

SPECIFICS OF TEACHING MUSICAL INSTRUMENT PLAYING TO STUDENTS WITH AUTISM SPECTRUM DISORDER

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Abstract

Currently, we are observing an increase in the number of students with special educational needs in elementary art education. Students with autism spectrum disorders are no exception. The primary objective of this paper is to present the results of qualitative research that has been mapping the interaction of these students with the environment of an elementary school of art. The findings confirm the considerable potential of playing musical instruments as a tool for the holistic development of students with autism spectrum disorders. In the discussion, we will outline suggestions for modifying the methodology of teaching string instrument playing and present our planned research activities.

Keywords

Autism spectrum disorder – special music education – special educational needs – learning to play a musical instrument

Introduction

The current inclusive paradigm is anchored in the idea that everyone is guaranteed access to education. This seemingly self-evident idea is constantly met with strong resistance from the general public, often even from professionals. It is as if society is divided into educable and uneducable groups, and the educational process is designed exclusively for trouble-free individuals who perform well and do not require any support. Moreover, we are talking about mainstream education. What is the situation in the field of elementary arts education? It indeed cannot be described as ideal. The issue of music education for students with special educational needs is not one of the key issues. The main aim of this paper will be to present the research results to date, which explore the possibilities of contemporary music and arts education for students with autism spectrum disorder. The paper will be divided into two main sections. First, we introduce the theoretical background. In this part of the paper, we will discuss autism spectrum disorder and summarise the available literature on music education for students with this diagnosis. We will define these fields that are concerned with the use of music and musical activities for children with special and educational needs. Then, there will be space to introduce the methodological design of our research, the interdisciplinary research team, the research areas, and the research questions presented. A key part of the paper will be a detailed case study of an autistic student performing well on the double bass for a long time in a mainstream elementary school of art. In discussing the results of our research to date, we will identify the need to modify the educational approach

and outline further research activities. The paper will conclude with an appeal for a more intensive application of inclusive ideas to the educational reality of Czech art education.

Theoretical background

In this part of the paper, we will address the issue of autism spectrum disorder, highlight the difficulties faced by the Czech education system in its efforts to include students with autism spectrum disorder, and, in particular, specify the focus of our research activities. We will define the different disciplines that intersect autism spectrum disorder and music in their activities and thus precisely identify the target area of our research.

Autism spectrum disorder (ASD)

ASD are complex neurodevelopmental disorder that manifest in a wide range of clinical symptoms and levels of impairment (APA, 2017; WHO, 2019). The issue of ASD has become the subject of increased research interest among professionals in recent decades (Bazalová, 2017; Šporclová, 2018). A recently published study conducted in the USA reported that in a population of 8-year-old children, 1 in 36 children were diagnosed with ASD, representing approximately 2.8% of this age group (Meaner et al., 2023). This finding is considerably higher than global average estimates, which typically range from 1.5% to 2%. This high prevalence of value points to potential improvements in diagnostic methods, increased awareness of autism spectrum disorder in society, and potential environmental and genetic factors that may influence the prevalence of ASD. There is also a statistically significant difference in the frequency of ASD between the sexes, with ASD being four times more common among boys than girls. This gender disparity may 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 understand the aetiology of ASD further and to refine approaches to improve the quality of life of affected individuals and their families (Ospina et al., 2008).

ASD in the Czech education system

In the 2023/2024 school year, a total of 122,822 students with disabilities were registered in Czech primary schools, of whom 4,399 students were diagnosed with autism spectrum disorder (MoEYS, 2024). Integrating students with ASD into mainstream schools is a key element of inclusive education. This approach promotes equal educational opportunities for all students while emphasising the importance of adapting the learning environment to meet the specific needs of individuals. The challenges posed by this model are considerable, particularly in the context of correctly identifying the needs of students with ASD and providing appropriate support services.

Regarding pedagogy and school practice, schools must focus on specific, effective educational strategies for students with ASD. This approach may include individualised learning plans, special teaching methods such as visual support or structured learning, and integrating therapies to develop social and communication skills. Another important aspect is the professional training of teachers. For teachers to work effectively with students with ASD, they must have access to ongoing training and support. This training should include not only specific knowledge about ASD but also practical skills in adapting teaching methods and materials.

