**Adaptation of the *Extra-Ordinary Music Camp* during a pandemic:**

**Resilience as vector of innovation**

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**Abstract**

The *Extra-Ordinary Music Camp* is a research project whose objectives are: (1) to offer an inclusive environment for musical creation adapted for *extra-ordinary* youths, and (2) to study how participatory, informal, inclusive, and adaptive musical creation activities impact *extra-ordinary* youths’ communication and social interaction abilities. The present article addresses adaptations made to the project following the arrival of the COVID-19 pandemic, which disrupted the originally planned activities. Using viewpoints from four undergraduate and graduate student facilitators who served as session leaders and researchers on the project, the *Extra-Ordinary Music Camp*’s evolution from an in-person to a remote research project will be described. First, the initial study design is introduced. Then, we detail the ways the project was adapted online as a consequence of the COVID-19 pandemic: we present the adaptations made to musical training (pedagogical plan), research tools, and modalities of collaboration between team members. Finally, certain preliminary results are presented and contextualized in light of these significant adaptations to the organizational, scientific, and pedagogical plans.

Keywords: Remote music education; exceptional children; COVID-19; resilience

**Authors’ Note**

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 This article discusses the adaptations of a research project, the *Extra-Ordinary Music Camp*, following the COVID-19 pandemic’s disruption of the planned activities. First, the conceptual framework of the project will be introduced. Then, we will detail the ways the project was adapted online to adapt to the COVID-19 pandemic; we will present the adaptations made to musical training (pedagogical plan), research tools, and modalities of collaboration between team members. Finally, certain preliminary results will be presented and contextualized in light of these adaptations to the organizational, scientific, and pedagogical plan.

**2 Conceptual Framework**

 This project is situated at the intersection of inclusive education and informal music learning. In order to align the project with the current state of research pertinent to this still under-researched intersection, three themes are identified: (1) inclusive education and learning in *extra-ordinary* youths, (2) informal music learning, and (3) informal music learning in *extra-ordinary* learners.

**2.1 Inclusive education and learning in *extra-ordinary* youths**

 Inclusive education takes characteristics of youths with and without disabilities into account. It involves modifying the material or group activities to include all the participants and to be open to diversity (Duchesne, 2002). This section proposes some pedagogical indications that can facilitate participation and learning in *extra-ordinary[[1]](#footnote-1)* youths and their peers, in the context of implementing an inclusive, adaptive musical program offered remotely.

 The teaching-learning process for *extra-ordinary* youths must take into account their potential and the different supports they might need. To do this, a cognitivist and constructivist vision of learning can be applied (Norman-Guérette, 2012). Cognitively, the youths need the teacher to account for latency time (or reaction time) when giving instructions, so that they have the time to encode the information transmitted to them, process it, and produce an appropriate response. This strategy is used by parents, teachers, and can also be taught to peers in order to facilitate interactions and help to develop communication and social interaction skills (Julien-Gauthier et al., 2018). It is also useful for verifying the youths’ comprehension when they hesitate to act. Similarly, the teacher must adjust to the student’s rhythm by guiding them attentively toward the acquisition of new knowledge (Côté et al., 2016). Further cognitive aspects can be considered: the teacher must arrange the environment in order to capture and hold youths’ attention. Learning must be structured to help keep attention directed toward important elements. The tone of voice, for example, can be modified, actions can be associated with words, or students’ active participation can be encouraged by inviting them to repeat what has just been taught (Jourdan-Ionescu & Julien-Gauthier, 2011). From a constructivist perspective, motivation is a determining factor in learning. Using youths’ interests and preferences can inspire and reinforce their motivation to complete a task. Lessons must be concrete, gratifying, and should draw on prior knowledge. The constructivist approach also allows the youth to participate in the construction of their own knowledge. In *extra-ordinary* youths, new knowledge must be consolidated with frequent and repeated practice, to anchor it to existing knowledge. The youth is thus given responsibility for their own learning process, by drawing on their existing capabilities and by stimulating them to engage more and more in the activity (Normand-Guérette, 2012). *Extra-ordinary* youths learn in context, because of the challenges posed to them by the transfer and generalization of knowledge acquired in a new environment (Martin-Roy, 2019). On the organizational side, instituting a routine is useful because it creates a certain familiarity, a security that makes the youth more available for learning (Chénard, 2020).

