ISME

INTERNATIONAL SOCIETY FOR MUSIC EDUCATION

IDEAS

IDEAS in Music Education and Music Therapy:
Inclusion, Diversity, Equity, Accessibility, Sustainability

Proceedings of the
ISME Special Music Education and Music Therapy
Commission Pre-Conference Seminar

In collaboration with
The University of Helsinki and Music Centre Resonaari

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Commissioners

Chair – Matthew Breaden, Australia

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Melissa Bremmer, Netherlands

Erik Esterbauer, Austria

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ISME Board Liaison

Jessie Chen, Taiwan

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Kati Näsälä, Music Centre Resonaari

Mari Tervaniemi, Faculty of Educational Sciences, University of Helsinki

About the Commission

Mission Statement

The Commission on Special Music Education and Music Therapy strives to contribute to any field of practice that examines the relationship between music, education, health, and well-being through the promotion of inter-disciplinary dialogue and exchange between practitioners and scholars.

History

The Commission was established in 1974 in order to support and shape the development of special music education and music therapy internationally. Originally named the Commission on Music in Special Education, Music Therapy, and Music Medicine, the Commission formally changed to the current iteration in 2014.

Core Values

The Commission aims to promote the role of music to foster physical, psychological, social, and spiritual well-being across the lifespan by:

- providing an international forum for the exchange of ideas within special music education, music therapy, and other related professional fields, and their place within different cultural contexts;

- increasing the visibility of research and best practice within special music education, music therapy and other related professional fields;

- stimulating international research networking and the initiation of international practice and education projects between commission members;

- sharing contemporary technologies, equipment, and methodologies that enhance the musical lives of children and adults requiring special support;

- providing support via networking for music educators, music therapists, and others in related professional fields; and

- informing funders and policy makers and advocating about the role of music for children and adults requiring special support.

Vision

The Commission's vision is to:

- promote understanding of the unique roles and scope of special music education and music therapy in different countries and regions of the world;

- improve professional training and education of practitioners working in special music education and music therapy;

- promote the interdisciplinary exchange of how to best meet the music, education, and health needs of children and adults requiring special support;

- share international perspectives on the current research in special music education, music therapy, and other related professional fields;

- to promote the educational, therapeutic, and health benefits of music across the lifespan;

- nurture musical talent in children and adults requiring special support by sharing international practice, research, and training initiatives;

- promote and advocate for students requiring special support to ensure they are afforded the same quality music education and access to music more generally as that of typically developing students; and

- share international practice, research, and training initiatives around special music education, music therapy, and other related professional fields.

Editorial Note

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The 2024 ISME pre-conference seminar on Special Music Education and Music Therapy took place in July 2024. This was the first full in-person gathering of the commission since 2018. In 2020 the seminar (along with the main ISME Conference) was due to be held in Helsinki, Finland. However, this event was cancelled due to the COVID-19 pandemic in that year. In 2022 the ISME Conference (and our Commission Seminar) was sue to be held in Brisbane, Australia; once again this event was also cancelled due to ongoing concerns about the pandemic. It was wonderful to finally gather in Helsinki in July 2024 - particularly as Helsinki was the planned venue for the 2020 event and has so much to offer in terms of its music education environment.

The theme of this year's seminar – IDEAS in Music Education and Music Therapy: Inclusion, Diversity, Equity, Accessibility, Sustainability – was chosen to build on the Commission's history of practice innovation and international development. The seminar aimed to promote interdisciplinary and cross-cultural dialogue within the broader music and health arena. We welcomed the voices of practitioners and scholars from diverse areas within and around the fields of Special Music Education and Music Therapy, including those of music psychology, community music and ethnomusicology. Participation was encouraged by people of all abilities, in line with our theme of inclusion, diversity, equity, accessibility, and sustainability.

The dialogues during the seminar highlighted the value of this coming together of practitioners and scholars to share practice and research, as well as questions, dilemmas, and areas for innovation. Some of the dialogues and topics developed in the seminar are reflected in the proceedings. There are four papers that cover an array of topics. The first is a practice-based paper describing the ongoing musical partnership in the US between a university and a community organization dedicated to assisting adults with physical and intellectual challenges. The second paper is a research study undertaken in Canada illustrating an attempt to help struggling music students develop a focusing strategy, aided by targeted dynamic highlighting, in order to perfect their ability to take unpitched rhythmic dictation. This strategy reflects the concept of Universal Design for Learning in that it can help both those with specific learning issues as well as the general student population. The third paper also describes a project undertaken in Canada - a co- constructed "Extra-Ordinary Music Camp", an out-of-school living lab committed to offering free and accessible music-making opportunities for individuals with disabilities. The final paper is from Austria, describing the development of a new assessment tool (Assessment of the Quality of Relationship in pedagogical contexts) to better understand the role of relationship in inclusive music and dance contexts.

In line with the Commission's vision, the proceedings reflect the voices of practitioners and scholars from varied areas within and around the fields of special music education and music therapy. They also promote interdisciplinary and cross-cultural exchange regarding music's role in fostering well-being across the lifespan.

We hope the papers within the proceedings will be helpful in your continued work, and we look forward to welcoming you at the next Special Music Education and Music Therapy Commission 2026 ISME pre-conference seminar in Canada.

PAPERS

Building and Sustaining Musical Ecosystems Through University K-12 and Community Group Collaborations

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Abstract

The purpose of this practice-based paper is to describe the ongoing musical partnership between a university and a community organization dedicated to assisting adults with physical and intellectual challenges. Initiated in 2015, this project has moved through three ongoing stages of development. Stage 1 has worked to promote inclusion and equity through collaborative performance amongst adult participants and their communities. Stage II has further promoted equity and equality through education by the establishment of ongoing educational workshops. Stage III has begun the process of embedding project elements into the university music education curriculum and by developing a 6-credit music track for adult participants with intellectual and physical disabilities. Each stage promoted quality of life through creativity, collaboration, and commitment to community building through musical activities including singing, playing instruments (rock band, percussion, and radio baton), music fundamentals, and song composition. Together, these experiences provided community participants with opportunities to make creative choices, add expressive elements, and make valuable contributions to discussions about music, its importance, and context. This sense of empowerment is something that has often been out of reach for much of their lives. This initiative has also successfully motivated and nurtured aspiring music education interns to apply their skills and knowledge through modeling and display of best practice. from the initial stages of their training. By establishing a fair, inclusive, and sustainable musical ecosystem, we have not only strengthened the connections among participants but also created a mutually beneficial cycle of musical engagement. This collaboration has intertwined community outreach, K-12 education, and teacher preparation, making them symbiotic and interconnected.

Keywords

Introduction and Aim

For individuals with lifelong disability, attaining quality of life can be a struggle, especially if aspects of daily life require dependency on others (Janicki, 1990). More than three decades of Quality-of-Life (QOL) research reinforces that socialization, sustained scaffolded community integration, active personal involvement in shared decision-making processes, whether related to creative pursuits or personal well-being, are key factors that shape and enhance our overall quality of life (American Association on Intellectual and Developmental Disabilities, 2019; McIntyre, Kraemer, Blacher, & Simmerman, 2004; National Center for Learning Disabilities, 2019; Morisse, Vandemaele, Claes, Claes, & Vandevelde, 2013; Li, 2010; Schalock, 2004; Schalock et al., 2002).

One collaboration, initiated in 2015, between a university in the northeastern United States and a community program supporting adults with physical and intellectual disabilities has moved through three ongoing stages of musical development to promote Quality of Life. To achieve this goal, each stage emphasizes creativity, collaboration, and commitment to community building through musical activities including singing, playing instruments (including rock band, percussion, and radio baton), music fundamentals, and song composition. Stage 1 worked to promote inclusion and equity through performance amongst adult participants and their communities. Stage II further promoted equity and equality through education by the establishment of ongoing educational workshops. Stage III was intended to promote musical sustainability through stronger and farther-reaching collaborations including alignment with the university music education teacher training program. In Stage III we have realized over time that we, in conjunction with our community partners, have begun to build a musical ecosystem. To ensure its longevity we must secure its roots so that it will continue to grow well beyond current stakeholders. This practice-based paper will describe the details of this stage development towards an equitable, inclusive, and sustainable musical ecosystem.

Stage 1: The Collaborative Concert Series

Discussions regarding the potential collaboration between the university music conservatory and community program began in early 2015. The authors determined that to foster inclusion, strengthen participants' sense of belonging, and heighten community awareness regarding the capabilities and social requirements of adults with special needs (Varvarigou, Hallam, Creech, & McQueen, 2015), that a concert including area public schools would achieve these goals. Author 1 was acquainted with prior projects and concerts that have established musical foundations for the present project. Poutiainen, Kivijarvi & Kaikkonen (2013), Belgrave (2011), Fuelberth & Todd, (2017); Darrow, Johnson, & Ollenberger (1994), all stand as inspirations and guiding examples for this initiative. This was confirmed by one early activity in Spring 2015 featuring a collaboration between community members and the university percussion ensemble (Schraer & Modero, anticipated 2024). Collaborative drumming was the primary activity planned for our first meeting. However, when the percussion ensemble performed Queen's Bohemian Rhapsody, our community visitors began singing and dancing along. The percussion students invited participants to stand alongside them as they played, encouraging them to keep a steady beat, emulate their motions, or touch the instrument as they played. The students later engaged community members in an instrument petting zoo. Forged was an immediate bond between the university students and community members. This not only reinforced the social impact of group music making but the impact that such a collaboration could have for all involved. Community participants later expressed that they experienced a sense of belonging on the college campus. The first collaborative concert took place in January 2016, and combined the efforts of the conservatory, the continuing education program, and a neighboring elementary school. The receptiveness expressed by those in attendance served to reinforce the critical nature of this inclusive and collaborative concert series. Thus, additional concerts followed in 2017, 2018, 2019, 2020, and 2023. Each was unique in theme and in repertoire encompassing both ensemble wide compositions, distinct selections spotlighting the involvement of the continuing education program, and local K-12 participants.

Feedback from university students revealed not only the profound influence this experience had on them as musicians and teachers but also their fervent desire to contribute to future concert related events. Community participants were also enthusiastic and eager for more frequent musical activities.

Stage II: Equality and Equity Through Educational Opportunity

After launching the collaborative concerts, the authors aimed to expand upon the music-learning opportunities available to participants in the continuing education program. This endeavor was driven by the goal of ensuring continued access to music experiences that were both equitable and equal. The result was a workshop series emphasizing creativity and collaboration while also assisting participants in upholding fundamental life skills.

In 2016, a weekly summer workshop was instituted, with dual vocal and percussion pedagogical focuses both structured by music education majors. Participants experienced both workshops and at the conclusion of each session reconvened to share their experiences, offer feedback, and perform together. During this time, participants talked earnestly of lifelong performing arts interests and aspirations of attending community college. The music and skills acquired during this workshop inspired the 2017 concert program. Emphasizing the significance of participants' musical development and achievements within the broader community has always been key.

Between 2017 and 2023, a series of rock band and composition workshops were offered providing a positive bridge between concerts. These clinics not only fostered participants' artistic expression through the creation of original compositions for varied instrumental and vocal ensembles but also empowered them to perform in their own rock bands, becoming the driving musical force behind later concerts (Holley, 2017; Hayden, 2015; Kaikkonen, 2008; Kaikkonen, Petraškevič, & Väinsar, 2011; Laes, 2015; Schraer & Modero, anticipated 2024). The repercussions of COVID-19 on participants in community programs were substantial (Goyal, Hunt, Kuper, Shakespeare, Banks, 2023). For the community group, this meant the forced cancellation of our 6th annual collaborative concert. The researchers realized that maintaining the music workshops, even remotely, would be a much needed social and emotional outlet for the community members. This was because a substantial number of individuals in this community program, owing to a range of health vulnerabilities and the specific criteria of their communal living arrangements, were placed under an extended quarantine. And as a result, their ability to engage in social interactions with family and friends, access to educational programs, and creative pursuits were severely impacted or curtailed.

During the interval spanning from fall 2020 to summer 2021, two virtual workshops were administered. The first was an immersive single-day music workshop followed by a comprehensive weekly composition workshop from January to July 2021 (Modero, Laurino, Marshall, Kitsopoulos, & Schraer-Joiner, 2021). This workshop was hosted by the university's secondary music methods course in which students taught general music lessons to the participants in the continuing education program. The assignment required students to create an innovative, 21st-century-oriented, five-day instructional module tailored to captivate the modern middle or high school audience. Students were encouraged to "think outside the box" in their planning. The task was made more demanding by the incorporation of remote instruction considerations. This comprehensive unit encompassed daily lesson summaries, well-defined objectives, and inclusive formative assessments.

