience is the feedback of the teacher - the leader of one of the school ensembles, who highly appreciates both the technical level of the boy's playing and his intonational confidence and rhythmic precision. This teacher also highlights the boy's consistency and reliability in attendance at rehearsals and commitment to playing, which he regularly demonstrates and, to some extent, becomes a role model for other students in this respect.

Another recent successful pedagogical intervention – regular contact between a student with ASD and an eight-year-old beginner classmate – has also allowed skills that would otherwise have remained hidden to emerge: it has become clear

that the boy with ASD can intone vocally well. Until then, he had never (even at his younger age) been motivated to sing or make similar vocal expressions. His musical ear quality was mainly demonstrated by his precise and confident intonation when playing an instrument. He tries to be a friend and helper to his younger classmates.

Given his current level of arts education, we feel more strongly the limitations resulting from the boy's difficulty in experiencing and expressing emotions, which is typical of individuals with ASD. Nevertheless, music is a key way for him to express and process his emotions (Mazurek, 2016).

The elementary arts school provides an inspiring environment for students to develop their musical talents. The boy has made significant progress in his musical education. In addition, he shares the same interests with others and fully participates in a standard (musical) activity, which strengthens his sense of belonging with others and certainly his self-esteem. From this point of view, his artistic education is in line with the school's curriculum and that the school emphasises inclusive education, enabling the student to participate fully in all events and activities on a socialization with his peers.

Discussion of the results to date

This research benefited from the intensive involvement of a team member in the music education process of a student with ASD (Mazurek, 2016). Long-term contact with the subject is crucial in qualitative research, enabling the researcher to capture subtle details that might remain hidden (Daněk, 2023). Social interaction deficits, communication challenges, and imagination problems form the autistic triad (Mirkovic and Gérardin, 2019). These characteristics can make music education in a standard elementary school of art environment appear nearly impossible for students with ASD. Music education requires social interaction with teachers, effective communication for detailed instruction, and imagination for playing an instrument (Simpson and Keen, 2011).

The presented case study highlights the challenges faced by students with ASD in music education, including visuomotor coordination issues, memory difficulties, and low self-esteem, all of which impact educational and social competence. Special education interventions and tailored support strategies are essential to improving performance and well-being. Previous research has consistently demonstrated the positive impact of music education on students with special needs. Music education should not be confined to music therapy (Gerlichová, 2014; Friedlová et al., 2020). Long-term, individualised (special) music education plays an irreplaceable role in supporting these students.

While discussions often focus on the benefits that students with ASD gain from music education, it is equally important to recognise their contributions to the educational space. This research also identifies areas where students with ASD have enriched music education for others.

Benefits to the student:

– the acquisition of the particular and socially valued skill of playing the double bass,

– the acquisition of musical skills that enable them to interact with and through music in personal leisure time and collective activities,

– the acquisition of communication skills on the basis of long-term and regular contact with a defined range of people in a safe and stable environment,

– the acquisition of social skills linked to presentation in performances and concerts.

Benefits for the teacher:

– extending the range of instrument teaching methodologies to include approaches and practices that are effective with other students,

– acquiring information, social and communication skills in interaction with a student with ASD that are applicable in other situations,

– embedding an inclusive approach to arts education and society in general.

Benefits for other students:

– opportunity to acquire information, social and communication skills in interaction with a student with ASD applicable in other situations,

– opportunity to foster an inclusive attitude towards society in general.

Conclusion

The current curriculum document covering basic arts education in the Czech Republic provides sufficient space to implement music education for students with specific educational needs and that a carefully structured and sensitively adapted educational approach can significantly contribute to their overall personal development. Music education plays an irreplaceable role here, as it supports intellectual and emotional development in parallel with the fulfilment of musical goals and becomes a bridge to social integration and personal fulfilment. We see this as an affirmation that music education can and should be accessible and adapted to all, regardless of individual challenges. The case study presented here and its findings are a good example of this in practice.

An obstacle to the more frequent implementation of the inclusive paradigm in elementary arts education appears to be the lack of training in special education and special music education of future and current elementary art educators in the Czech Republic. Supplementing the content of didactically oriented courses should affect students of conservatories[7] and relevant universities of education and art with regard to the acquisition of professional qualifications. Similarly, we see untapped potential in informing special educators working in pedagogical-psychological counselling centres and special education centres about the possibilities and benefits of arts education in elementary schools of art. The level of mutual awareness of learners will be the subject of further research by the research team and the next step in promoting the accessibility of music education without barriers.

NOTES

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