**2.2 Informal music learning**

 One of the approaches to music learning that has particularly attracted the attention of researchers and practicians since the publication of *How Popular Musicians Learn: A Way Ahead for Music Education* (Green, 2002) is *informal* learning. Contrary to the formal approach, which rests on a master-apprentice relationship and is centred on music notation, informal learning takes place mainly autonomously and between peers, and is foremost based on listening and imitation (Cope, 2002; Green, 2002). At the heart of this approach are five principles that emerged from empirical data collected from self-taught popular musicians (Green, 2002, 2009) : (1) informal music learning generally implies simultaneous integration of listening, interpretation, improvisation, and composition processes; (2) the musical work to be learned is chosen by students themselves; (3) learning the piece and gaining technical competence happen principally by ear, with audio recordings; (4) this learning process happens in large part with the help of peers and/or autonomously; thus (5) the musical ability and understanding are assimilated holistically and idiosyncratically, and mostly at random, according to students’ interests and the development of their musical ability. From the first steps, then, the informal musician learns to take charge of their own learning, to evaluate their own capabilities and relate them to the repertoire’s level of difficulty, and to make decisions as a group. Introducing these principles of informal learning into a more formal context demands that the teacher take the role of guide, and not that of keeper of knowledge. The teacher initiates a task, and steps back to observe, diagnose, guide, suggest, model, consider learners’ points of view, and help them attain the objectives that they themselves have set. All these factors contribute to developing autonomy, engagement, and intrinsic motivation in learners. However, research on informal music learning in people presenting a physical or cognitive disability is lacking (McHale, 2016; Rathgeber, 2017).

**2.3 Informal music learning and *extra-ordinary* learners**

The characteristics of informal music learning identified in the previous section demonstrate that this modality of learning can be appropriate for youths living with a physical or cognitive disability. Indeed, informal learning facilitates a multimodal pedagogical approach based on learners’ interests and preferences, which can favour learning consolidation since the musical works being learned are already known. As well, because it rests largely on imitation and learning in context (rather than on theory and technical exercises), informal learning sustains motivation by aligning with learners’ needs and potential.

For people with disabilities, however, access to participatory and informal music creation activities is restrained by significant barriers (Rathgeber, 2017). These obstacles can operate on the physical, cognitive, or social levels, or relate to a lack of programs adapted to people’s needs (McHale, 2016; Rathgeber, 2017). Further, though significant research into music participation in people living with disabilities has been conducted in school or music-therapy contexts, little research has been done on informal music-learning practices in this population (Murphy & McFerran, 2017). Indeed, the impact of informal and inclusive musical activities on *extra-ordinary* youths is underrepresented in the literature (Rathgeber, 2017). Considering this lacuna, we established a project offering to *extra-ordinary* youths the possibility of participating in an informal music learning program.

**3 Initial Project**

 The principal objective of our research project was to study the impact of *extra-ordinary* youths’ participation in an inclusive day camp involving an informal musical creation experience with their peers, supported by student facilitators. Oriented around an informal approach, the project aimed to create a musical program offering instruments, adapted if necessary, and minimal guidance by trained student facilitators, in order to allow these *extra-ordinary* youths to live an inclusive and creative musical experience. To do this, our initial design was intended to add a music program to an existing day camp, in collaboration with the principal actors involved (participants, parents, community organizations and day camps). Entitled *Extra-Ordinary Music Camp*, this “in-person” format would last from 6 to 8 weeks, allowing children and adolescents aged 8 to 17 years living with a physical or cognitive disability to participate in informal and inclusive musical activities through an adapted pedagogical program, inspired by research into informal music learning (Green, 2002, 2009; Jaffurs, 2004; Westerlund, 2006).

 However, when the time came to begin recruitment for participants in our program—which was meant to begin in June 2020—public health measures related to COVID-19 came into effect in the province of Quebec (Canada), where the project was to take place. We were confronted with the fact that there were strong chances that public health measures would still be in effect during the summer period when day camps would be starting, rendering the realization of our project more risky, even impossible, as it was originally designed. Facing this situation—and driven by our wish to contribute to the well-being of *extra-ordinary* youths and their families in this period of lockdown—we decided to significantly revise our pedagogical plan to allow the program to take place no matter the restrictions imposed by public health measures. In April, considering this uncertainty, we revised the project so that it could be realized under three different possible conditions: a) entirely remotely, online; b) entirely in-person, as initially intended; or c) integrating these two modalities, according to participants’ needs and the possibilities at our two partner organizations, day camps in the Quebec City region. In early June, in light of the direction of public health measures imposed by the provincial government of Quebec the entirely remote project formula was chosen. This significant reformulation necessitated a substantial amendment request to the ethics committee at Université Laval, as well as a review of our research plan, a reorganization of the research team’s work, and a review of the pedagogical intervention plan. This adaptation effort pushed us, as a team, to leave our comfort zone, to take risks, and to use our creativity to explore alternatives that would not only permit us to continue working on our research activities, but also to facilitate the participation of a greater number of *extra-ordinary* youths in our project. The next section presents in detail the modifications made to the project.

**4 Modified project – COVID adaptations**

 The COVID adaptations to our project affected our research plan, the organization of our research team’s work, and our pedagogical plan.

**4.1 Research plan**

 Regarding our research plan, we retained the initially planned approach of participatory action research, being an ethnographic case study. Within this framework, we revisited the modalities of our pedagogical intervention. Furthermore, although the data collection tools were kept, the collection modalities were modified as a result of moving the project online.