The second workshop emphasized composition and began in January 2021. Participants met in two groups (A, B) 30-minutes weekly via Zoom. Sessions were recorded and participants were encouraged to communicate in whatever way they felt most comfortable – verbally or via chat. The workshop sessions initially involved discussions related to the participants' sources of inspiration for their compositions, reflections on the year 2020, and how they aimed to express their emotions. These discussions led to the exploration of ideas as a collective, including individual experiences during the COVID-19 quarantine. A decision was made to embark on a collaborative composition (Schraer-Joiner & Modero, 2022).

Once the focus was narrowed down to what the participants wanted to communicate, the conversations shifted towards song writing. Topics spanned mood, message/lyrics, tonality, rhythm, tempo, rhyme, and song structure – all as tools to help the participants convey their emotions. Each group was unique in the message they wanted to convey. Group 1 aimed to traverse from minor to major tonalities to describe their journey from sorrow and anger to hope and happiness. Their chosen approach involved crafting a parody song using the melodies from
The Beatles' *Eleanor Rigby* and *Here Comes the Sun*. They felt that these songs would best convey a narrative that expressed their challenges and experiences while also looking forward to a positive future. In contrast, Group 2 pursued a different direction by creating an original rock song. They sought to convey their anger and frustration using minor tonalities, dissonance, and driving rhythms.

Their creation was entitled Covid City. The compositional process served as a musical catharsis, allowing them to address and release their pent-up emotions. Overall, participants of both groups had opportunities to explore music's historical, cultural, and social contexts while also forging their own personal relationships with each composition. This encounter underscores principles of fairness and inclusivity within our musical community. An additional element of this collaboration revolved around the dynamic between community participants and university students (Einfield & Collins, 2008; Strand et al., 2003). Community members frequently expressed their aspirations of attending college. Facilitating their involvement on campus, where they collaborated on community concert programming, practiced, and performed alongside university students, not only fostered a sense of parity and fairness, but also immersed them in a creative music journey. This involvement entailed actively participating in making creative choices, molding the music for final performance, and making valuable contributions to discussions about music, its importance and context. Together, these experiences provided community participants with chances to make choices and experience a sense of empowerment, something that had often been out of reach for much of their lives. In certain cases, these experiences have even managed to alleviate long-standing feelings of inadequacy. The mentoring of community members by the university students offered opportunities for exposure to contemporary music concepts through modeling and display of best practice (American Association of Colleges and Universities, 2022; Forrester, 2019). The learning process received positive support and was presented without judgment. The authors witnessed an increase in confidence among all parties involved.

Stage III: Building Greater Community Connections

Since the project's inception, we have expanded Stages I and II to encompass a larger array of K 12 schools and community-centered musical entities, including ensembles, schools and performer/teacher groups. Consequently, we have come to recognize the profound significance held within each concert, workshop, interaction, and achievement. While these experiences have been enriching for participants, impacting their quality of life, the COVID pandemic taught us that these effects are not enduring without continuity, and we needed to seek broader avenues for sustainability, extending beyond our community partners to encompass our education majors as well. We posed the question, "How can this enriching experience yield even greater influence for both our education majors and community partners?

To foster and uphold a thriving musical ecosystem for our participants, we recognized the need to push the boundaries of real-world implementation--to ensure the possibility of continuation and advancement by others. This gave rise to two concurrent plans: first, the formal integration of our accumulated best-inclusive strategies into our university curriculum; to bring full circle and into the classroom our students' co-curricular, community-based practical experiences with this adult population. The second is the creation of a specialized 6-credit non-matriculated college program tailored for our community members. This initiative would allow them to earn a performance certificate issued by the university, further solidifying our commitment to inclusive musical enrichment.

Music Education Curriculum

Our music students shared how their work with the community group shaped their perspectives on classroom diversity, the importance of promoting acceptance and belonging, and the significance of music in a group setting (Resch & Schrittesser, 2021). To bring these experiences full circle, it is crucial to provide students with the necessary time and space to recognize the interconnectedness of these experiences and how one might inform the other. While the application and approach may be adapted based on the varying contexts, allowing students a chance for personal and shared reflection, comparison, and discussion is vital. The intent is to ensure ongoing musical opportunities that promote access, fairness, and equality beyond the K 12 level (Bonet & Walters, 2016; Deans, 1999).

Our undergraduate music education methods courses place strong emphasis on high impact teaching strategies in combination with music methods and pedagogies - all in preparation for the pre-professional field experience (Bonet & Walters, 2016; Deans, 1999). The importance of student learner context is also a critical theme in their undergraduate music education studies. We understand that community outreach, K-12 education, and teacher preparation are interconnected. As a result, in fall 2023, music education faculty began to merge our state mandated K-12 field experiences and co-curricular community-based learning (CBL) experiences with the adult community center. The ultimate objective is to establish a service learning course, however, initially we will scaffold this project into our current music education program as service-learning projects in an introduction to music education course. As students advance through their secondary choral and instrumental methods courses, their teaching and leadership responsibilities as concert and workshop teachers, ensemble section leaders, conductors, and K-12 student liaisons will evolve. In Fall 2023,

our introductory music education students began to work collaboratively to make the concert accessible not just for the performers but for audience participants. Their goals are to create pre-concert resources designed to provide attendees with a musical "heads up", or preview, allowing them to become acquainted with the music before the event. These preparations will involve the creation of a Google site containing information about the songs, their background, instrumentation details, listening clips, and, when applicable, a listening map. Considering familiarity is crucial because concert participants may feel more at ease when they know what to anticipate. The active participation of our music education students in enhancing concert accessibility represents a real-world application that aligns with the accommodations teachers must provide in classrooms for students with IEPs or 504 plans.

Performing Arts Track

The proposed program aims to develop a comprehensive 3-4 course performing arts track tailored for adults with special needs leading to a Certificate of Completion. Presently, there are 20 programs throughout the United States that cater to the educational needs of individuals with special needs, facilitating their pursuit of undergraduate degrees. These programs offer extensive support services on campus and opportunities for degree attainment. The primary target audience for this initiative would be members of our partnering community group with potential expansion to similar organizations in neighboring counties. A key figure in this endeavor would be author #2 whose connection and involvement with the community group has been invaluable. The driving force behind this initiative originates from community members' expressed eagerness to partake in a college environment. This enthusiasm was evident when they attended our workshops and concerts, decked in their university t-shirts. Consequently, our aspiration is to provide these individuals with a genuine college experience – enabling them to confidently assert that they have engaged in university classes, experienced meals in its cafeterias, used the library facilities, and gained knowledge within its lecture halls. Preliminarily, community participants would come to campus for a single class, serving as an introduction. The class would carry one credit, with community participants expected to cover the associated fees. However, it is anticipated that they could access financial aid and other federally funded support to facilitate their participation. Additional course opportunities would include rock band/composition class, private lessons, and ensembles. Expansions to our University Fine Arts and Theater programs will also be pursued. This initiative not only aims to bridge a gap in accessible

education but also to foster a sense of inclusion, growth, and empowerment among adults with special needs in the region.

Conclusion

What initially began as a single collaborative community concert has grown in both scale and influence. Originally, our project aimed to provide opportunities for adult community program members and university music education majors who would participate in the event. However, we did not foresee the extent of the impact it would have on those involved or how the project's continuous development would lead to the creation of a musical ecosystem. This musical ecosystem has strengthened bonds among participants and established a mutually reinforcing cycle of musical engagement. Community outreach, K-12 education, and teacher preparation became interdependent and interconnected because of this collaboration.

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Using dynamic highlighting to enable post-secondary music students to focus during rhythmic dictation: A mixed methods research study

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Abstract

Many music students at the undergraduate post-secondary level experience difficulty with aural skills development. This can be true of those with specific learning disabilities as well as of those who simply have had little experience developing their aural skills before their university or college studies. There is frequently little help for these students either from inexperienced aural skills teachers or from non-music-oriented student aid services. The research study described below illustrates an attempt to help struggling students develop a focusing strategy, aided by targeted dynamic highlighting, in order to perfect their ability to take unpitched rhythmic dictation. This strategy reflects the concept of Universal Design for Learning in that it can help both those with specific learning issues as well as the general student population. The study used a mixed methods design which gathered quantitative and qualitative data in order that each could inform the other. Although quantitative results were inconclusive, qualitative results obtained from student responses were largely positive.

Keywords: unpitched rhythmic dictation, focusing strategy, dynamic highlighting

Introduction

Music dictation is an integral part of most aural skills curricula at the post-secondary level. The purpose of this study was to examine whether or not a specific means of delivering unpitched single-line rhythmic dictation to undergraduate music students could be effective. Successful dictation-taking engages memory and attention skills and requires the ability to focus. The present study was conducted to test the effectiveness of a scaffolded rhythmic dictation delivery based on dynamic highlighting in developing these skills. This was a strategy which had been used successfully by the researcher in classroom

situations in the past. Such a technique, should it prove to be successful in the context of rhythmic dictation, could potentially also be applied to melodic or harmonic dictation.

Developing effective strategies to take dictation, be it melodic, harmonic or rhythmic, is an important responsibility of aural skills instructors at all levels. Without such strategies, some of the brightest and best of undergraduate music students may decide that a career in music is not for them and fail to complete a degree. Thus, teacher engagement in this aspect of the aural skills learning process is critical.

A Review of the Literature

Many music educators and theorists have emphasized the importance of dictation skills in the development of the professional musician. Aural dictation-taking strengthens musical memory and draws on a student's theoretical and performance knowledge. Di Taranto (2015) states that many music educators see aural dictation as a way to permit students to demonstrate "an increased understanding of sound" (p. 3). Karpinski (2021) sums up the skills that are tested in any aural dictation exercise as the abilities to focus attention, to develop short-term memory, to understand pitch, meter and rhythm, and to notate. Snodgrass (2020) sets out the mandate of any aural skills educator: "the true purpose in teaching aural skills is to help our students listen more intently, to listen with a purpose, and to become more informed musicians through an aural understanding" (p. 190).

Any research conducted in the area of student participation in rhythmic dictation tasks must first take into consideration the types of physiological activity involved in the process. Grahn & Brett (2007) and Loui & Pryzsinda (2017) concur in stating that the motor cortices of the brain are active in both perceiving rhythmic input and moving to it. Chen, Penhune & Zatorre (2008) showed that the supplementary motor area, mid-premotor cortex, and cerebellum were all active when participants listened to rhythms with the expectation that they would tap these rhythms after having heard them. The aural perception of a rhythm can be further enhanced by movement to that rhythm. Manning & Schultz (2013) observed that physical movement in response to rhythm improved rhythmic timing and perception. Schmidt-Kassow et al. (2013) observed that movement to rhythm helped study participants encode rhythm more effectively than if no movement had been involved.

Successful musical dictation-taking, be it rhythmic, melodic or harmonic, depends heavily on a student's ability to focus attention and to memorize. Chenette (2021) believes that an essential task of the aural

skills educator is to encourage attentional control in students. Teachers should help students develop the ability for focused attention and the author compares this to being able to turn on a "spotlight, emphasizing the object(s) toward which it is directed" (p. 48). Memorization is another important tool in the aural skills student's workbox. Ginsborg (2017) and Williamon (2004) argue that a multisensory approach to memorization is essential. This is especially true in a diverse aural skills classroom where each student may have a preferred sensory modality. Dowling (1973), Berz (1995), Andrianopolis (2020) and Karpinski (2000) also suggest that mentally "chunking" blocks of patterns can expand the capacity of a musician's working memory so that memorization can be more efficient.

Music dictation of any type is a demanding exercise for most students. Chenette (2021) observes that, when first confronted with the task, students struggle and use various methods, "recalling how to notate what they hear, considering metacognitively what they ought to be doing next, and possibly pondering how frustrating the whole process is" (p. 51). Buonviri (2014) states that successful dictation-taking is characterized by the ability to focus attention, to prioritize targets, and to use other musical skills developed in performance or in theoretical study. Leong (1998) discovered that some students found taking rhythmic dictation easier when it was coupled with a melody while others found this to be a distraction. Some found that starting to write immediately without listening to an entire example first was counterproductive. It is obvious that there is a need for music educators to facilitate the development of efficient strategies that will enable student learning.

Karpinski (2020) states that cultivating the ability of "extractive listening" is helpful in dictation-taking, extractive listening being a "combination of focused attention and selective memorization" (p. 71). Crucially, this involves "the ability to focus attention on a selective segment of a musical stimulus and *remember* that segment despite the inhibitive nature of surrounding musical material" (p. 72). Karpinski also endorses the concept of chunking bits of aural information so as to be able to retain more in working memory at a time. Following from this, Paney & Buonviri (2014) found that an ability to recognize musical patterns helped students make correct choices in taking dictation.

The present study was designed taking into consideration many of the concepts and conclusions described above. The intervention strategy was based upon this research.

