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Finnish Classroom Teacher Students' Experiences of an Online Music Course During The COVID pandemic

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ABSTRACT

When studying music, skills are often practiced with a teacher, face-to-face, in a classroom. What are the experiences of classroom teacher trainees when music teaching becomes asynchronous, i.e., an individually completed online course? This question, among other things, was explored at a Finnish University's Teacher Education Department in autumn 2020, resulting in the production of a two-credit online music course on the Moodle learning environment. It was implemented for the first time during the summer term in 2021. We analyzed the students' experiences with the functionality of the e-learning module through data-driven content analysis. The study represents an intensive case study using students' (n=6) learning diaries as data.

Keywords

e-learning; case study; music education; music teaching; self-management; teacher education; teacher training

INTRODUCTION

Digitalization and its use in teaching and learning are an emerging area. Online learning, in particular, has become increasingly popular (Kokko et al., 2015). Online courses can enable learning that is not dependent on time or place, and with alternative methods, students can choose the most appropriate way to complete their studies. Through these means, educators are better able to take into account individual needs and life situations, which is why it is important to have new approaches to learning guidance and course completion.

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For the past two years, the COVID pandemic has increasingly shifted music education to distance learning, which has created challenges in terms of teaching and learning new skills. The nature of the subject involves a great deal of practicing new skills and making music in a group, which requires a great deal of active guidance in contact teaching. This has created challenges in terms of distance learning meeting the needs of music education. However, there have been favorable experiences with using e-learning techniques to develop music skills in previous studies (Draper, 2008; Dye, 2007; Eakes, 2009; Hammond & Davis, 2005; Ruippo & Sallinen, 2020; Talşık, 2015; Waddell & Williamon, 2019).

In Finland, the classroom teacher education degree for elementary education includes 300 credit units (ECTS, European credit transfer and accumulation system). Bachelor of Education contains 180 ECTS and Master 120 ECTS. Multidisciplinary studies (60 ECTS) for classroom teacher are included in the bachelor degree. These multidisciplinary studies provide the competence to teach all school subjects in elementary school. Music is also included in these subjects. In our university, students study four ECTS of music. Many students have little to no experiences in music teaching. Some students may have completed music training prior to their university studies. That is why our department of teacher education offers an obligatory course in music education that has two parts: one course (two ECTS) concentrates on the study the music theory and playing the piano and band instruments. This course provides students with the basic skills needed to play and understand music. The other course (two ECTS) concentrates on music pedagogy. In some universities, classroom teacher students have the opportunity to deepen their music studies with elective or minor courses.

However, there is currently a lack of coherent and pedagogically designed online music teaching materials that would enable classroom teacher trainees to independently complete basic music studies in Finland. Therefore, there is a great need for the introduction and development of such materials. It was on this basis that online music teaching materials for the classroom teacher training program were developed at the *University of Jyväskylä*. The online materials allow students to study and practice independently, in accordance with the objectives of classroom teacher education. These materials have also taken into account individual needs. The materials went beyond merely assigning YouTube videos to watch: the material package contained a great deal of materials developed and created for learners of different levels, for example, online links to instructional videos and pictures about songs, as well as tips on how to use interactive play programs.

The development of the materials for the online music course began in the autumn of 2020, with the help of project funding from the local faculty of education. This helped the instructor, who was also the main researcher, to streamline the contact teaching hours. The aim of the teaching development project was to create a two-credit music course in the Moodle learning platform that could be completed independently online.

We were able to test the functionality of the material for the first time with a small group of students enrolled in the course during the summer term of 2021.

The study was limited to the evaluation of the effectiveness of the self-paced online learning material and students' experiences of it during their summer studies. We carried out the analysis of the data in the autumn of the same year during the research period of the university's teaching development grant, which was granted to me as the developer of the material. At this stage of the research process, another researcher was also involved, whose task was to re-analyse the findings. We approached the study with an intensive case study strategy, using data-driven content analysis to analyse the learning diaries (n=6).

The objective of the study is linked directly to the development of expertise and competence in classroom teacher education, thus integrating research and education. This research topic is new and topical, and it provides an opportunity for interdisciplinary collaboration in the future.

The main research questions of this study are as follows:

1. What perceptions did the online music course change?
2. What meanings did the online music course bring to the students?
3. How did the online music course aid the students' learning process?
The following question pair is especially related to development:
4. How well did the online music course function (a), and how would students further develop the online music course (b)?

CONCEPTS IN APPLYING INFORMATION, COMMUNICATION, AND TECHNOLOGY IN TEACHING

The development of information, communication, and technology (ICT) in teaching has brought with it concepts such as e-learning, hybrid learning, web-based learning, online learning, distance learning, and blended or flexible learning. Although these terms have common features, their differences are important to recognize. E-learning involves significant part of learning activities with computers and networks (Al-Fraihat et al. 2020; Kite et al. 2020; Tsai & Machadom, 2002). We focus e-learning in this study.