***4.1.1 Intervention context***

 The initial interventions were intended to take place in person and in groups. They were to have been one hour to 90 minutes long and to occur two to three times per week. Because of the pandemic, we had to migrate the interventions online. Considering current technical limitations—which do not permit synchronous music-making online in the “usual” manner, because of latency time—we also changed to individual interventions rather than groups. We also reduced the duration of the initial intervention to around 30 minutes, both for logistical reasons (individual interventions requiring more time in total than group interventions) and to avoid cognitive overload for participants (anticipating that the individual intervention online could be more demanding for participants).

***4.1.2 Objectives of the research***

 The principal objective of this project is to study the impact of *extra-ordinary* youths’ participation in an informal, online, inclusive music camp. More precisely, the research’s two sub-objectives are as follows: (1) to offer an inclusive, adapted environment of musical creation for *extra-ordinary* youths; (2) to study the impact of participatory, informal, inclusive, and community-adapted musical creation activities on the *extra-ordinary* participants’ communication and social interaction skills.

***4.1.3 Data collection***

 The shift to an online project did not require modifying the data collection tools chosen in the initial framework of the project. However, the various tools’ modalities of transfer had to be adapted to the context: pre- and post-interviews were administered via the platform Zoom, the questionnaires were transposed to an online platform, and sessions were recorded via Zoom for subsequent transfer to an S3 server of Université Laval (Valeria[[2]](#footnote-2)), to ensure confidentiality. As a result of the shift online, research assistants could not be present in real time to respond to questions arising during the completion of questionnaires or to make observations.

**4.2 Organization of research team’s work**

 The research team’s weekly meetings took place via the platform Zoom rather than in person. As well, to optimize the organization of the team’s work, as much in communication and planning as in conception and sharing of materials, many different software tools and applications were used to optimize planning, execution, and follow-up processes, as presented in Table 1. Learning and integrating these software and applications in the workflow required time and adaptability from the entire team.

[*Table 1 here]*

**4.3 Pedagogical plan**

 A first draft of the *Extra-Ordinary pedagogical program* was developed before the initiation of public health measures related to COVID-19 in Quebec. It initially consisted of a series of inclusive group activities involving instruments and complementary material facilitating *extra-ordinary* youths’ participation. Because of the short period of time available to the team between the announcement of public health measures and the beginning of the project, only one part of the activities could be adapted before the sessions began. The modification of the initial activities was taking place over the course of the project, as well as development of new, supplemental activities adapted to online learning and participants’ needs and interests.

***4.3.1 Program participants and activities***

 The *Extra-Ordinary Music Camp* was offered to 25 youths aged 8 to 17 years with physical or cognitive disabilities, residing in six administrative regions of Quebec. They participated in informal, inclusive, and adapted musical activities for seven weeks over the course of the summer of 2020. Each participant had access to personalized musical sessions with one of four student facilitators via the videoconference application Zoom. Contrary to the originally proposed plan, the *Extra-Ordinary Music Camp* activities took place mainly on an individual basis, with occasional participation of parents and siblings. Some participants also had their sessions in the company of a friend who came regularly to their house, which allowed them to do activities in parallel, cooperatively, or competitively. Finally, in order to allow the youths to live a rich and varied experience, the research team sent musical instruments adapted to participants’ needs and interests directly to their homes.

***4.3.2 Software and applications used during sessions***

 Following the project’s move online, the use of a viable videoconference application was deemed necessary in order to execute the planned activities in real time. In addition to the “central” application, different digital tools were used to vary the pedagogical activities or to facilitate the general functioning of sessions as much for the participants as for the session leaders. These tools are briefly presented in Table 2. Despite improvements made and testing done by research team members, videoconference platforms currently available are still lacking in terms of sound quality and latency.

[*Table 2 here]*

***4.3.3 Tools used during sessions***

 When the project was shifted online, it was decided to send instruments to participants’ homes, to allow them a rich and varied experience. Instrument choices were made according to their needs and interests, in collaboration with a student facilitator, parents, and participants themselves during a preliminary session of the *Extra-Ordinary Music Camp*. The delay between choosing and ordering instruments and their arrival, however, led to the project starting without instruments. This unforeseen delay, lasting up to three weeks in some cases, meant that creativity was required in session leaders, creating or modifying activities to incorporate material found in participants’ homes. In fact, the instruments’ late delivery also brought some unanticipated benefits. Firstly, session leaders report that they could address technical and questions and initiate a session routine without the distractions generated by the presence of instruments. The routine and session interactions were thus learned and integrated before the more complex learning of musical instruments. As well, delivery of instruments after a few sessions generated momentum for many participants, serving to solidify interest in the music camp. What could at first have been considered a hindrance, then, may have become a factor of perseverance, perhaps even contributing to the fact that no participants abandoned the project unfinished. Indeed, the late instrument delivery engendered continuous learning, the participants first acquiring skills for remote learning and acquainting themselves with the session leader and routines, before learning to use musical instruments, which involves new cognitive and motor abilities.