Methodology

For this study, a mixed methods design was used in which qualitative questionnaire and interview data were embedded within an intervention trial. A mixed methods design was chosen as it was anticipated that the sample size would be small and that quantitative data could be slim. Therefore, the qualitative data collected would be necessary to inform the quantitative. Evaluation of participant test scores enabled the researcher to assess the effectiveness of the intervention. Qualitative questionnaire and interview data were collected before and after the intervention for the purpose of providing background and assessing participants' reactions to the process, thus arriving at a more complete picture of the degree of effectiveness of the intervention. This was particularly important as the participants would be representative of a diverse population. Such a population is found in any undergraduate aural skills classroom.

Three research questions were asked. From a quantitative perspective, what was the relationship between a specific type of rhythmic dictation delivery (using dynamic highlighting) and participant achievement? From a qualitative perspective, how did participants feel about rhythmic dictation tasks both before and after taking part in the study? From a mixed methods perspective, what results emerged from comparing the qualitative data obtained from participants with the quantitative data measured during the study? A null hypothesis was assumed, that there would be no significant difference between the effects of the intervention's scaffolded dictation delivery and non-scaffolded delivery.

Participants

Recruitment of participants was done through messages on social media and through the posting of hard copies of a recruitment flier throughout the Schulich School of Music, McGill University. Interested students were asked to complete an eligibility form which enquired about their level of aural skills training. The requirement that prospective participants needed to have completed the first two levels of aural skills training ensured that all participants would have a certain amount of experience in taking dictation. Participants were then informed by email of the date and time of the first meeting and of the study schedule. The schedule consisted of two one-hour meetings in the first five weeks of the study and a one-hour exit interview with the researcher in the sixth week.

Initial Qualitative Phase

The study's first meeting involved all potential participants. The purpose of the study was explained fully and consent forms were circulated and signed. An independent third party later assigned an

identification number to each participant in order to guarantee anonymity during the study. The key linking identification numbers and participant names was kept by the above-mentioned third party until the study was completed. Eleven potential participants attended this first meeting. One would decide not to continue, leaving a total of ten participants. Once consent forms had been submitted, the first meeting continued with participants being asked to complete an initial questionnaire. This questionnaire involved requests for information concerning participants' degree programs and year, the extent of their aural skills training, their facility or difficulty in taking dictation, and their general musical background. This initial questionnaire constituted the first qualitative phase of the study.

Quantitative Phase

At the second meeting in the study's first week, an initial pretest was conducted with all participants. This test consisted of four four-measure examples in 4/4 time involving a number of simple rhythmic beat cells with no ties or rests. Students were informed of the specific cells that could be used. Randomized sequences of these cells were generated through a random sequence generator. All examples were unpitched and were recorded through Cubase using a woodblock. Each example was played four times at the same level of dynamic intensity throughout. Students wrote whenever they wished, using whatever strategies they preferred. The results of these initial pretests constituted a baseline and would be compared to data obtained from additional tests later in the study.

At the end of the first week of the study, participants were randomly divided into two groups, an experimental group and a control group. These groups would meet separately over the next four weeks.

In the second week of the study, the experimental group was given rhythmic dictations in the following manner in order to assess their ability to focus on one measure of an example at a time. At the beginning of the week, a pretest consisting of four four-measure examples was given with each example played at the same level of dynamic intensity throughout. Each test example was played four times. A practice example was then played four times, each time highlighting a different measure by having it played fortissimo while the other three measures were played pianissimo. Participants conducted throughout and spoke back the highlighted measure on a neutral syllable, only notating it once the recorded example had finished. Finally, the example was played again at the same level of dynamic intensity throughout. The same process was repeated in three other practice examples. At the second session of the second week, four practice examples were dictated in the manner described above followed by a

posttest consisting of four examples which were played at the same level of dynamic intensity throughout, corresponding to the playing of the pretests earlier in the week.

During the weeks that followed, the experimental group followed the routine established in the second week, with one difference. The third week's practice examples were highlighted with a forte/piano differentiation and the fourth week's with a mezzo-forte/mezzo-piano differentiation. Finally, in the fifth week, all dynamic highlighting was removed and all examples were played at the same level of dynamic intensity throughout. Thus, the scaffolding involved in the highlighting intervention was gradually removed. The posttest conducted in the second session of the fifth week constituted the final posttest of the study.

From the second to the fourth weeks of the study, the control group was given the same practice and test dictation examples and the same number of playings as the experimental group but at a consistent level of dynamic intensity. The test conducted in the second session of the fifth week constituted the final posttest of the study for the control group, as it did for the experimental group. This final session was a plenary session involving both groups in order to replicate the format of the initial pretest.

During the practice segments of each session, the participants of both the experimental group and the control group functioned in the same way, speaking back one measure at a time on a neutral syllable while conducting, associating the rhythmic cells with traditional notation, and finally writing the rhythm. Thus, the study required participants to engage using a number of sensory strategies. In contrast, the pretest and posttest segments of each session required all participants to be silent and not to vocalize in any way although conducting was required. Other than this, participants could use whatever strategies they wished and write whenever they wished.

During both the practice segments and the pretests and posttests, students were asked to jot down any comments that they might have with regard to the process, including any issues that they might have. These comments would help the researcher generate questions for the final interview of the study. In this way, interview questions would be more relevant to participant experience.

Final Qualitative Phase

The researcher conducted one-hour interviews with each participant during the sixth week of the study. Participants were asked questions about their experiences. They were asked to reflect on and compare

their ability to take rhythmic dictation prior to the study process with their ability to do so afterwards. They were also asked whether or not they felt that other considerations might have affected their performance at any time during the study. Participant development of self-efficacy in aural skills tasks was also discussed. Participants were asked about the rhythmic elements that had been most problematic for them, whether conducting had helped or hindered them, and how they had adapted their strategies during the study, particularly in test examples where they had had more freedom to do so.

The following outline summarizes the entire process of the study.

Outline of Study Design

Week 1: Session 1 (1 hr.) - information session; consent forms; **Initial Questionnaire**; (followed by participant coding done by a third party) Session 2 (1 hr.) - **Initial Pretest** for all participants followed by random group assignments (Note: All pretests and posttests were done using "standard delivery format"* with dictated material played at a uniform level of dynamic intensity)	
Experimental Group	**Control Group**
Week 2: 2 sessions (1 hr. each) pretest* Intervention (ff/pp) used in practice examples Intervention (ff/pp) used in practice examples posttest*	**Week 2: 2 sessions (1 hr. each)** pretest* Standard delivery* used in practice examples Standard delivery* used in practice examples posttest*
Week 3: 2 sessions (1 hr. each) pretest* Intervention (f/p) used in practice examples Intervention (f/p) used in practice examples	**Week 3: 2 sessions (1 hr. each)** Same as Week 2 above

posttest*	
Week 4: 2 sessions (1 hr. each)	**Week 4: 2 sessions (1 hr. each)**
pretest*	Same as Week 2 above
Intervention (mf/mp) used in practice examples	
Intervention (mf/mp) used in practice examples posttest*	
Week 5: 2 sessions (1 hr. each)	eek 5: 2 sessions (1 hr. each)
ssion 1: pretest*	ssion 1: pretest*
andard delivery* used in practice examples	andard delivery* used in practice examples
nal Posttest in 2nd session*	nal Posttest in 2nd session*
Week 6: 1 session (1 hr.) with each participant; final interviews	

Quantitative Results and Discussion

The present study involved a total of ten participants. This pool was divided into two groups of five participants each, a control group and an experimental group. If the number of study participants had been 30 or more, an assumption could have been made that the sampling distribution of the mean would be normally distributed and reflective of a larger population. Because sample sizes were so small, it was necessary to check to see if data sets demonstrated normal distributions. Each data set represented a set of scores from a particular group's pretest or posttest in a specific week. Two additional data sets, one per group, consisted of the total of that group's participants' scoring differences between the initial pretest and final posttest. The Shapiro-Wilk test was used to check to see how closely each sample data set fit a normal distribution.

The Shapiro-Wilk test results indicated that five of the control group's ten data sets had normal distributions and eight of the experimental group's ten data sets had normal distributions. Where both pretest and posttest data sets in a given week demonstrated normal distributions, two-tailed t tests were used to compare means. The same test was conducted to compare the means of each group's initial pretest and final posttest as normal distributions were demonstrated in each of these situations. T tests were also conducted to compare the means of the two groups' initial pretests and to compare the two sets indicating each group's improvement between their initial pretest and final posttest.

Although t test results from comparison of the means of the normally distributed data sets were largely not significant, it is important to note that there was a significant difference in both groups between each group's initial pretest and final posttest results. Both groups improved. Between-group comparisons were not significant.

Effect sizes were calculated in order to clarify and enhance t test results. This was appropriate as effect size can be calculated effectively with small sample sizes. Although effect size calculations may not be completely accurate when used with data sets without normal distributions, they can help to express the strength of difference between two means. In this case, effect sizes were not significant in within-group testing or in a between-group comparison of each group's improvement scores.

Mann-Whitney tests were also conducted to compare the differences between pairs of sets where non-normal distribution was evident in either or both of the sets. Each of these tests yielded results that indicated no significant difference between the data sets being compared.

In summary, the most relevant quantitative results were those of the t tests conducted to compare each group's initial pretest and final posttest. These yielded significant results showing that within each group there had been improvement over the course of the study. This would seem to suggest that the intervention used with the experimental group might not have been as important a factor as the basic repetition of material over a five-week period which was experienced by both groups. Comparison between the groups was inconclusive.

Qualitative Results and Discussion

Qualitative data was obtained from initial questionnaires which were completed by all participants in the first session of the first week of the study. This was done in a classroom with all participants present.

Qualitative data was also obtained through individual interviews which each participant had with the researcher in the sixth week of the study. These interviews were held in the researcher's office and were recorded, with the permission of each participant, for the researcher's further reference.

Initial Questionnaire

Distribution of Participants – Degree Program and Year

Second- and third-year undergraduate students had been recruited with the proviso that they had completed the first two levels of Musicianship courses (or their equivalent) at the Schulich School of Music, McGill University. (note that "Musicianship" indicates aural skills). The final participant pool included B.Music Performance majors, B.Music Faculty Program (general music) majors, B.Arts/Music majors and B.Music/B.Education majors. Participant program years ranged from second to fourth year. Random distribution of participants in the control and experimental groups created a control group that was more varied than the experimental group. The experimental group was composed exclusively of B.Mus. students whereas the control group's participants included both students in a B.Mus. program as well as those in a B.A. (music major) program. Thus, the control group was composed of students with a slightly different focus. The experimental group also contained more music performance majors.

Previous and Current Experience of Aural Skills Courses

All five members of the control group indicated that they had taken three Musicianship courses whereas only three members of the experimental group had done so, the other two having only taken two. Two members of the control group mentioned having taken aural skills courses other than those at McGill University whereas three had not. These numbers were exactly reversed in the experimental group. Four members of each group were currently enrolled in a Musicianship program at McGill. This might indicate that their dictation-taking capabilities were being tested on a regular basis and that this could benefit them during the study. Critically, all members of the control group had completed three courses in aural skills whereas this was not so with the experimental group. Therefore, all members of the control group had much more dictation experience coming into the study.

Difficulties Experienced in Taking Rhythmic Dictation

Within the experimental group, two members indicated that they had experienced difficulty taking rhythmic dictation. Only one member of the control group mentioned having similar difficulty. Difficulties mentioned involved focusing during dictations, dealing with distractions, anxiety, problems multi-tasking, and problems experienced when the musical style was unfamiliar.

Possible Reasons for Ability /Lack of Ability in Taking Rhythmic Dictation

Members of the control group spoke of various factors which inhibited their dictation-taking abilities. These included a lack of ability to focus on specific detail, classroom distractions, and, in one case, mention of dyscalculia, a condition which could affect the perception of the number of notes in beat cells or measures. Members of the experimental group mentioned difficulty with taking dictations that were not grounded in the classical genre, problems with multitasking and performance anxiety. Members of the experimental group generally found the experience of dictation-taking more difficult than the members of the control group. This could probably be expected, given the more extensive aural skills backgrounds of the members of the control group.

Strategies Used in Taking Rhythmic Dictation

Members of both groups mentioned various strategies that they used in taking rhythmic dictation. These included: conducting and beating time, paying attention to beats and their subdivisions, focusing on the downbeat, the use of shorthand and breaking an example down into smaller elements. Nearly all members of the control group cited the importance of conducting or tapping. This is interesting as the strategy obviously bolstered the strength of the test results for the control group.

Past Difficulties in Hearing and Performing Rhythms Correctly

Four of the control group responses and five of the experimental group responses mentioned having trouble with more complex rhythms, finding playing rhythms easier than notating them, having problems performing two-part rhythms and experiencing anxiety when learning new rhythmically complex repertoire.