Despite these challenges, the integration of students with ASD brings several potential benefits both for the students themselves and for the wider school community. Students with ASD benefit from interaction with peers, while other students can develop empathy and an understanding of the diversity of human experience (Osgood, 2023). It is also important to promote inclusive educational programs that allow for the integration of children with ASD into mainstream school classrooms, thereby promoting their social adaptation and educational success. It is clear, therefore, that the Czech education system faces the challenge of including students with ASD in mainstream education and ensuring quality conditions for their education, which requires a coordinated approach at all levels of the education system.

Research problem: ASD in the system of Czech elementary art education

As far as music, music education, and music activities for children with special educational needs are concerned, several separate disciplines are devoted to the issue: music education, music philetics, and music therapy. Music education for children with special educational needs is treated mainly in international literature, with key works by Mary Adamek, Alice-Ann Darrow, Alice Hammel, and Ryan Hourigan. In the Czech Republic, experts such as Olena Yanochkova, Milena Kmentová, and Jiří Mazurek are beginning to address this issue more intensively. Our previously implemented projects show the positive impact of music education on the development of educational and social skills of children with special educational needs (Daněk, 2023). However, some educators face challenges adapting curricula for children with special needs, which may result from insufficient preparation during their studies (Merck & Johnson, 2017). This shortcoming relates in particular to the difference in educational guidelines between mainstream schools and elementary schools of art, where pedagogical practice and focus on instrumental playing differ. As a dynamically developing discipline, music therapy represents the clinical use of musical interventions to achieve specific therapeutic goals (AMTA, 2005). Its development is strongly influenced by local customs and socio-cultural environments of different countries, with significant contributions (Kantor, 2009; Gerlich, 2014). In addition to music therapy, music philetics, which focuses on creative and reflective approaches to music in education, has also developed in the last decade. This discipline seeks to deepen cognition and self-knowledge through music and is characterised by its use to explore self, others, and the world (Friedlová et al., 2020). Music therapy is gaining popularity due to music educators' interest in integrating music therapy elements into music education. The question remains how music philetics will profile itself in the future and how effectively it can cope with the practical challenges of the educational environment.

There is a wealth of resources available to us regarding the possibilities of music in the field of students with ASD, but unfortunately, they are mostly foreign. Excellent texts have come out of the work of Draper (2022), and we are offered very stimulating insights by Scott (2016) and the aforementioned Hammel and Hourigan collective. ASD and music activities are emerging as a global theme (Elsabbagh et al., 2012), as can be demonstrated by work from the Japanese setting (Kunihira et al., 2006).

Objective and methodology of the research

Although it might seem that the issue of ASD and musical activities has been treated in detail, our research will target an area that has been entirely outside the mainstream of research to date. The Czech arts education system is quite specific. We must realise that the Czech network of elementary schools of art is an exceptional system. It is not merely an informal education or hobby activity but an artistic educational reality and a full-fledged part of the Czech school system. Moreover, since art education cannot be seen as an isolated area, it is legitimate that the number of students with ASD will also increase. This is the research area we intend to address. How many students in elementary schools of art have ASD? How many students have an official diagnosis, and how many merely show signs of ASD? What experience do music educators have in working with these students? What methods and approaches do they use? What outcomes can be achieved for students with ASD? To what extent can the domestic arts education system be modified to meet the needs arising from the nature of ASD? These and other questions call for exploration. We have marked the phenomenon under investigation in the educational reality of the Czech elementary school of art and students with ASD. For this phase of the research, we were inspired by a significant experience from practice when the opportunity arose to intensively process the long-term experience of a music teacher with his student, who achieved interesting results in playing the double bass despite a diagnosis of ASD.

We decided to approach this research problem in an interdisciplinary way. We initiated a collaboration between Jiří Mazurek and Alois Daněk. Mazurek is an erudite expert in music education, while Daněk is in special education. Both researchers have several music education and special education projects under their belts; moreover, Mazurek is an active double bassist and teacher at an elementary school of art, and Daněk used to play the cello professionally. Looking at the issue under study from two different disciplines, i.e., from the perspective of music education and special education, will allow us to capture facts that might remain hidden in a mono-disciplinary view. We modified the qualitative research model based on interviews, observations, and pedagogical experiments as part of our research design. The information obtained will then be processed using grounded theory and interpretive phenomenological analysis. This research design has proven successful in our previous research and has demonstrated the ability to capture detailed and accurate information (Daněk, 2023). Casework plays a significant role in our research. Case studies are one of the important research tools (Patnaik & Pandey, 2019).