As well, several tools facilitated online teaching for session leaders, who worked from their homes. A fisheye lens, for example, allowed a wide-angle view of the room, reducing the manipulations needed (e.g. moving the computer camera, moving to the back of the room, etc.) to maintain an optimal viewing angle. Headphones were also essential, to ensure confidentiality, to benefit from high sound quality and avoid audio feedback and echo, and to diminish background noise. Headphones can also help hold youths’ attention during sessions. Finally, pictograms were useful for anchoring sessions and supporting comprehension, particularly with younger participants and in the first weeks of the project. However, as the participants became accustomed to the session structure, material, activities, and leaders, pictograms were used less and less, up to their elimination entirely for certain participants who no longer needed them and who responded well to verbal and gestural instructions. Gestures thus became the new visual cues, more culturally valid and transferable to daily life than pictograms for participants whose development and preferences allowed their use.

**5 Results**

 The results and quotations presented below are taken from interviews conducted with session leaders at the project’s halfway point. These interviews addressed the adaptations made to the program and the student facilitators’ experience of them. A descriptive qualitative analysis of data collected allowed five themes to emerge, related to advantages and difficulties leaders experienced because of the modifications made to adapt the project to the pandemic context: (1) technical and logistical aspects, (2) the bond between student facilitator and participant, (3) the pedagogical approach, contents of the program and support for the youth, (4) the role of parents and siblings, and (5) the experiences of session leaders.

**5.1 Technical and logistical aspects**

 Technologically, acquiring and managing the various software and applications, logistical aspects of session activity, as well as the audio latency and volume management (“Sometimes I didn’t realize that the sound wasn’t working, the child didn’t show it”) were revealed as difficulties. Restrictions to the variety of instruments and activities (e.g. collaborative activities, “rally” style, group creation) were also noted as a limit of the online modality at participants’ homes. Likewise, session leaders highlighted the challenge of having to creatively supplement the pedagogical plan in order to effectively explain and model to participants via the medium of a screen. This being said, many important benefits of the technology were also revealed on the pedagogical side: sharing music and videos was easy and fast, the possibilities of exploration with the online applications were numerous, the screen easily captured participants’ attention, communication could be facilitated with the help of some interactive applications, and the participants’ pleasure in using this media technology at home was obvious to session leaders: “I think we’ve found good technological alternatives, all the tech tools work well, we manage to do beautiful things.”

 Regarding the physical environment, sessions at home came with their share of difficulties, linked notably to internet quality and technical equipment, distractions in the environment (e.g. objects, noises, people), and confidentiality, as much for leaders as for participants. On the other hand, working from home also had advantages, notably regarding the organization of the music camp; it was also easier to accommodate participants’ schedules (e.g. an adolescent who does not want to do a session before 10:30am) and offer them time slots that were favourable from a cognitive and dispositional standpoint. The online formula of the music camp, based on brief (20-30 min) sessions without a need for travel, also allowed session leaders to be flexible in case of unexpected delays. Without a geographical barrier to recruitment and participation in the activities, it was possible to include participants from several regions of Quebec, in a radius of 300 km from Quebec City.

**5.2 Teacher-student bond**

 Concerning the establishment of the “teacher-student” bond with participants online, it was noted that the bond was established differently with each participant. Without an in-person comparison, it was difficult to determine if establishing a bond was made easier or not by the distance-learning context. The student facilitators’ opinions were divergent as far as the ease of establishing a bond online. On one hand, session leaders noted that in general their bond with participants was good: “At first I was afraid we would have difficulty creating bonds, or that the distance would make it cold. But with some students I’m able to tease and laugh.” Many participants knew the session leader’s name, recognized and greeted them, and seemed happy participating and conscious that someone was interacting with them through the screen. The remote modality also seemed to inhibit shyness in some participants, owing to the familiar space they occupied: “They are alone, so they’re not being judged. In a group, you might be shy to sing, to be silly”; “For children who are more fragile as far as adaptations it can definitely help them to express, to be authentic more quickly.” Session leaders found themselves as part of youths’ daily reality: “Maybe that makes them feel we’re in their daily reality, because we’re not in a room they’ve never been in, that surely plays a role in establishing a bond.” On the other hand, the intermediary of a screen was sometimes seen to make human contact more difficult:

In the end, I got the impression that it makes the contact colder; for the student, what’s the difference between me and a show they watch on TV? . . . It’s not the same as establishing a bond in person, I’m very tactile when I teach, a mama hen, I give hugs—so all that [physical and psychological proximity], we don’t have it.

With certain participants, persistent shyness may have been a result of the remote modality: “If we were seeing each other in person, maybe the shyness would have gone way. There are still students who are shy or hesitant to do certain activities (e.g. withdrawing when asked to sing).”