Participants' Wider Musical Background and Experience

Several participants reflected on their extra-curricular musical experience. One response from the control group and two responses from the experimental group mentioned having had varied ensemble opportunities in the past. One response from each group spoke of having experienced strong family and community influences on music making. Members of the control group mentioned piano, flute, trombone, guitar, violin, harp, harmonica, percussion and jazz bass as instruments they were familiar with. Members of the experimental group listed piano, voice, oboe, cello and trumpet. Members of both groups spoke of classical, jazz, pop, Balkan, klezmer, folk and rhythm and blues as musical styles that they had experienced. Perhaps not surprisingly, 25% of control group responses and 50% of

experimental group responses spoke of musical training rooted in the classical style. Some members of the control group had a much more eclectic instrumental and stylistic background.

In summary, the control group had a more varied composition in terms of background and more aural skills training than the experimental group. Their rhythmic dictation strategies, especially the use of conducting and keeping time, were more grounded than those of the experimental group. All this seemed to benefit them during the study process.

Final Interview

Measures that Participants Found Most Difficult

When questioned, members of both groups said that they had found the middle measures of each dictation example to be the most problematic. Nonetheless, all participants said that this had become less of an issue over time. This made sense as many participants had mentioned in the initial questionnaire that they had difficulty focusing during dictation and, therefore, found it easier to remember opening or concluding measures than mid-points. As mentioned above, many said that this had become less of a problem as the study progressed, probably due to repetitive practice.

Beat Cells that Participants Found Most Difficult

A majority of all participants felt that beat cells that contained notes of shorter values or dotted patterns had posed a problem for them. Cells that were mirror images of each other and unpredictable patterns were also found to be difficult. Participants added that conducting had helped with these issues in that it enabled them to chunk aural information in beats and measures.

Speaking Back Rhythms

This study involved participants in speaking back individual measures of each dictation practice example before notating them. Many felt that this had been helpful in allowing them to focus on the task at hand. Some participants, however, said that this could be a distracting factor, particularly when other participants in their group spoke back a rhythmic pattern incorrectly. It was noted that group ability to reproduce rhythms correctly increased during the study and thus speaking back rhythms actually became a support to all members. Several participants mentioned that the act of speaking back a rhythmic pattern before notating it became less necessary over time as they began to "hear" the rhythms without having to speak them.

The Importance of Conducting

All participants stressed that conducting had been an indispensable tool for them during the study. Several mentioned that they would not have been able to function without being able to conduct. This had helped them to compartmentalize the beat cells that they heard and the physical movement involved possibly improved rhythmic timing and perception (Manning & Schultz, 2013; Henry & Grahn, 2017; Schmidt-Kassow et al., 2013).

The Experimental Group's Reaction to Diminishing Dynamic Highlighting

By and large, members of the experimental group felt that dynamic highlighting of certain measures had helped them focus on detail and 40% of responses stated that the intervention had made a gradual transition easier. It is not clear at this point, however, if the experimental group would have managed equally well without the intervention but with the same amount of dictation repetition.

Were there Different Strategies for Practice and Tests Examples?

Most participants felt that dictation taking during pretests and posttests enabled them to be freer in their approach as they were not forced to focus on a single measure at a time. Many modified the intervention strategy when they dealt with a test. As the study progressed, some also modified the intervention strategy even in their practice examples, as they were increasingly able to focus on more than one measure at a time. Members of the control group outpaced the experimental group in modifying strategies in practice examples as well as in test examples. This might indicate, once again, that many members of the control group had stronger dictation-taking skills from the beginning of the study and did not rely as heavily on the strategy suggested by the researcher.

Participants' Evaluation of Benefits from the Study Experience

All participants viewed their study experience as a positive one. Many observed that the study had helped them to develop an increased capacity to focus and concentrate while taking dictation. Short-term memory was said to have improved. Some participants stated that they had learned to visualize rhythm in speaking it back before they notated it. The proprioceptive nature of the intervention in speaking back and conducting rhythm before notating was mentioned as an aid to memorization. Other participants had discovered that the intervention's focusing strategy had helped them to minimize nervousness while taking dictation. As a result, they were able to create reasonable goals and bolster self-confidence.

Two Pen Portraits

Pen portraits of two participants, one from the control and one from the experimental group may be useful in rounding out the study's results. These participants were both lower outliers in their groups but showed the most improvement over the course of the study.

Participant A, a member of the control group, scored 33% in the initial pretest and 67% in the final posttest, improving their performance by 34%. In the final interview, when asked about difficult measures and beat cells, Participant A said that, at the beginning of the study, everything had been overwhelming. Over the course of five weeks, they began to be able to visualize beat cells before notating them and improved their memorization skills to the point that they could retain more than one measure at a time. The physical act of conducting helped to stimulate memorization. In conclusion, Participant A found that their dictation skills had improved over the course of the study. They had learned to focus on excerpts of a dictation example rather being overwhelmed by the whole. They noted that this had been borne out in Musicianship class where a recent test showed that their mark had improved by 30%.

Participant B, a member of the experimental group, scored 31% in the initial pretest and 77% in the final posttest, improving their performance by 46%. This was the largest percentage of improvement of any participant in the study. In the final interview, Participant B mentioned that the middle measures of a dictation example were still difficult and that maintaining a conducting beat was still problematic. However, they had concentrated on the focus measure in practice examples and had spoken it back silently to themselves throughout the playing, later reinforcing it by speaking it audibly with the group. Over the course of the study they found that self-confidence had increased and performance anxiety, which had previously been a problem, decreased.

Conclusion

From a quantitative perspective, the results of this study were inconclusive. In both the experimental and the control group the technique of repetition and speaking back target measures seemed to be effective regardless of the intervention strategy. Improvement in dictation skills took place in both groups and with all participants. However, a comparison between experimental group improvement and control group improvement was insignificant. Given all of the evidence above, the study's initial null hypothesis was upheld in that there was no significant difference between the effects of the intervention's scaffolded rhythmic dictation delivery and a non-scaffolded delivery.

From a qualitative perspective, all participants felt that they had improved their dictation skills over the course of the study. They spoke of increased ability to concentrate, to memorize, and to focus on the task at hand. They also felt that a strategy which combined different sensory input had benefited them. Some mentioned that their performance anxiety issues had lessened as they learned to focus on detail instead of being overwhelmed by the whole.

From a mixed methods perspective, the qualitative data obtained from participants helped to flesh out the inconclusive quantitative results. Weaker participants made dramatic improvement. The group dynamic also played an important part in reinforcing the aural perception of participants who were having difficulty.

Implications for Further Research

Further study is obviously necessary in order to fully investigate the effectiveness of the study's intervention. Above all, it needs to be replicated with a larger sample size and, perhaps, over a longer period of time. It would be interesting to explore how participant achievement in a study might compare with that experienced later in general aural skills classes. Further initiatives could incorporate similar approaches into music dictation software programs or online aural skills resources. Prospective research designs could also involve the manipulation of musical characteristics other than dynamics, such as articulation, phrasing and register, in order to help participants focus when taking rhythmic, melodic or harmonic dictation.

Concluding Remarks

An interesting aspect of this study's intervention is that it could be considered as a possible tool in any aural skills class. It has the advantage of being able to challenge those students with difficulties as well as those who can take rhythmic dictation with ease. It can help students with difficulties to focus on highlighted parts of a rhythmic excerpt while others can test themselves by focusing on the understated elements. Standerfer (2011) states that "differentiated musical experiences allow the struggling learner, the advanced learner and the on-grade-level learner to experience appropriate levels of challenge as they work to master essential information, ideas, and skills" (p. 44). In this sense, this study's strategy is a tool which facilitates differentiated instruction and demonstrates the principle of Universal Design where learning can be accessible to everyone.

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The Extra-Ordinary Music Camp: A Music-Making Living Lab for Children with Disabilities and Learning Disorders

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Abstract

While a myriad of intrinsic and extrinsic benefits of music-making for all and across the lifespan are well documented, access to such opportunities remains unevenly distributed within the population. This imbalance is particularly pronounced among individuals with disabilities. The *Extra-ordinary music camp* is an out-of-school living lab committed to offering accessible music-making opportunities for individuals with disabilities. Its objectives are twofold: (1) to co-construct an adapted music-making program with and for young people with disabilities and (2) to document the impact of the program on various dimensions of participants' development. This article presents the findings of the video observations analysis of the third edition of the project, conducted in the 2023 summer, which adopted a flexible approach, combining both online individual (online) and group (in-person) modalities. In group sessions, motor skills are the area where most progress was observed, while musical skills come first in individual sessions.

Keywords

Informal music learning, music making, intellectual disability, distance learning, participatory approach.

Rationale

Intrinsic and extrinsic benefits of music-making for all and across the lifespan are well documented, including a positive impact on phonological awareness and early literacy in 5- to 8-year-old (Eccles et al., 2021), cognitive skills and academic achievement among children and adolescents (Román-Caballero et al., 2022) and quality of life in later life (Creech et al., 2020). Research on special music education and music therapy also show a promising potential of music to support overall development

including their physical, emotional, cognitive, spiritual and social aspects as well as autonomy and quality of life (Després et al., 2024; Mino-Roy et al., 2021). For example, educational music therapy might impact positively speech production of individuals with autism and improvisational music therapy might improve social functioning of persons with autism or intellectual disability (Mayer-Benarous et al., 2021).

While reviews on the effects of music in various contexts points out the need for more rigorous randomized controlled trial (RCT) (Applewhite et al., 2022; Sutcliffe et al., 2020), more explicit descriptions of participants' characteristics, research methods and theoretical frameworks (Salvador, 2019), and more thorough descriptions of musical interventions (Després et al., 2024), music-making appears as low-risk intervention to support physical, emotional, cognitive, spiritual and social skills, as well as autonomy and quality of life. However, access to music-making opportunities remains unevenly distributed within the population. This imbalance is particularly pronounced among individuals with disabilities, who often face accessibility barriers to participation in music-making activities (Lapka, 2016; Rathgeber, 2017). This underrepresentation is also echoed in the field of research in inclusive settings (Jellison & Draper, 2015). Moreover, despite growing calls to prioritize participants' voice in music and disability research, when taken into account, their voice tends to be confined to advisory capacities, seldom influencing decision-making (Murphy & McFerran, 2017).

Aims

The Extra-Ordinary Music Camp is an out-of-school living lab committed to offering free and accessible music-making opportunities for individuals with disabilities. Its objectives are twofold: (1) to co-construct an adapted music-making program with and for young people with disabilities and (2) to document the impact of the program on various dimensions of participants' development. Since its inception, the Extra-Ordinary Music Camp has undergone three editions. The summer 2020 edition consisted of online one-on-one lessons, while the summer 2022 edition offered in-person group sessions. In summer 2023, it adopted a flexible approach, combining both online and in-person modalities. Table 1 summarizes the characteristics of the participants and modalities of each edition of the project.

Table 1

Participants and modalities of each edition of the project

Edition	Summer 2020	Summer 2022	Summer 2023
n =	25	7	20
age	8 to 17	9 to 16	8 to 16
Diagnostic	Mild to moderate ID, PD or learning disability	Mild to moderate ID, language disorders, autism with comorbidities (ADHD, dyspraxia)	Mild to moderate ID, PD, language disorders, autism with comorbidities (ADD, ADHD, dyspraxia)
Modality	Individual, online	Group, in-person	Flexible
Duration	7 weeks 30 minutes, 2x/week	7 weeks 1h, 3x/week	10 weeks In-person (group): 1h, 1x/week Online (individual): 30 minutes, 2x/week

Method

Using a participatory mixed-method approach, this exploratory study draws from video recordings of music sessions, facilitator logbooks, youth's appreciation of the musical session, interviews with all stakeholders, and an evolving set of questionnaires and musical tests. This paper focuses on the presentation of the analysis of the video observation of the 2023 edition of the Extra-ordinary music camp, which is based on the pedagogical and methodological reflections emanating from the first two editions of the project.

Pedagogical approach

The Extra-ordinary music camp pedagogical approach is based on informal music learning principles : (1) directed by the learner's familiarity and interests (e.g., choice of instruments or musical pieces); (2) mediated by recorded music and occurs mainly by ear; (3) mainly self-taught and peer-directed; (4) follows haphazard pathways, according to learners' interests and (5) integrates listening, performing, improvising and composing (Green, 2002, 2009). We adapted these features and developed a multimodal experiential musical learning program, aiming toward participants' interests, capabilities and potential.