'Hybrid learning' differs from the previous terms in that face-to-face and distance learning are provided simultaneously (Tyagi, Singh, Goel & Sharma, 2021). The term 'Web-based learning' indicates that the learning materials are delivered via the Web (Tsai & Machado, 2002). Online learning is associated with readily available learning materials in a computer environment. In distance learning, there is interaction between the distance teacher and learners or between learners, with or without technology (Sehra, Maghu, & Bhardawaj, 2014; Tsai & Machado, 2002; see also Allen & Seaman, 2014). Flexible or blended learning combines face-to-face and Web-based activities (Mubarak & Al-Arimia, 2014; see also Vesisenaho, 2010).

ASYNCHRONOUS ONLINE TEACHING

In this study, we viewed e-learning as an educational intervention (cf. Rauste von Wright, von Wright, & Soini, 2003), using Moodle as the learning environment and platform. During the course, all assignments, as well as students' practice and feedback, were carried out independently using online technology. In this so-called asynchronous online teaching style, the teacher and students do not meet at all (Ruippo, 2003; 2006; Salavuo, 2009). As such, online teaching represents a relatively rare form of teaching in music education (Ruippo, 2006). Ruippo (2003) has further divided the asynchronous teaching style into one-way and two-way teaching.

The nature of music teaching is closely linked to the collaborative nature of making music with other members of a group. In addition, the members participate simultaneously in both making music and learning in a shared space. In order to maintain interactivity, it would be appropriate to use other learning environments alongside the asynchronous learning platform (Salavuo, 2009). For example, according to Haavisto et al. (2012), asynchronous e-learning should make use of online discussion forums. Thus, asynchronous e-learning may even offer students better opportunities for more interactive learning than synchronous e-learning (also Bowman, 2014). In the former, students have more time to reflect on their answers and tasks than in face-to-face teaching. Despite these online interaction channels, face-to-face teaching is still necessary in music education. For example, to identify muscle tension and problems with breathing, touch should be used to discover bodily sensations (Ruippo, 2018). Allen and Seaman (2014) defined different course formats according to how much teaching is done online, and according to them, in e-learning, this component is at least 80% of the entire course. Based on this, they also believe that an online course may include some degree of interactive teaching.

The definition of asynchronous learning can, therefore, include some degree of online communication. Such tasks would include, for example, a variety of shared course assignments mediated by online message boards, the provision of feedback on assignments by other students, and chat discussions (Hrastinski, 2008). However, the aim of this study was to produce online material that would ensure students were not dependent on scheduling or commenting on assignments, or online discussing. Thus, in this course, we see asynchronous learning as being tightly connected to independent study.

As of today, digitalization offers new opportunities for developing and implementing music education online (Ruippo, 2018; 2019). At its best, online teaching based on asynchronous tools can succeed when its users are allowed autonomy (Nevgi & Rouvinen, 2005). The suitable amount of autonomy in online teaching recently has also been studied to increase intrinsic motivation and wellbeing (Holzar et al., 2021).

Because of the strategic choices made in this research, we will refer to previous studies more in the Conclusions section. In data-driven analysis, as researchers, we attempt to break away from the research framework by focusing on presenting the

perspective of the research subjects at all stages of the analysis (Tuomi & Sarajärvi, 2009). In this method, theory should not be the driving factor, and thus, we only link the theoretical framework to the obtained results at the end of this study.

THE ONLINE COURSE: BEGINNING, STRUCTURE, AND CONTENTS

The online music course did not include any scheduled meetings. Therefore, it was a self-paced online course scheduled for the summer term of 2021, and the students were free to progress and change between assignments. The only time constraint was the deadlines for turning in the tasks, which the students had to submit for review by the end of August.

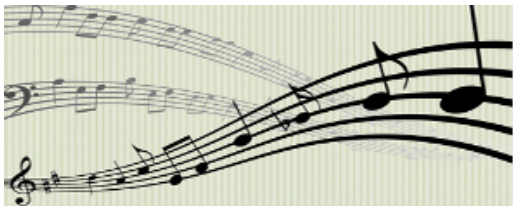
The main objective of the online course was to develop instrument skills, vocal technique, and musical theory regarding various instruments (piano, ukulele, guitar, bass and drums). Furthermore, the students had to monitor and reflect on their own learning processes through a learning and practice diary. At the beginning of the online course, each student set their own objectives, which they then compared to the objectives of the course.