Finally, the presence of parents was also perceived as very important for the establishment of the bond over a distance: “I get the impression that I would not have been able to succeed were it not for the parent.”; “I feel like in the first meetings it took several interventions from the parent, where they would say: ‘There, listen to X, look there, it’s on the screen,’ now that’s no longer necessary.”

**5.3 Pedagogical approach, program, and youth support**

 Teaching online allowed student facilitators to go beyond the pedagogical plan in their own way to lead the sessions. Exploration of new avenues that could be transposed to their professional work was also noted as a benefit, particularly in the present pandemic context:

With the period we’re living, maybe the distance element will be more present so it’s cool to be one of the first to experience it. . . I’m exploring things that I’ve never done in traditional singing lessons, so I find that really fun. I feel like if I was to teach again, either singing or another edition of the camp, I would be a completely different teacher.

The pleasure of teaching music to *extra-ordinary* youths in an online context was noted by all the session leaders: “Though I would have preferred to see them in person to create a bond, it’s still good, I see that the kids have lots of fun doing it even if it’s online, the pleasure doesn’t disappear with distance.”; “It’s fun to see them go and be more and more autonomous.”; “I’m super happy—it’s a bit more time than I thought as far as planning, it takes creative juices to adapt to each student, but they give back so much in interest and love, so it’s really a pleasure.”

 Concerning intervention, the impossibility of using physical proximity and tactile interventions (e.g. a hand on the shoulder) to redirect behaviour was noted. A parent’s presence often became necessary to remedy the absence of proximity, which was sometimes uncomfortable for session leaders: “Often the parent will play an intervention role to reframe the child, so at that moment my own position is more passive, which I find a bit uncomfortable.”

In the same way, some session leaders felt that participants saw them more as a “game show host” than an authority figure, and that this perception could sometimes impede on their ability to get the youths to participate in proposed activities. Despite this punctual issue, though, the appreciation of parents’ interventions in the online context was also noted. For some session leaders, the online modality was found to be a barrier to spontaneity and to the use of humour during interventions and activities. For others, the presence of an intermediary (the screen) seemed to diminish their own shyness, and push them out of their comfort zone in order to attempt more extravagant interventions:

I think that it opens me up and I’m more willing to do things because I put myself on show. I have to give more because I’m in front of a screen, so I think that pushes me to go out of my comfort zone, to be silly, and I like that.

The student facilitator remarks here on the positive impact of humour, which contributes to reducing anxiety on both sides, maintaining the learner’s attention, and reinforcing the teacher-student bond. From another standpoint, the remote modality was sometimes considered to limit leaders’ ability to capture participants’ attention, bring them to their task and motivate them. Indeed, in some cases session leaders found difficulty enticing participants to act: “We’re on a screen; if we make a movement to catch their attention but they’re not looking, we can’t do anything more.” However, attention and participation depend on many factors, including those unrelated to the online modality (e.g. fatigue after a day at a summer camp).

**5.4 Role of parents and siblings**

 The role of parents and siblings varied significantly from one participant to the next. In general, a parent was often visible in the camera’s field of view and their presence was necessary for sessions’ smooth operation: “I often get the comment, ‘Am I doing too much?’ and I say, ‘No, no, if you weren’t there it would be more difficult for me.’” Some parents tended to be hands-off, staying present during the session “just in case.” Others, particularly parents of more introverted youths, participated actively in the activities to motivate their child to get more involved. Parents were also supportive of the intervention plan: they could clarify or reformulate instructions, intervene in case of inadequate behaviour, and reinforce good behaviours: “I know that if the parent wasn’t there, I wouldn’t be able to do the activity because the attention just wouldn’t be there.” Certain parents acted as interpreter between the leader and participant, to facilitate communication. As well, some parents provided feedback to session leaders to optimize sessions (e.g. activities, tricks, changes in their child’s interests...) and showed themselves to be proactive and open to leaders’ suggestions. According to the student facilitators, parents would probably have been less present or less involved in the activities and interventions in person.

 Siblings, for their part, were a source as much of motivation as of distraction during activities. When they were visible on the screen, session leaders tried to integrate them into certain parts of activities, which might stimulate the participants’ engagement. On the other hand, siblings’ presence in the environment, particularly when the participant found themselves in common areas of the home, could contribute to distraction because of noise and interactions that could interrupt the rhythm of the lesson.

 As the project advanced, some participants became more and more autonomous and responsible. The role of parents evolved into one of initial support, to deal with technical problems (e.g. internet connection) and then leave the room for the session. Certain participants even asked to be alone with the session leader: “A dad joked to me, ‘She chases me from the house, she really wants to be alone with you!’” However, if a participant had difficulties with oral expression, comprehension could pose an additional challenge for a session leader lacking the support of a parent to clarify: “I don’t want them to feel like there’s a problem with how they express themselves, I feel bad, but I sometimes ask them to repeat themselves. I find it hard sometimes.” Finally, in some cases, the presence of a parent sometimes seemed to become an obstacle to the youth’s participation, taking up too much space in the course of the session and leaving insufficient time for the youth to explore or respond, or indeed in putting a certain pressure on them to perform: “I felt that one youth became impatient because his mother was telling him what to say and what to do, even though he would have been capable”; “When parents are there, I find it difficult because I want to adapt as much as possible to the rhythm of my students, and sometimes the parent will push a little, it’s more challenging”; “Others will be there for discipline and I find that hard because they have a shorter fuse than me.” It was beneficial in such cases to suggest that the participant be autonomous during sessions and that the parent be present for support if needed: “It’s very positive, there’s less pressure: the youth can take time.”