The musical preferences, abilities and background of the participants were discussed with each participant and their parents before the beginning of the Extra-ordinary music camp during a pre-intervention interview with their music facilitator. The program's activities were co-constructed with the young learners, taking into account their potential and evolving musical interests. The pedagogical programs were aimed at engaging participants' growing self-determination and creativity, among other things. The program comprised singing, improvisation, composition, performance, movement and relaxation activities, organized in a co-constructed and customizable routine. Various musical instruments were explored, including melodica, boomwhackers, hand bells, slide whistle, kazoo, bucket drum, various percussions, diverse iPad applications and the Orba. Finally, some online participants chose to specialize on a single musical instrument (e.g., voice, piano or guitar).

Participants

The Extra-ordinary music camp 2023 marked the third edition of the project. While the 2020 edition of the project was exclusively online and the 2022 edition in-person, the one in 2023 was offered in a hybrid format. Participants could choose between two flexible options: one hour of in-person group session once a week or 30 minutes individual online session twice a week. This choice was made in order to promote the accessibility of the project (e.g., for participants from remote locations, or with mobility or schedule concerns) through online lessons and the benefits and engaging nature of group lessons. Participants had the possibility to choose one format or the other from week to week. A total of 20 children aged 8 to 16 and living with intellectual and/or physical disabilities and/or learning disorders took part in the summer camp. Table 2 presents the characteristics of the participants.

Table 2

Participants' characteristics

Participant	Gender	Age	Characteristics	Type of class attended	Format
P1	F	10	Moderate ID, T21, Language disorders	Specialized class	In-person (group)
P2	F	13	Mild ID, T21, Severe language disorders, Hypersonia, Motor disorders	Specialized class	In-person (group)

P3	F	9	ID, T21, Language disorders	Regular class with accompaniment	In-person (group)
P4	F	12	T21, Hypersonia, Motor disorders, Language disorders	Home schooling	In-person (group)
P5	F	13	T21	Specialized class	Online (individual)
P6	F	10	Mild ID, ADHD, Noonan syndrome, Mild hearing loss, Language disorders	Specialized class	Did not attend enough sessions for analysis
P7	M	9	Moderate ID, Autism, Language disorders	Specialized class in a regular school	Online (individual)
P8	M	8	Autism, Sensory disorders, Motor disorders, Language disorders	Specialized class (autism) in a regular school	Online (individual)
P9	F	11	ADD, Motor disorders, Language disorders	Alternative school with project-based learning	Online (individual)
P10	Other	14	ADHD, Tourette syndrome	Regular class	Online (individual)
P12	F	12	Moderate ID, T21, Language disorders	Regular class	Online (individual)
P13	M	16	Autism, Motor disorders, Language disorders	Specialized class	Online (individual)
P14	F	9	Mild ID, Autism, ADD, Koolen de Vries syndrome, Moderate hearing loss, Motor disorders, Language disorders	Specialized class	Did not attend enough sessions for analysis

P16	M	11	Cerebral palsy, hydrocephalus, hypotonia, Ataxia, Moderate hearing loss, Motor disorders, Language disorders	Specialized class	In-person (group)
P17	F	10	ADD, Anxiety disorders, Language disorders	Regular class	Online (individual)
P19	F	15	Mild ID, ADD, Motor disorders, Language disorders	Specialized class in a regular school	Online (individual)
P20	F	8	ADD, Anxiety disorders, Sensory disorders, Language disorders	Regular class	Online (individual)

Findings

We analyzed the video recordings of the first two and last two group sessions, comparing each participant to themselves from the beginning to the end of the project. The observations were grouped into 8 spheres of development: (1) language, (2) communication, (3) social skills, (4) musical skills, (5) motor skills, (6) autonomy, (7) cognitive processes and (8) technological skills. Each sphere of development was documented through observable behaviors, with one to ten observable behaviors quoted for each sphere:

1. Language: use of appropriate vocabulary, pronounce intelligibly and use proper syntax;
2. Communication: look at their interlocutor, pay attention during discussions, express spontaneously, respect topic of conversation and answer questions.
3. Social Skills: enter relationships in an appropriate way, show appreciation, respond appropriately to facilitators' requests, responding appropriately to peers' interventions, function well into the group and respect turn-taking.
4. Musical Skills: follow the pulsation, repeat rhythms by ear accurately, synchronize their movements with the music, sing with accurate pitch, recognize sound parameters (high, low, slow, fast), express creativity, experiment the instruments proposed, play the instruments properly and read alternative musical notation accurately.

5. Motor skills: use precise fine motor skills (instrumental playing) and use precise gross motor skills (movement activities).

6. Autonomy: manage equipment properly, take initiative, make choices, express their point of view and request help (if needed).

7. Cognitive processes: stay focused, listen attentively, memorize sequences of notes, memorize the songs, adapt to the activities.

8. Technological skills: handle technological devices properly.

The following scale was used to quote each observable behavior:

-3: Remarkable regression or disinterest

-2: Notable regression or disinterest

-1: Minor regression or disinterest

0: No change

1: Minor improvement

2: Notable improvement

3: Remarkable improvement

A "+" is used to identify behaviour that were strengths from the beginning of the project. The findings for the group and individual lessons are presented and discussed separately, capturing idiosyncratic participant's trajectory and transversal trends.

Group Results

Language

Several participants in the group sessions had language challenges (P1, P2, P3 and P4), while one participant (P16) had no language difficulties and spoke very often during the sessions. Throughout the summer one participant (P2) experienced a slight improvement in vocabulary, and another (P3) showed a slight improvement in vocabulary and pronunciation. Both these participants spoke more at the end of the camp than at the beginning.

Communication

Many participants experienced no improvement in several of these categories; as they were having high score right from the start of the camp, there was not much space for improvement. The stable dimensions were: look at the interlocutor (P2, P3, P4, P16), pay attention during discussions (P1, P2,

P4, P16) and respect the topic of conversation (P1, P2, P16). By being more distracted during the last session, one participant (P1) regressed in the category look at their interlocutor. Two participants (P2 and P3) improved in the category of expressing themselves spontaneously by end of the camp. One participant (P2) improved in the category answer questions; while she was already responding well at the beginning of the project, she would reply even more often by the end of the camp.

Social Skills

There was no improvement in the category of entering in relationship appropriately, as all five participants were scoring high in that area from the start of the camp. One participant (P1) among the five showed more appreciation at the end of the camp than at the beginning; although she generally didn't speak, she showed her appreciation by smiling during the activities, whereas she tended more to have a neutral expression at the beginning of the camp. Two participants (P1 and P4) reacted better to the facilitators' requests during the last two sessions, and one participant experienced a regression in this category (P3). The category of reacting appropriately to peer interventions was not observable for several participants (P2, P3 and P16), as they received no feedback from other participants. In this same category, one participant (P1) scored high from the outset, responding well to the encouragement of another participant (P2) who encouraged her to participate further. In terms of group functioning, one participant (P1) regressed by demonstrating a nonchalant attitude during the last session, and one participant (P2) improved by offering encouragement to her fellow participant (P1), who was participating less. Two participants (P1 and P2) manifested minor improvements in the category of taking turns, while one participant (P4) showed notable improvement in the same category. These three participants demonstrated an increased inhibition by either not playing or playing their instruments less when it wasn't their turn at the end of the camp than at the beginning.

Musical Skills

Only one participant (P16) showed improvement in following the pulsation, progress which was expressed during singing activities. No participants improved in the categories of repeating rhythms by ear accurately, recognizing sound parameters and experimenting with the instruments proposed. In the latter category, there was no room for improvement since the participants played all the proposed instruments in all the sessions. Two participants (P3 and P16) improved in singing with accurate pitch, and two participants improved in singing musically (P2 and P16). For example, P16 has performed

well in his singing in the latest sessions, particularly in the extra-ordinary camp song. He improved by repeating the song throughout the lessons. The same participant experienced a slight regression in the expression of creativity at the end of the camp, demonstrating less musical initiatives compared to the first sessions. On the other hand, he was the only child who improved in the category of playing musical instruments with proper instrumental technique. The accuracy of the reading of alternative musical notation was not observable, as it was not often used in the group sessions.

Motor Skills

In this category, only one participant (P4) improved her motor skills during instrumental playing. When playing instruments, she had a better hand alternation at the end of the camp than in the first two sessions. Three participants (P1, P2, P4) showed slight improvements in motor skills during movement activities, while one participant (P16) showed good improvement in this same category. In general, the participants' movements were smoother in their last two sessions compared with the start of the camp. P16 was also able to make new movements at the end of the project, such as crossing his arms, whereas he had difficulty doing so at the beginning.

Autonomy

One participant (P3) saw an improvement in material management, while the others had good management right from the start, paying attention to the instruments. Two participants improved in taking initiatives (P2 and P3), while P3 also regressed in expressing her point of view. There was no change for participants in the category of making choices or requesting help (if needed).

Cognitive Processes

Two participants (P1 and P2) experienced a regression in staying focused. They were distracted during the sessions at the end of the camp. Two participants (P3 and P16) improved in the same category. P3 was more focused during the penultimate session and P16 talked less at inappropriate moments at the end of the camp. For attentive listening, one participant (P1) regressed, while another (P3) improved. P1 was distracted when listening to the songs in the last session, while P3 listened attentively to the soundtracks in the penultimate session. No participant improved in the category involving memorizing sequences of notes. However, in the category involving memorizing the songs, two participants (P2 and P16) improved, while one participant (P3) regressed. At the end of the camp

P2 remembered the dance movements better and P16 was able to memorize the lyrics and movements better. Conversely, the animators had to demonstrate to P3 the movements learned from the camp song during the last session. None of the participants improved in the category of adjusting to the activities proposed, because they were doing it right from the start of camp.

Technological Skills

This category includes the handling of technological devices. This was not observable for all participants, as they did not actually handle technological devices during the group sessions. Table 3 summarizes the analysis of the of group sessions.

Table 3

Summary of group session analyses

Categories	Related behaviors	P1	P2	P3	P4	P16	Total
Language	Use appropriate vocabulary	0	1	1	0	0+	2
	Pronounce intelligibly	0	0	1	0	0+	1
	Use proper syntax	0	0	0	0	0+	0
Communication	Look at their interlocutor	-1	0+	0+	0+	0+	-1
	Pay attention during discussions	0+	0+	0	0+	0+	0
	Express spontaneously	0	1	1	0	0+	2
	Respect topic of conversation	0+	0+	0	0	0+	0
	Answer questions	0	1+	0	0	0+	1
Social Skills	Enter relationships in an appropriate way	0+	0+	0+	0+	0+	0
	Show appreciation	1	0+	0	0+	0	1
	Respond appropriately to facilitators' requests	1	0	-1	1	0+	1
	Respond appropriately to peers' interventions	0+	NA	NA	0	NA	0
	Function well into the group	-1	1+	0	0+	0+	0
	Respect turn-taking	1	1	0	2	0+	4
Musical skills	Follow the pulsation	0	0	0	0	1	1
	Repeat rhythms by hear accurately	0	0	0	0	0	0

	Synchronize their movements with the music	0	0	0	1	2	3
	Sing with accurate pitch	0	0	1	0	1	2
	Sing musically	0	1	0	0	1	2
	Recognize sound parameters	0	0	0	0	0	0
	Express creativity	0	0	0	0	-1	-1
	Experiment the instruments proposed	0+	0+	0+	0+	0+	0
	Play the instruments properly	0	0	0	0	1	1
	Read alternative notation accurately	NA	NA	NA	NA	NA	NA
Motor skills	Use precise fine motor skills (instrumental playing)	0	0	0	1	0	1
	Use precise gross motor skills (movements activities)	1	1	0	1	2	5
Autonomy	Manage equipment properly	0+	0+	1	0+	0+	1
	Take initiative	0	1	1	0	0+	2
	Make choices	0	0	0	0	0	0
	Express their point of view	0	0+	-1	0	0+	-1
	Request help (if needed)	0	0	0	0	0	0
Cognitive processes	Stay focused	-1	-1	1	0+	1	0
	Listen attentively	-1	0+	1	0+	0+	0
	Memorize sequences of notes	0	0	0	0	0	0
	Memorize the songs	0	1	-1	0	1+	1
	Adapt to the activities	0+	0+	0+	0+	0+	0
Technological skills	Handle technological devices properly	NA	NA	NA	NA	NA	NA
	Total	0	8	5	6	9	

Overall, 4 participants showed improvement, while one remained stable. Although we noted improvements in all the general areas of development, motor skills, language, social skills and musical abilities were the ones most developed among the participants. In terms of specific development (subcategories), gross motor skills improved for 4 participants, turn taking for 3 participants and music/movement synchronization for 2 participants.

One-to-One Results

As with the group sessions, the one-to-one sessions were analyzed using the same categories and observable behaviours for the first and last two sessions. The same method was applied, identifying either improvement, stagnation, or regression in the observable behaviors of the 35 subcategories quoted. Here are the details for each category.