Case study

The subject of this case study is a 16-year-old boy diagnosed with autism spectrum disorder who has been attending an elementary school of art for nine years, 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 double bass, he also shows an interest in transport and technology in general. In the educational process, he has been diagnosed with autism spectrum disorder. He is currently attending the first year of the secondary school of horticulture, where, according to his own words, he is happy and coping with theoretical and practical teaching, carried out on work experience in the school garden. The student had previously attended a mainstream primary school. However, for the last two years of his primary schooling, he transferred to a school for students with special educational needs, where he completed his compulsory schooling. In his personality, he is described as withdrawn and shy, with difficulties asserting himself among his peers. Since the age of seven, he has attended an elementary school of art and, apart from individual instrumental lessons, during his attendance, he gradually joined a string ensemble and later the school cimbalom band through the school curriculum. The boy usually does not show high social interaction with his peers during school activities. At the same time, he has difficulties with experiencing and expressing emotions, which is typical for individuals with ASD. Music is a key way for him to express and process his emotions, even though his emotional response is limited (Mazurek, 2016). The educational process has been specifically adapted to reflect the specific needs and abilities of the student, with an emphasis on supporting his individual and emotional development. Visual demonstrations, detailed verbal instruction, and pragmatic analysis of musical material have proven effective methods, enabling students to learn effectively and improve their musical skills. The elementary school of art provides an environment where the student can develop his/her musical talents. As part of the regular activities of this type of art school, he regularly participates in individual and group lessons, competitions and concert performances (Mazurek, 2023), which contribute significantly to his social integration and musical development. The school emphasises inclusive education, enabling the student to participate fully in all events and activities on a par with his peers. The boy has made significant progress in his musical education and displays musical abilities hidden from the environment, given the abovementioned personal characteristics. For example, it was “only” in the last year, when he was purposefully put in contact with another student who was starting to play the double bass at the age of eight, that the student we observed was able to intone well. Until then, he had never (even at his younger age) been motivated to sing or make a similar vocal expression. His successful 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). Contact with a significantly younger classmate speaks to his tendency to become a friend and helper.

Recommendations for practice

By the majority group of so-called intact students, we can state that the teaching of playing a musical instrument must be individualised and respectful, even for students with disabilities. This is in the (musical) pedagogical sense, taking into account, as in the case of the

intact majority, the issues of the level of musical abilities and musical interests, which are always involved in the student's musical profiling and the motivation for musical education itself, and consequently also influence the level of musical education about the outcomes of the school curriculum. In the case of a group of students with disabilities, these requirements and demands placed on the music teacher are supplemented by those that fall within the field of special education, the knowledge of which is part of the standard professional equipment of special educators and, to a large extent, nowadays also of other teachers working in mainstream primary and secondary schools. At the same time, we would like to point out that we are always talking about music education and not about the therapeutic effect of music on the individual. There is no doubt that the active practice of music and listening to it brings with it automatic effects that, at least in part, also correspond to art therapy objectives. However, the effect of music conceived in this way is not the subject of our interest, nor does it correspond to the goals of artistic (music) education formulated in curriculum documents. This fact, of course, also applies to the question of the music teacher's approbation of carrying out art therapy activities, which is not addressed here at all.

In the area of teaching organisation, we see the key need to prepare a predictable and safe environment for students, i.e. The following parts of the lesson have proven to be successful in our case study: the implementation of bass lines and accompanying patterns to songs chosen, if possible, based on an agreement with the student and designed to expand the student's skills both in terms of the technical level of playing and his knowledge of the basics of harmony; the playing of scales and etudes and technical exercises; and the final part of the lesson reserved for work on compositions, possibly also intended for rehearsal with piano accompaniment. We established this model after about 5 years of the boy's attendance at the elementary school of art. Since the boy's 7th grade, i.e., for the last four years, we have been structuring the lessons in this way, also in the so-called extended lessons, which last 90 minutes.

Especially in the first years of teaching, the boy reacted to all changes during the lesson with nervousness and restlessness, but always without any hint of aggression. There was no need to deal with this at an older school age. The facts described at the boy's younger age helped bring calmness to the lessons and, therefore, supported his psychological well-being. Thus, they also strengthened and prolonged his concentration of attention.

Issues of communication with a student with autism spectrum disorder bring specific demands to teaching. As this is individual teaching, it is, of course, impossible to redirect teaching to another communicator in case of communication difficulties. However, verbal, non-verbal, and 'musical' communication occurs within the teaching unit. Here, based on many years of observation, we note a shift from one-sided communication by the teacher, which was almost always left unanswered, to the present day, where verbal communication takes place within lessons on topics related to both double bass playing issues and topics related to the boy's everyday life, school and technical interests (e.g. car and bike repairs).