**5.5 Session leaders’ experiences**

 The announcement that the program would be realized completely online provoked many different reactions in the student facilitators. For some, this change represented a source of added stress, even anxiety and fear, because of a lack of interest in remote teaching, a lack of experience in this modality, and the anticipation of further challenges: “I wasn’t excited, it was stressful, lots of unknowns. I was worried about the [teacher-student] bond, how to interact with them, I didn’t know them, I didn’t know what to expect.” For others, it was part of a continuation of online teaching already implemented. For these session leaders, the new online element was perceived as stimulating and a challenge to face, despite the presence of many unknown factors:

I’m all in, this is what’s asked of me, I do it and I’m happy, though I did have some apprehension because it was new for me and the *extra-ordinary* youths, so I was like “Oh boy, that too?!” I wasn’t really worried, because . . . I trusted the team directing the project, but there was a lot of unknown information.

As well, eliminating the necessity of travel was reassuring for some. The practice session that took place a few days before the official start of the camp with one youth and their parent allowed for a reduction in unknown variables, an increase in the feeling of control, and thus also diminished stress for session leaders:

I was freaking out, I couldn’t do it, you’re faced with it and you have to do it, and after that, it went well […]. I was really happy because Maël is a great student, he’s happy, he goes along, it gave a good idea [of what to expect]. For me it was my first contact as a teacher with someone *extra-ordinary*.

 Over the course of the initial interviews, the first contact with participants, team meetings, training, choice of activities, familiarization with technological tools and establishing a bond with the youths, stress continued to diminish, making place for self-confidence and pleasure:

Now I’m on board and looking forward to it, I’m confident and I’m excited to see the kids. There’s always a little stress when I see the name pop up, but it’s a good, positive stress, that puts me into action to lead the session.

Now what I like is that I don’t see their conditions anymore, they’re complete persons with their own personalities, strengths and challenges. I know which activities they’ll like and which might make them say “Whoa, not sure.” It’s really fun.

At present, the session leaders express that they have found a satisfactory level of comfort and can even see themselves in future teaching experiences when the camp is finished: “Now it’s going well, and I’ll surely do these at music school so I can say ‘OK, it’s good, no problem, I know how it works,’ I don’t have the anxiety I had at first, we’re used to it.” These developments, be they linked to technology use, inclusive pedagogy, or being open to others, can be transmitted to their pedagogical skills and knowhow, and can enrich their range of professional competence.

 When asked what advice they would like to have been given at the outset, some session leaders would like to have been told to allow time to get into the experience, that it would be less different from in-person teaching as they feared, and that stress would diminish over time. Others would have wanted to know that they could deviate from the pre-established framework and omit strategies with which they were less comfortable (e.g. pictograms): “Having fun, because when you have fun it shows and that’s what works best.” Finally, earlier selection of and more comprehensive training in software tools and applications would have been appreciated. Overall, the session leaders felt that they achieved as much as they could in the current pandemic context, with the remote-learning formula: “We were well prepared with training, weekly meetings, the team too, we joined forces and we got through it well, we turned it around and I really feel like we attained the maximum that we could with this formula.” Team meetings were found to be essential in a context where newness and unpredictability was such a large part of the student facilitators’ experience. Establishing this practical community allowed each person to improve over the course of the program, through the strengths and diverse experiences of all the team members.

**6 Value of remote teaching/learning for *extra-ordinary* youths**

 Remote teaching was seen by student facilitators as an interesting alternative to in-person teaching for *extra-ordinary* youths, with both advantages and disadvantages. Individual sessions allowed leaders to adapt to participants’ needs, interests, and level, and to personalize the sessions as much in the activity plan as in interventions. Individual teaching also permitted flexibility in sessions and prevented comparison between youths, in accordance with the principles of an inclusive education adapted to *extra-ordinary* learners (Côté et al., 2016; Duchesne, 2002; Jourdan-Ionescu & Julien-Gauthier, 2011). When the participant’s familial situation allowed it, some participants included a friend in their session, which was shown to be very stimulating both for the youths and for the session leaders. As one facilitator noted, this contributed to the *extra-ordinary* youth’s social participation by favouring interactions, social bonds, and a sense of belonging: “I have two participants who take their lessons together and it’s a whole different dynamic. Having 2 kids together, you can do collaborative or competitive things and they go for it”; “Sometimes they’ll clap their hands together, I find that nice, it’s a beautiful chemistry.”