Language

Several participants had language challenges (P5, P7, P13 and P20). P5 and P7 generally did not speak but made unintelligible sounds. P13 and P20 spoke very little and expressed themselves by making unintelligible sounds or in other non-verbal ways. While four participants used a good vocabulary from the start (P9, P10, P12 and P17) and showed no observable progress, four participants (P7, P8, P13 and P20) showed a slight improvement in vocabulary. For example, P7 said a few words in the last few sessions, whereas he didn't speak at first. In terms of pronunciation, two participants (P7 and P12) showed slight improvement, and one participant showed pronounced improvement (P13). For syntax, one youngster had a slight regression (P8), a second had a slight improvement (P12) and a third had a good improvement (P13). For example, P12 began to say better-constructed sentences in the last few sessions compared with the beginning of the camp.

Communication

In the category of looking at interlocutors, two participants showed slight regression (P7 and P20). For example, P7 looked less at the camera in his last three sessions. Two participants had a slight improvement (P8 and P12) and one participant had a good improvement (P13). For example, P13's concentration time when looking at the camera was better at the end of the camp than at the beginning. For the skill of paying attention during discussions, a participant experienced a slight regression (P7). He was more unfocused in the last sessions. Two participants showed slight improvement (P5 and P8), one showed good improvement (P12) and one showed remarkable improvement (P13). For example, he was constantly looking at the camera during the last sessions and listening carefully to the instructions, which enabled him to correct himself if he made a mistake. In the category of expressing oneself spontaneously, only one participant (P8) improved by speaking more in the last few sessions; most of them were already expressing themselves spontaneously at the start of camp (P9, P10, P12, P17 and P20). In terms of the ability to respect conversation topics, one

participant improved slightly (P8), and one participant improved remarkably (P13). This participant no longer made noises to show his disapproval during discussions at the end of the camp, as he had done in his first sessions. In the category of answering questions, two participants showed slight improvement (P5 and P7) and one showed good improvement (P13).

Social Skills

Only two children improved (P8 and P13) in the skill of relating appropriately. However, these two participants showed remarkable improvement. One participant had a slight regression (P7) in this same observable behavior. In his penultimate session, he left the camera frame when the facilitator greeted him at the beginning of the course. In his last session, he interrupted the teacher when she was singing and playing an instrument. In the category of showing appreciation, one participant one regressed slightly (P9), one improved remarkably (P13), and three improved slightly (P5, P7 and P19). For example, P5 showed that he was happy and motivated during an activity at the end of the camp. Previously, there had been no such demonstration by this participant. For the skill of responding appropriately to facilitators' requests, one participant had a regression (P20), one participant had a slight improvement (P5), one participant had a good improvement (P8) and one participant had a remarkable improvement (P13). For example, P20 refused to do activities in his last session. The category of reacting appropriately to peer interventions is not observable for many participants, as they were generally alone in the online format sessions. In terms of integration into the group, four young people did well from the start (P9, P10, P12 and P17), and one had a slight regression (P7). He listened even less to instructions in his last three sessions compared with his first. In the category of taking turns, only two participants improved (P8 and P13). However, it was a remarkable improvement for both. P8 performed much better in his last sessions compared with the first ones.

Musical Skills

For the skill of respecting the pulse, one participant showed slight regression (P8), one showed slight improvement (P10), one showed good improvement (P17) and one showed remarkable improvement (P13). For example, P17 gave a near-perfect performance in pulsation at the end of camp. For the category of imitating heard rhythms, one participant had a slight regression (P12), two had a slight improvement (P5 and P19) and one had a remarkable improvement (P13). In movement synchronization, none of the participants showed any regression, two showed slight improvement (P7,

P12 and P19), one showed good improvement (P9) and one showed remarkable improvement (P13). For example, P9 synchronized his movements well when listening to the camp song and when listening to Pharrell Williams' "Happy" at the end of camp. In the category of singing in tune, four participants improved slightly (P9, P10, P12 and P17) and one participant improved remarkably (P13). At the end of the camp, P13 sang with a very high degree of accuracy. For the ability to sing musically, only three participants improved. P9 and P17 showed slight improvement, while P13 showed considerable improvement. No participants performed well in this category at the start of the camp. In the category of recognizing sound parameters, only two improved. P9 showed slight improvement and P13 showed good improvement. For example, P9 was able to distinguish between high and low notes by the end of the camp. Three participants already performed well in this category (P10, P17 and P20). For creative expression, three participants showed slight improvement even though they were already performing relatively well at the start of the camp (P5, P8 and P12), one participant showed slight improvement (P9), and another showed good improvement (P20). For example, P12 expressed his creativity in every session analyzed, but his creativity was more pronounced at the end of the camp. In the category of playing the proposed instruments, several participants did this well from the start (P9, P10, P12, P17 and P20). Three participants improved slightly (P5, P8, P19) and one participant improved remarkably (P13). For example, P20 played all the instruments offered in the sessions, and particularly enjoyed playing the melodica. In the category of playing instruments with adequate instrumental technique, one participant had a regression (P9), one had a slight improvement (P5) and one had a remarkable improvement (P13). For example, P9 had more difficulty playing the piano in his last two lessons than at the start of the camp. The ability to read alternative music notation was not observable for some participants (P7, P8, P13), as it was not used in their respective sessions. In the same category, two participants showed slight improvement (P9 and P20), one showed good improvement (P19) and one showed considerable improvement (P12).

Motor Skills

Fine motor skills during instrumental playing is one of the categories in which participants in the online sessions made the most progress: three participants showed slight improvement (P12, P17 and P20), two participants showed good improvement (P13 and P19) and one participant showed considerable improvement (P10). For example, P19 showed good improvement in motor skills when playing the piano. In the same category, one participant experienced a slight regression (P8). In the category of

gross motor skills during movement activities, three participants showed slight improvement (P7, P8 and P9), one of them (P8) showing improvement despite having relatively good motor skills at the start of the camp and one participant showed good improvement in this category P13.

Autonomy

For material management, a score of "NA" was given to several participants (P5, P8, P10, P13, P17 and P20) for various reasons: the cameras' video angle didn't capture the child's hands, the parent was placing and putting away the instruments away (instead of the child), or the participant only played the piano, so there wasn't really any material management during the session. However, three participants showed a slight improvement in this category (P7, P12 and P19). In terms of taking initiative and making choices, only three participants showed a slight improvement (P5, P9 and P20). For example, P5 showed initiative in song selection in his last two sessions. P9 made choices related to creative and improvisational activities in his third and fourth sessions. As regards for expressing one's point of view, only one participant improved slightly (P7), while five did so well from the start (P8, P9, P12, P17 and P20). In the category of asking for help, one participant had a slight improvement (P9) and one had a good improvement (P20). For example, at the start of the camp P20 was in a dynamic where she was trying to manage issues on her own, whereas at the end this was no longer the case.

Cognitive Processes

In the concentration category, two participants improved. P8 had a slight improvement and P13 had a good improvement. P8 improved despite being already relatively focused from the start of the camp. In the category of listening attentively to sound frames, one participant had a slight improvement (P12) and two participants had a considerable improvement (P8 and P13). For example, P13 listened very attentively to the soundtracks at the end of the camp and played with the right rhythm. In terms of memorizing sequences of notes, one participant showed regression (P10), one showed slight improvement (P9), two showed good improvement (P8 and P19) and one showed remarkable improvement (P13). For example, P19 remembered better the notes of the melodies to be played on the piano at the end of the camp. Memorization songs was one of the categories in which the online participants showed the most improvement: two participants showed slight improvement (P8 and P17), two showed good improvement (P12 and P19) and one showed remarkable improvement (P13).

For example, P12 mastered the camp song and the "hello" song better by the last sessions of the summer. In the category of adjusting to activities, only one participant improved: P13, who had a good improvement in this category in his last sessions, no longer having a rejection attitude during activities. Four participants adjusted well to activities from the start of camp (P9, P10, P12 and P17).

Technology

This category includes the handling of technological devices. This was not observable for several participants (P12, P13, P17, P19 and P20) because they did not handle many technological devices. In this category, one participant who used a tabled during his third session showed a slight improvement (P5). Table 4 summarizes the analysis of the one-to-one sessions.

Table 4

Summary of one-to-one session analyses

Categories	Related behaviors	P5	P7	P8	P9	P10	P12	P13	P17	P19	P20	Total
Language	Use appropriate vocabulary	NA	1	1+	0+	0+	0+	1	0+	0	1	4
	Pronounce intelligibly	NA	1	0	0+	0+	1	3	0+	0	0+	5
	Use proper syntax	NA	0	-1	0+	0+	1	2	0+	0	0+	2
Communication	Look at their interlocutor	0	-1	1+	0+	0+	1+	2	0+	0	-1	2
	Pay attention during discussions	1	-1	1+	0+	0+	2	3	0+	0	0+	6
	Express spontaneously	0	0	1+	0+	0+	0+	0	0+	0	0+	1
	Respect topic of conversation	0	0	1+	0+	0+	0	3	0+	0	0+	4
	Answer questions	1	1	0+	0+	0+	0+	2	0+	0	0+	4
Social Skills	Enter relationships in an appropriate way	0	-1	3	0+	0+	0	3	0+	0	0+	5
	Show appreciation	1	1	0+	-1	0	0+	3	0+	1	0+	5
	Respond appropriately to facilitators' requests	1	0	2	0+	0+	0+	3	0+	0	-1	5

	Respond appropriately to peers' interventions	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	0
	Function well into the group	NA	-1	NA	0+	0+	0+	NA	0+	NA	0	-1
	Respect turn-taking	0	0	3	0+	0+	0	3	0+	0	0	6
Musical skills	Follow the pulsation	0	0	-1	0	1	0	3	2	0	NA	5
	Repeat rhythms by hear accurately	1+	0	0	0	0+	-1	3	0+	1	0+	4
	Synchronize their movements with the music	0	1	0+	2	NA	1	3	0+	1	0	8
	Sing with accurate pitch	0	0	0+	1	1+	1	3	1+	NA	NA	7
	Sing musically	0	0	0	1	0	0	3	1	NA	NA	5
	Recognize sound parameters	0	NA	0	1	0+	NA	2	0+	NA	0+	3
	Express creativity	1+	0	1+	1	0+	1+	0	NA	0	2	6
	Experiment the instruments proposed	1	0	1	0+	0+	0+	3	0+	1	0+	6
	Play the instruments properly	1	0	0	-1	0+	0	3	0+	0	0+	3
	Read alternative notation accurately	0	NA	NA	1	0+	3	NA	0+	2	1+	7
Motor skills	Use precise fine motor skills (instrumental playing)	NA	0	-1	0	3+	1	2	1	2	1	9
	Use precise gross motor skills (movements activities)	0	1	1+	1	NA	0	2	NA	0	NA	5
Autonomy	Manage equipment properly	NA	1	NA	0+	NA	1+	NA	NA	1	NA	3

|												
	Take initiative	1	0	0	1	0	0+	0	0+	0	1	3
	Make choices	1	0	0+	1	0	0+	NA	0+	0	1	3
	Express their point of view	0	1	0+	0+	0	0+	0	0+	0	0+	1
	Request help (if needed)	0	0	0	1	0	NA	0	0+	0	2	3
Cognitive processes	Stay focused	0	0	1+	0+	0+	0	2	0+	0	0	3
	Listen attentively	0	0	3	0+	NA	1+	3	0+	NA	0	7
	Memorize sequences of notes	0	0	2	1	-1	0	3	NA	2	NA	7
	Memorize the songs	0	0	1	0	NA	2	3	1+	2	NA	9
	Adapt to the activities	0	0	0	0+	0+	0+	2	0+	0	0	2
Technological skills	Handle technological devices properly	1	0	NA	0+	0+	NA	NA	NA	NA	NA	1
	Total	11	4	20	10	4	15	68	6	13	7	

Overall, all 10 participants showed improvement. Although we noted improvements in all the general areas of development, motor skills, cognitive processes and musical skills were the ones most developed among the participants. In terms of observable behaviours (subcategories), the most improved areas were fine motor skills improved for 9 participants, song memorization for 9 participants and music/movement synchronization for 8 participants.

In person (group) vs. online (individual)

In both modalities, motor skills are an area where most participants have shown positive observable changes. In group sessions, motor skills are the area where most progress were observed, followed by social skills and language. In individual sessions, musical skills come first, followed by motor skills and cognitive processes. Contrary to our initial assumption, overall, more progress was observed in the online one-on-one sessions, as shown in Figure 1.