In the beginning, communication was not easy – the boy did not respond at all, only to a minimal extent, by showing his agreement and disagreement. Moreover, at such moments, he carefully avoided looking at the teacher, even when the teacher demonstrated the specific requirements of playing the instrument or talked about them. It was true that despite his apparent lack of interest in communication, the boy consistently demonstrated through his playing that he knew what was going on, i.e. he perceived the communication, even though he refused to participate actively. At the same time, it should be noted that

communication had to be freed from hyperbole and abstraction and, on the contrary, always made as concrete as possible and accompanied by practical examples.

This brings us to the question of the content and forms of teaching the instrument. For this area, we stress – in accordance with the facts described above – the need for maximum possible illustration and concreteness about the individual demands of playing the instrument (which, of course, is not in general contradiction with the teaching of instrumental playing to all students). In the case of the student we have studied, who is very intrinsically motivated to play the double bass and is indeed very intensively engaged in it, we make the following recommendations for teaching. First, we see the need to separate the teaching of the various technical aspects of playing and introduce and practise them in a structured way, always in the context of the current repertoire. In conjunction with this, they also devote sufficient time to consolidating and automating the skill and integrating it into the player's portfolio of skills. Again, referring to our long-term experience, achieving a lasting effect in this way is possible, i.e., a solid acquisition of specific playing skills.

Relying on good memory proves to be an important element of teaching from the beginning. The boy still remembers perfectly the arrangements he used to play at the very beginning of his attendance at the elementary school of art. Above all, he is able to master his repertoire by memory in a short period of time, which gives him the space to pursue other aspects of his playing in a more detailed way.

At the end of this part of the text, we keep the factors that influence the quality of instrumental playing, but they result from personal dispositions and (so far?) we have not been able to find a way to improve them. These are the awkwardness of the movements, which, if we are talking about the right hand, does not allow us to master the quality of playing the more complex bows (i.e. *spiccato* or *sottié*). In the left hand, this fact similarly reduces the ability to play more complex moves at faster tempos, regardless of tonal range. The "culprit", in our opinion, is mainly caution and the desire to avoid mistakes and to master the instrument as perfectly as possible. Such a constraining approach is understandably limiting and fails to remove for a long time, either by detailed rehearsal or by creating a safe environment and avoiding stressful situations.

Similarly, the question of experiencing emotions in music and expressing them through playing can also be mentioned. At the moment, this question also represents a complicated boundary to cross. We observe that – probably also because of the caution described in the previous paragraph – we are not able to bring the student to the point of being able to express emotions through playing. It seems evident to us that this is a part of instrumental playing that he cannot achieve at the moment and incorporate into his musical expression. This is even though it is quite evident throughout the boy's musical education, as well as the personal engagement and interest with which he pursues the double bass.

Apart from emotionality, we cannot improvise and have independent creativity in teaching. Teaching is almost exclusively based on learned and written patterns (fingerings, bowing, dynamic and agogic changes, etc.), and the student is unable to modify them independently. The moment he learns them or the moment he makes a mistake, uncertainty and nervousness manifest in his behaviour.

At the very end of this part of the text, we will mention one more indisputable part of the pedagogical process: patience. Today, the boy's long history of art education shows us that he can achieve similar results and goals as most intact students. However, the way to reach them is through constant repetition in the form of verbal instruction, demonstration, and

active playing. In this way, long-term results can be achieved. Similarly, from the teacher's point of view, the pedagogical process needs to be accompanied by an effort to recognise in advance possible stressful situations (in our case, unexpected changes in the course of the lesson or the "danger" of frequently repeated mistakes) that make classroom work difficult. In such moments, the student is focused on his experience and cannot concentrate on playing the instrument. A great help in such moments is that, in recent years, he has become aware of these situations and is able to point them out himself.

Conclusion

The case study presented here illustrates the challenges a student with ASD may encounter in music education. Reported difficulties, such as problems with visuomotor coordination, memory, and low self-esteem, significantly impact educational and social competence. These results underscore the need for an individualised approach and adaptation of educational strategies to effectively address the unique needs of each student (Mateos-Moreno, 2013; Fong & Lee, 2012). It was evident that special education interventions and support strategies are essential to improving student achievement and overall well-being. A carefully structured and sensitively adapted educational approach can significantly contribute to the overall personal development of students with special educational needs. Music education plays an irreplaceable role here, as it supports intellectual and emotional development and becomes a bridge to better 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.

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