Finally, session leaders have reported several positive results of the remote music camp: the youths enjoyed doing the activities and made progress in musical capacity, but also in autonomy, capacity of expression, openness to proposed activities and technological literacy. These developments contributed significantly to stimulating motivation both in the student facilitators and the *extra-ordinary* youths; the former because they could note their positive impact on participants’ lives, and the latter because they could tangibly witness their own development, both musical and extra-musical. Indeed, the technological aspects of participants’ learning over the course of the project will be able to be reinvested in other learning contexts and into “real life”—since technological literacy has become more important during the current pandemic.

**7 Conclusion**

 The project’s shift online came with significant changes to the research plan, team organization, and the pedagogical plan. Despite having to do some of the preparatory work twice, session leaders also observed benefits to the reorganization of the initial project regarding fluidity in research team members’ work, and the adaptation and experimentation possible according to participants’ needs. As well, the project’s current form shows itself to be yet more innovative than our initial idea, considering that, to the best of our knowledge, it is the first project addressing informal remote music learning in *extra-ordinary* youths. Below are the main recommendations to be drawn from this first experiment.

**7.1 Recommendations for further online research**

 Concerning the research plan, it was possible without too much difficulty to adapt measurement tools to document the same data and variables that were planned at the start. However, the context and nature of the intervention were substantially modified, changing from 60-minute in-person group sessions in a day camp to online individual sessions lasting 30 minutes. These modifications allowed reducing travel time and individualizing the intervention, adapting to the schedule of each participant and their parents is possible, as much for data collection (questionnaire, interview, focus group), as for the musical sessions themselves. The fact that the project was entirely online also permits greater accessibility by eliminating geographic barriers. These important advantages should be taken into consideration in conceiving future research plans to address *extra-ordinary* youths.

**7.2 Recommendations for the organization of research teams’ work online**

 Collaborative online work demands a balance between the quantity of technological tools used and choosing the best tools to meet the research team’s need. Considering the rapid evolution of available software though, the particular software chosen here is less important than the fact of determining precisely the team’s needs. Otherwise, it is easy to get lost in the multitude of options available.

**7.3 Recommendations for an inclusive pedagogy in online music teaching**

 Regarding the pedagogical plan, our experiment makes clear that choosing an individual modality and brief session length is a good option for remote music sessions. However, it may be interesting to begin the project with individual sessions and then, according to the youth’s development, integrate siblings, parents, or friends into the musical activities, favouring interactions with others, social bonds and a sense of belonging. Eliminating length restrictions to better follow youths’ pace may also be interesting (e.g. between 20 and 50 minutes, rather than a fixed 30 minutes). Also, considering the time needed for the youths to learn and integrate their new skills, we suggest providing them with a recording of their sessions so that they can practice between lessons, which would enhance knowledge reactivation. Further, in the physical environment it would be important for future experiments to ensure optimal conditions for sessions, as much for the youths as for the session leaders themselves, to limit distractions and background noise, to have enough space to move, and to have computer equipment adapted for remote music sessions. It may also be interesting to offer the possibility for the session leader to travel to the youth’s home in addition to the distance modality, according to the stated objectives and the youth’s attention span. In future, it would be important to define more precisely the respective roles of parents and session leader. The research team could, for example, propose different modalities according to the needs and interests of parents and their child; among them, it would be important to propose a modality where the parent leaves their youth alone with the session leader, and another where the parent would actively participate in musical activities (having developed pedagogical material according to this parent-child modality).

 The instruments were another compelling aspect. First, ensuring that instruments offered do not have a too-strident sound when captured by a microphone (e.g. shakers, cymbals). Then, instruments must be adapted to participants’ needs and interests; involving participants and parents in instrument selection was useful. We also noted that beginning with sessions without instruments was useful for establishing a session routine and to take care of technical questions, integrating instruments after a few weeks to foster participants’ interest. Adapting session tools according to youths’ evolution is also important, as is flexibility in their use (e.g. pictograms vs. physical gestures). On the technical side, the videoconference software’s settings must be tested and updated to optimize the sound quality and latency. Use of complementary software like Ecamm Live can improve the experience for the youths and session leaders by allowing images to be shown on-screen in real time. Finally, a fisheye and wireless headphones are useful tools to provide to session leaders, to reduce camera manipulations, to facilitate movement, and to ensure confidentiality in meetings.

**7.4 Avenues to explore**

 We recommend that future projects in this domain explore such new possibilities, notably digital instruments like Orba[[3]](#footnote-3) and Freedrum 2[[4]](#footnote-4), to facilitate the musical experience according to the aptitudes, interests, and specific needs of *extra-ordinary* youths. Another avenue to explore would be to more systematically integrate online group activities, synchronous or otherwise. Group activities would allow youths to discover their interests through contact with the interests of others. The shift online for these activities comes with its share of challenges: their execution demanded a strong dose of creativity on the pedagogical side to account for individual needs and those of the group, and questions of latency and sound quality must be taken into consideration to create an agreeable experience for everyone. Finally, a last avenue to explore would be to integrate recordings of video sessions as a learning consolidation tool outside of the facilitator’s presence, such as between sessions and after the end of the music camp.