Figure 1

Percentage of participants' progresses observed in the group and one-to-one sessions
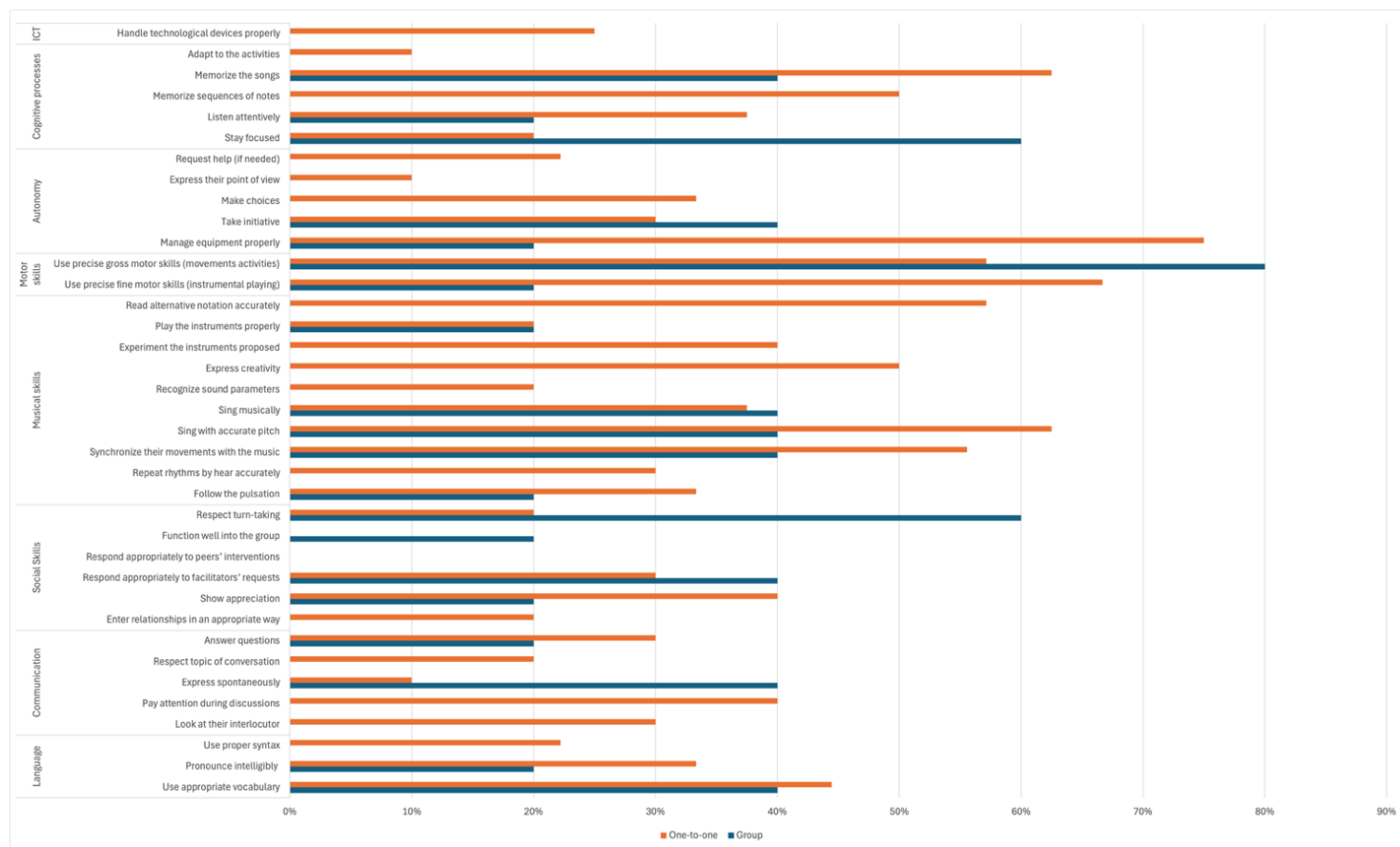
Discussion

In both the one-to-one individual and group in-person modalities, the participants have developed in many respects, which is encouraging and reflects their commitment to the musical program. In general, since the first edition of the Extra-ordinary musical camp project (Després, Julien-Gauthier, Jourdan-Ionescu, et al., 2022) our results indicate that a multimodal musical intervention is promising for learners with intellectual disabilities in various modalities. The motor skills area is the one that has seen the most improvement. The integration of movements activities and the experimentation of diverse musical instruments might contribute to the development of motor skills. This aspect is very important for young people with intellectual disabilities, as many of them tend to be less active than their typically developing peers (Hinckson & Curtis, 2013), which can be an obstacle to their physical condition and participation in community activities. Observation of the sessions also revealed an increase in social skills, the second most important factor for group sessions. Informal learning, based

on learners' interests and choices in the context of group session might encourage the development of the social skills of young people with intellectual disabilities, which are a facilitator for all aspects of their school or social life (Elliott et al., 2001; Kampert & Goreczny, 2007). Young people with intellectual disabilities learn "in context," and the Extra-Ordinary Music Camp provides a context to social development, through the presence of peers and the many opportunities to contribute and interact as a group or dyad. Music making offers many benefits for young people with intellectual disabilities (Després et al., 2024). Music making activities are at the core of the Extra-ordinary music camp program, which is designed to introduce participants to different musical activities (through active listening, singing, movements, instrumental playing, improvising, and creating) and provide them with the opportunity to make music in their own way. The results of this study also point out to the development of musical skills among participants, reflecting the formative aspect of Extra-ordinary music camp in terms of musical education. The program's content, based on participants' interests and choices, might contributes to their sense of engagement and motivation which, in turn might lead to positive results in terms of skill acquisition, including musical skills. Language development is a priority in the education of young people with intellectual disabilities (Janho dit Hreich et al., 2024), whether in terms of speech, vocabulary, or expression more generally. The Extra-ordinary music camp, particularly its in-person group modality might offer a particularly favorable context for language development, for various reasons. Offering a safe space in a "new" environment, which is different from the family or school, in which participants must interact with unfamiliar people, and participate in new activities that require them to participate actively (often orally) and to progressively build their capacity to express their point of view and make choices might have contributed to the learning of new words and to promote verbal expression. The participants had to find the words to communicate with others, develop the skills to express themselves and interact in a way that was well understood by the people in their group. The results indicate an improvement in language skills, a development already highlighted by parents of the first edition of the Extra-ordinary music camp (Després, Julien-Gauthier, & Mathieu, 2022) who mentioned that the use of certain instruments appeared to strengthen their child's oral skills (peripheral oral mechanism). Constant interaction with peers and facilitators in activities, the ripple effect of songs or the use of instruments are all ways of supporting language development, a skill contributes to academic success and which, by facilitating interaction with unfamiliar people, promotes social participation. The Extra-ordinary music camp program developed in order to encourage the expression of each participant's interests and choices, within the framework of

musical activities. Participants are encouraged to express and open themselves to others, to learn about each other's interests and to discuss their preferences and choices of activities. The importance of developing self-determination and choice making capacity among young people with intellectual disabilities is underlined by many authors (Wehmeyer & Shogren, 2020; Willow et al., 2024), who add that this learning is essential to deal with their development. Participation in activities that encourage the expression of their choices and where they play not only a consultative role, but a decisive role, is recommended, along with "opportunities to develop problem-solving, self-regulation, and engagement skills" (Wehmeyer & Shogren, 2020, p. 187).

Limitations

Our study has certain limitations. The first limitation concerns the small sample size and heterogeneous profile of the participants and teachers. Since we offer a personalized activity program, the repertoire, instruments, pedagogical methods and modalities of involvement in music-making are variable. Also, the research design, without control group, hinders the generalisability of the results. Those methodological choices were made to allow for a fine-grained analysis of each participants' pathway, who join the project with a diverse set of strengths, challenges, interests and goals, and progress through the musical session in a diverse and idiosyncratic trajectory.

Implications

In sum, a multimodal, experiential, and differentiated informal music learning program, promoted accessibility to musical learning and contributed to the development of young people with ID. Most specifically, musical lessons offered in a one-to-one online promoted more evidently the development of musical skills, motor skills and cognitive processes among participants. While more progresses were observed in the online one-on-one sessions, group sessions favoured motor skills, social skills and language among participants. From a research standpoint, our project underscores the need for more granular and differentiated research instruments for measuring the development of person with intellectual disability. The effects of in-person individual music-making sessions should also be studied. The 2023 edition of the project allowed us to lay the groundwork — both methodologically and pedagogically — for an ongoing two-year longitudinal project in partnership with two-day camps, which will facilitate the ecological integration of the project into participants' daily lives and will contribute to a

better understanding of the benefits of long-term engagement with music-making in persons with intellectual disability.

Acknowledgements

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The Significance of Relationship in Inclusive Music and Dance Lessons

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Abstract

Background

Relationship is the basis of human development and a central topic in therapy and education. Inclusive learning contexts in heterogeneous groups depend on the identification of the diverse abilities of the participants and their possibilities to relate.

Aim

For observation, didactic ideas, research, and evaluation the tool for the Assessment of the Quality of Relationship in pedagogical contexts (AQR-P Tool) was developed and its supportive contribution in inclusive music education is outlined. Similar to the AQR Tool in music therapy, the AQR-P Tool enables the music educators to assess the ability to relate and the current condition of the individual participants and thus provides important indications for the methodical, didactic and musical approach and reflection of the teacher.

Method

120 hours of videographed educational lessons were analyzed for phenomena related to relationship matters. Methodological procedures based on grounded theory and content analysis were used to extract lists of characteristics of relationship qualities grouped into several scales that can be used for assessment of the qualities of relationship.

Conclusions

The AQR-P Tool supports the music teacher in the evaluation of the participant's current level of relating ability in order to match his/her needs and possibilities in learning contexts.

Key words: Relationship; Assessment tool; Inclusive music making

Educational processes are mediated in various ways through a great palette of influential factors that contribute to the outcomes as well the experience of learning situations.

The well-known synthesis of meta-analyses *Visible learning* by John Hattie has factorized these aspects and showed the significant role of relationship (number 12 out of 150 in the first edition) in education (Hattie, 2009, 2012). The fundamental aspects of how a person will relate to the world and to interpersonal situations are formed in the first months and years of life, but the ability to actively influence the formation and shaping of relationships develops over time and has lifelong relevance (Stern, 2000). In many educational contexts, but especially in inclusive learning models, the knowledge about different states or qualities of relationship is crucial for providing adequate learning environments.

Definitions

The possibility to relate refers to "the competence to make contact with other people and to maintain this relationship with them" (Stangl, 2024, n.p.). The child psychologist Alan Sroufe describes it as part of the innate endowment and defines it as the ability to respond emotionally to each other (Sroufe, 2020).

According to the definition provided by Gerald Hüther (2006, 2009), a German neurobiologist, the capacity for relationality is defined by several key components:
- the relationship to oneself, between mind and body, thinking and feeling
- the relationship to other people, to their environment and their history
- the relationship to the world, to nature and one's own history

Karin Schumacher, a renowned music therapist, has defined this in the following words:

"The basis for the development of interpersonal relationship skills is the ability to coordinate, integrate and meaningfully process the various sensory impressions." (Schumacher, 1994, p. 1).

This ability to relate seems to be inherent, but has to be developed in interaction with other persons and can also be impaired by various influences. To engage with one another on an equitable basis, it is beneficial to recognize the relational capabilities of the other individual. Often, we overlook this

aspect, assuming that our ability to connect is comparable to that of others. We become aware of discrepancies only when this ability is unevenly developed or "stagnations" occur that disrupt the flow of conversation or interaction.

Joachim Bauer (2014, pp. 193–195), a German psychiatrist and neuroscientist, defines the concept of relationship competence, outlining it through five distinct components:

1. *Seeing and being seen*. Attention and interest of others increase one's own self-worth and enable a sense of belonging.

2. *Shared attention towards something*. The simplest form of attention is the interest in the focus of another person.

3. *Emotional resonance*. The ability to tune into the emotions of another person and to adjust the behaviour accordingly.

4. *Joint action*. Joint action seems to be a factor with high relationship-building relevance.

5. *Mutual understanding of motives and intentions*. This only succeeds if the preceding components are already present. Recognizing motives, intentions and the like enable other people to develop new potentials for a relationship.

Drawing from these relationship models and Daniel Stern's (2000) theory on self-concept development, several key qualities of relationships can be identified. The fundamental quality of any relationship lies in the capacity for perception, accompanied by a general openness to emerging phenomena. Without the ability to perceive, the foundation for relating to others is absent. Another essential quality is the ability to communicate, while the regulation of one's emotions also plays a significant role in relationships. Additionally, the experiences of oneself and others contribute to the dynamic, leading to the development of dialogue as a means of communication.