**7.5 Adaptation, resilience, and innovation**

 The current article concerns modifications brought to an inclusive day camp project comprising an informal musical creation experience for *extra-ordinary* youths. Our experiment shows that remote informal music learning activities are an avenue that should be further explored to offer *extra-ordinary* youths access to participatory and informal musical creation activities. The COVID adaptations to our project necessitated adjustments to our research plan, the organization of the research team’s work, and our pedagogical plan. The shift from adding an inclusive and adapted musical program to an existing day camp to developing and implementing an inclusive, adapted music program offered remotely required numerous adjustments, brought about several adverse situations, and gave rise to an unusual kind of teamwork. By the end of the study, even though we had not yet analyzed the totality of research data, we could infer the resilience of the different actors (the *extra-ordinary* youths and their entourage, student facilitators, and members of the research team). This resilience relied at first on the principal researcher and team’s complete confidence in the *extra-ordinary* youths’ learning potential and capacity to adapt positively to a remote music-learning program. Implementing the inclusive music program reinforced the young participants’ natural resilience, in overcoming an adverse situation and approaching learning with positivity and confidence. The student facilitators, veritable tutors of resilience, guided the participants in the construction of new knowledge and in developing their music-making abilities, by valuing their unique potential. Overcoming the adversity we faced brought about an innovative program of informal remote music learning in *extra-ordinary* youths. The inclusive music camp, unique to our knowledge, was shown to drive innovation, prioritizing the youths’ own potential, and exploring original and novel ways to favour their development, musical education, and social participation.

Table 1

*Organization method of research team’s work*

|  |  |  |
| --- | --- | --- |
| **Need** | **Software or application** | **Notes** |
| Sharing non-confidential documents | Dropbox | For putting together collaborative documents and seeing their evolution in real time. |
| Communication with records  | Email | For exchanges involving individuals external to the research team, keeping track of exchanges and to facilitate information retrieval. |
| Collaborative work on non-confidential documents | Google Docs | After some tests, Google Docs was chosen over Dropbox Paper because of its interface. |
| Rapid communication  | Messenger | For organizing time-specific meetings or making decisions in real time. |
| Follow-up of pending and completed tasks | Trello | For organizing workflow while avoiding email exchanges. |
| Secure and confidential file storage | Valeria secure server | -- |
| Precise document page layouts | Word | -- |
| Periodic team meetings | Zoom | -- |

Table 2

*Software and applications used during sessions*

|  |  |  |
| --- | --- | --- |
| **Software or Application** | **Function** | **Notes** |
| **Canva** | Conception of visually attractive pedagogical material | -- |
| **Cubase, Final Cut** | Audio and video montage of the music camp’s theme song | -- |
| **Ecamm Live**(Mac only) | Present images in the foreground during Zoom virtual meetings | The program was deemed highly useful for dynamizing sessions. |
| **Garageband**(Apple only) | Musical creation with “Magic Garageband” | -- |
| **Incredibox** | Musical creation | Activities where the participant is not in control of the screen were more difficult to perform with children who demonstrate verbal communication difficulties. |
| **iTunes, Spotify** | Present musical works, use soundtracks | -- |
| **Loopback**(Mac only) | Manage volume levels for various applications used in a session | -- |
| **Notability** | Acts as an interactive whiteboard: PDF files can be imported and notated | Usage example: Musical creation from a participant’s drawing. |
| **Online stopwatch, wheels of chance and dice** | Alternatives to physical objects | Easier to see on screen than their physical versions. |
| **Photo, Google Image** | Illustrate activities | -- |
| **Respirelax** | Relaxation activity | Available as a mobile application only. Alternative for computers: use of YouTube videos from Respirelax. |
| **Word** | Conception of pedagogical material | -- |
| **YouTube** | Present videos, songs, to participants | The slowdown function of audio tracks was deemed very useful. |
| **Zoom** | Real-time virtual meetings with participants | Observed limits: sound compression and latency.Pretending to play along with the participant can partly circumvent the latency problem.The sharing computer audio without sharing video function was useful for online musical sessions. |

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1. We use the term *extra-ordinary* to designate youths who are living with physical or cognitive disabilities. This terminological choice attributes a positive sense to their differences and signifies our recognition of the value they bring to our society. [↑](#footnote-ref-1)
2. <https://valeria.science/accueil> [↑](#footnote-ref-2)
3. <https://artiphon.com/pages/orba-by-artiphon> [↑](#footnote-ref-3)
4. <https://www.kickstarter.com/projects/freedrum/freedrum-2-our-next-virtual-drum-kit> [↑](#footnote-ref-4)