The role of joint attention in educational processes

The presence of joint attention is particularly crucial in all educational settings, as it refers to the capacity to collectively concentrate on a third element, which may include a song, a musical progression, a game, or similar activities. As a simple working definition, joint attention can be termed

> the coordinated attention of two or more people to the same, intentionally focused object, event, or
>
> idea. (…) Joint attention does not appear until the persons involved know that they are focusing

their attention on the same thing or object. From the outside, one can recognize the reassuring gaze from the child to the focused object and back to the caregiver and whether the persons involved share their attention together. (Salmon, 2020, p. 40)

The presence of joint attention is essential for attaining success in many teaching and learning contexts. Adolescents and adults who find it challenging to follow, initiate, or engage in the fluctuations of shared attention within social interactions may encounter significant obstacles in their ability to relate to others and develop meaningful relationships (Mundy & Newell, 2007).

The lack of adequate joint attention in a child poses significant challenges to the success of standard pedagogical techniques. In such cases, the child struggles to engage and learn. Collaborative activities, including playing music together, engaging in call-and-response singing, imitating rhythms or melodies, and developing themes, can only be effectively executed when joint attention is sufficiently developed. It is important to note that many educational methodologies are fundamentally reliant on these forms of interaction or assume their presence (Esterbauer, Salmon & Schumacher, 2018; Salmon, 2020).

The acquisition of relationship skills typically occurs during the early years of life as part of normal developmental progression. However, in children whose development is hindered by various factors, these skills may be underdeveloped or, in severe instances, entirely absent. Evaluating and understanding these skills is crucial for inclusive education, as the ability to form relationships underpins all learning processes.

Relationship in inclusive music and dance activities

The integration of music and movement serves as an exemplary foundation for a comprehensive educational framework, as these elements effectively engage cognitive, emotional, social, and creative dimensions of individuals. Inclusive education emphasizes the importance of providing every individual with the opportunity to learn, engage in play, and study at their own pace, in accordance with their unique capabilities, alongside their peers (Feuser, 2011).

The following factors are essential considerations for educational practice:

- Each group exhibits heterogeneity.
- Participants possess a diverse array of skills, interests, and opportunities.
- The prerequisites that individuals bring to music and dance groups are crucial, as they include both general characteristics and recent shifts in mindset and emotional states.
- Music and dance groups exhibit a considerable diversity in aspects such as perception, cognitive processing, emotional engagement, behavioral tendencies, motivational influences and also in relationship skills.

Relational skills are critically important for teachers specializing in (elemental) music and dance. Consequently, evaluating the status of these relational abilities would be immensely beneficial. This is particularly true in inclusive educational settings, where the identification of children's diverse capabilities and their potential for interaction is essential. The observation and assessment of the quality of relationship can improve the fundamental effectiveness of artistic-pedagogical music and dance interventions. Based on Karin Schumacher's work with children with disabilities, and specifically those diagnosed with autism, we can derive the following insights: inclusive learning contexts in heterogeneous groups succeed when the different abilities and needs of the children and their ability to relate are correctly assessed and the teachers correspond individually to the children (Schumacher, Calvet & Reimer, 2019).

The central themes of investigation into the phenomena surrounding relationship skills in special music education can be articulated through the following questions:
Does the teacher recognize the relationship qualities of the participants in the current moment and react appropriately?
Is the offer, the task, the intervention suitably tailored to meet the unique needs and abilities of the child/participant?

In addressing these questions, it is essential to conduct an analysis that encompasses the quality of relationships alongside various other factors, including intentions, emotional states, and lesson planning. This approach should emphasize not only the child's experiences but also the teacher's actions. Utilizing an analytical instrument such as the Assessment of the Quality of Relationship (AQR) can facilitate this focus. Originally designed for music therapy, the AQR Tool (Schumacher et al.,

2011, 2019) has been modified for application in educational contexts, particularly within inclusive music education (Esterbauer, 2019, 2022).

Key components of the research aimed at the modification of the AQR Tool

Participants and media:

- 120 hours of video footage recorded
- 158 participants involved, aged 4–72,

  from various educational settings:

  - Children's elemental music and dance groups with Orff-Schulwerk-based pedagogy
  - Mixed ability and age groups with Orff-Schulwerk-based pedagogy
  - Music and dance groups in Kindergartens
  - Music lessons in primary and secondary schools
  - Music lessons in special schools

Research methods:

- Qualitative Video Content Analysis (Mayring, Gläser-Zikuda and Ziegelbauer, 2005)
- Grounded Theory

The AQR-P Tool

The original therapeutic AQR Tool functions as an observation and assessment method that focuses on interpersonal relationships. It was developed in cooperation between music therapist Karin Schumacher and developmental psychologist Claudine Calvet, beginning in the 1990s, for music therapy with children suffering from a profound developmental disorder, especially autism (Schumacher et al., 2011, 2019). The author of this article has made adaptations to the original AQR Tool over the past few years, tailoring it specifically for music and dance education with a strong focus on inclusion (Esterbauer, 2022).

This new AQR-P Tool (Assessment of the Quality of Relationship in Pedagogical contexts) enables the music educators to assess the ability to relate and the current condition of the individual participants and thus provides important indications for the methodical, didactic, and musical approach and reflection of the teacher.

The AQR-P Tool features a total of five scales, with four dedicated to analyzing the child's behavioral phenomena:

- physical-emotional phenomena
- vocal pre-speech qualities
- instrumental activities
- verbal speech activities.

The fifth scale is designed to evaluate the teacher's interventions. This scale assesses whether the tasks assigned to the child are suitable or if the teacher should consider adjusting the instructional methods.
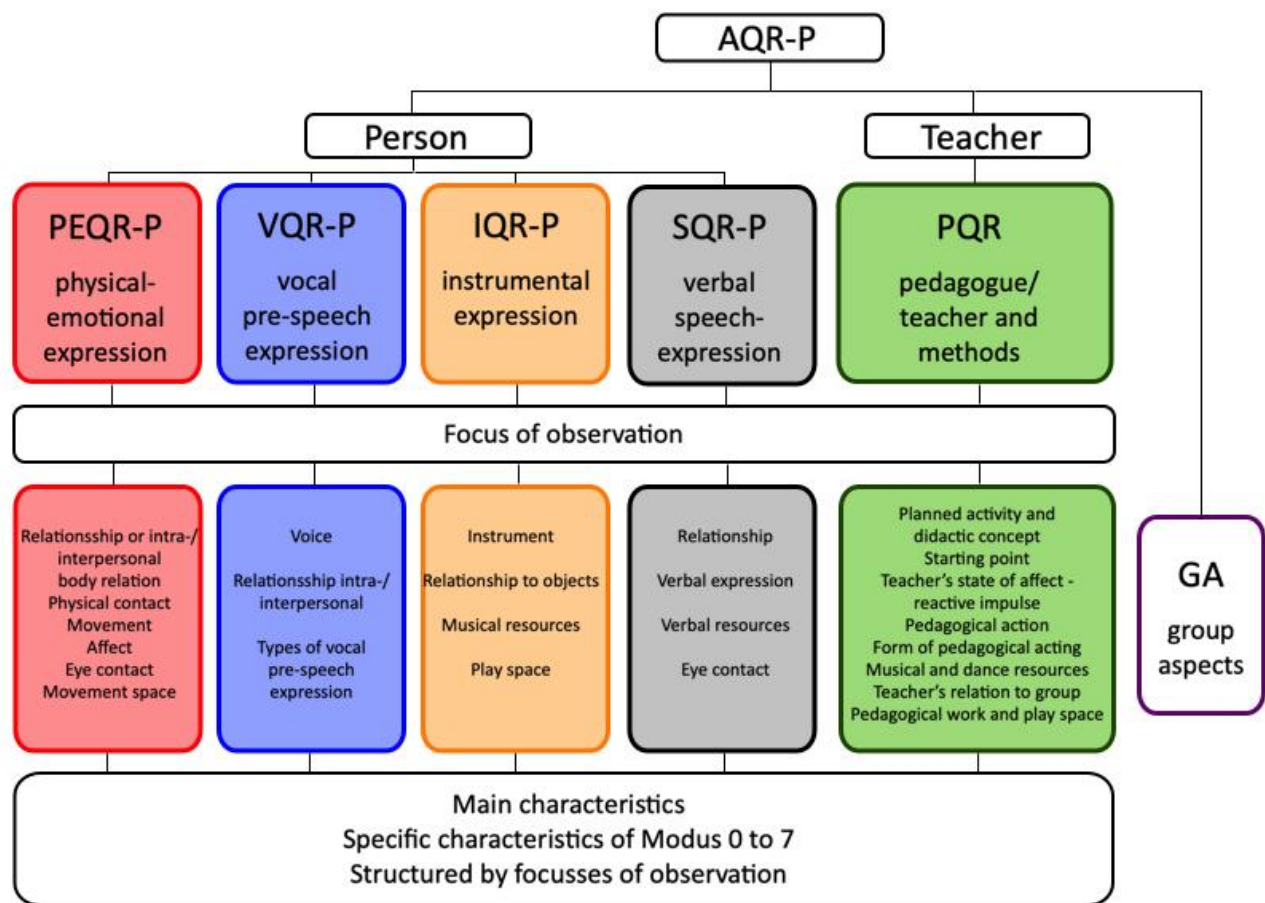

Fig. 1: The structure of the AQR-P Tool (English version according to Esterbauer, 2022, p.277)

The fundamental concept for assessing relationship quality is rooted in the specific focus of observation within each scale, which is elaborated upon for the corresponding observation points provided herein. Each activity observed within these scales can be categorized into one of eight

relationship qualities, referred to as modi, which have been derived (via Content Analysis and Grounded Theory) from the aforementioned theoretical framework. The qualities start with lack of contact or the rejection of the contact at all, leads over to the observance of self-awareness and has its most developed form in the experience of inter-affectivity – a real joint experience on the emotional level. In educational settings, there exists an additional mode, referred to as modus 7, which can be characterized by the autonomous completion of tasks or activities.

Modus	Person	Teacher
Modus 0	Lack of Contact / Contact Refusal	Creating Atmosphere / Enveloping
Modus 1	Sensory Contact / Contact-Reaction	Connecting Perceptions
Modus 2	Contact for Affective Regulation	Affect attunement / Allowing Oneself to be Functionalized
Modus 3	Contact to Oneself / Self Awareness	Sense of Oneself/ Making Aware
Modus 4	Contact to an Other / Intersubjectivity	Intersubjectivity / Being Included as a Person
Modus 5	Relationship to Another / Interactivity	Dialogue in Music and Dance / Answering and Asking
Modus 6	Joint Experience / Interaffectivity	Play Space – Playing / Having Fun / Imagination
Modus 7	Performing Tasks Independently	Setting Tasks for Independent Action

Table 1: The 8 Modi of the AQR-P Tool

Utilizing the AQR-P tool in practice

The AQR-P Tool features lists of a series of observable attributes that articulate the diverse qualities of relationships (modi). When utilizing the AQR-P, it is standard practice to capture a complete music and dance lesson on video. Afterwards, relevant excerpts are identified from the recorded content, which may highlight special moments of relating, key interactions, instances of attentiveness, or scenes that reflect variations in relational qualities, along with segments that reveal difficulties

encountered during the lesson. These pertinent excerpts, generally lasting between thirty seconds and three minutes, are subsequently analyzed with the list of characteristics by either the teacher himself/herself or an external observer.

The core feature in that process lies in the existence of the matching or non-matching of relationship qualities of the participant and the teacher. When the teacher is capable of responding effectively to the participant's mode of interaction, a positive outcome is anticipated, similar to the results found in music therapy (see Mössler et al., 2017). The findings from the analysis empower the teacher to design future music and dance lessons with greater precision, incorporating new insights into the various ways of relating. Therefore, the AQR-P Tool could play a crucial role in assisting the music educator in assessing the child's current relational abilities, thereby aligning educational strategies with their individual needs and learning opportunities.

Benefits of the AQR-P Tool in music and dance education
The implementation of the AQR-P Tool in music and dance education presents a variety of beneficial outcomes for educators. This tool could aid teachers in refining their practical and theoretical methodologies, especially in contexts involving diverse groups of learners. It provides critical feedback regarding the live dynamics of instructional practices and the corresponding reactions of students, thereby enriching the educational experience:

- Diagnostics – determination of the ability to relate
- Assessment of different skill levels
- Recognition of over- or under-challenge
- Providing adequate contents and methods for different individual needs
- Adaption of the contents for individual learning and experience
- Self-reflection of the teacher on different levels (content, methods, emotional, social factors, etc.)
- Planning of future units, lessons, methods
- Documentation of process and progress
- Research

The incorporation of the AQR-P Tool into the daily practices of educators can enhance inclusive education, allowing for more tailored and individualized instruction and task selection for students.

Through the tool's self-reflective features, which address multiple dimensions including content, pedagogy, emotional responses, social interactions, perception, and the interpretation of student behavior, teachers will be better equipped to design lessons and activities that align with the unique capabilities and needs of each participant.

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