Figure 1

The structure of the online course in Moodle

POMM1073 Music education, online teaching in small groups
 Dashboard/ My courses / POMM1073 Online teaching / Sections / Introduction

Introduction
Music theory
Piano
Band
Vocal skills and singing
Return box



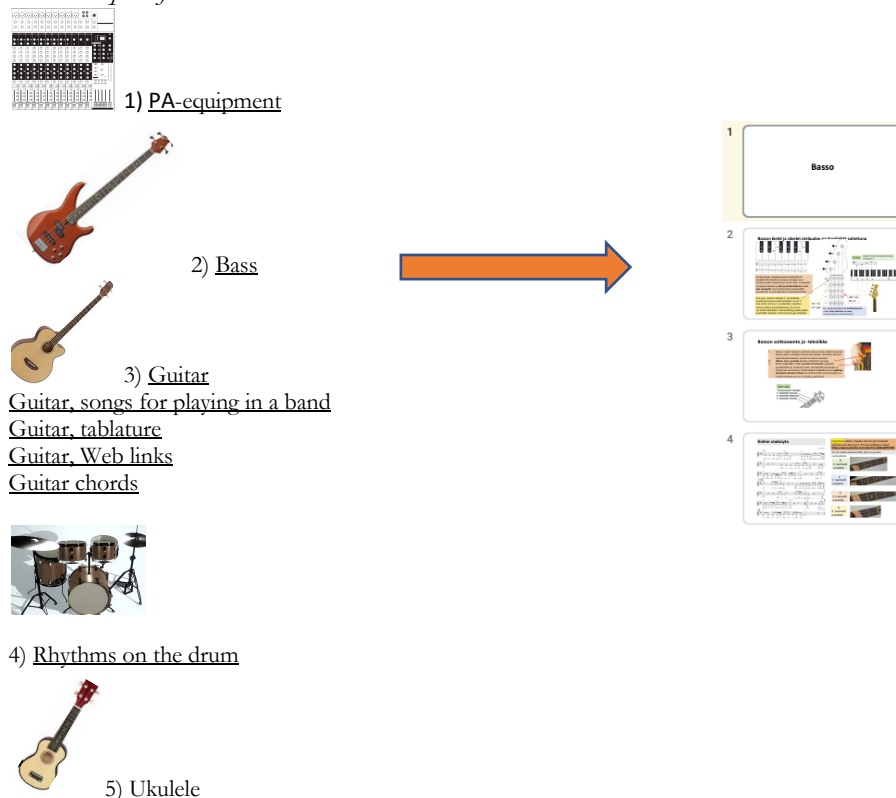
Welcome to the POMM1073 Music education course (two credits) online. The objectives of this course focus on developing one's own skills and knowledge in terms of instrument skills (music theory and playing the piano, guitar, bass, drums, and ukulele) and vocal skills.

The main researcher developed and created a set of materials on the Moodle platform, which included text, sheet music, images, audio clips, and web links, with the help of which the students could achieve the learning objectives. On Moodle, the main researcher split different topics in different tabs (see Figure 1) so that task-specific exercises could be found in the same place (see Figure 2). The instructions for completing the course, the learning objectives, and the assessment criteria were included in the introduction. The next tab introduced concepts of music theory, which was followed by separate tabs for materials for piano and band playing, vocal skills, and singing. The

final section was a return box, in which students turned in the assignments. These included instrument and vocal samples (video recordings), a test on music theory and learning and practice diaries.

Figure 2

An example of the materials: links to the bass materials in the band section



The main researcher structured the material package so that it progressed in an ascending order in each topic, from easy to more challenging tasks. At the beginning of each topic, the main researcher wrote instructions regarding how to proceed in each section. The students were allowed to choose the tasks and songs they wanted to play, as well as how to progress, according to their individual needs. They could, for example, practice several tasks and instruments simultaneously. In addition, the students could return the tasks when they wanted to and in the order of their choice. The students compiled their recordings in the university's Web publishing platform ("moniviestin" in Finnish), where they were bundled under the same link. The practice and learning diaries were to be returned last; the practice diary contained information about when the student had played an instrument, what they had practiced and what observations they had made. This enabled students to, for example, monitor their time management in relation to their objectives. In the learning diary, the students reflected on their learning and their experience of the online course.

The course did not include pedagogical training in music teaching; teaching music-related concepts, music curriculum, and songbooks; or an introduction to school

instruments. These objectives are included in the course on music pedagogy (two credits), which is a face-to-face course conducted in a large group (approximately 20 students).

Students did not comment on one another's assignments (practice and learning diaries or playing samples). The researcher could not know in advance how many of those enrolled would complete the course or at what point the assignments would be returned to Moodle. This was to ensure the equal treatment of students.

RESEARCH DESIGN

Intensive Case Study

According to Patton (1990), the case that is being studied can be defined before or after the data collection. Here, we considered the case before data collection because we limited the research task to dealing with an online course that was completed independently. It is possible to further distinguish between case studies; Stake (1994) divides them into unique (valuable in themselves), instrumental, and collective case studies (see also Eriksson & Koistinen, 2004). This study has characteristics of all of three types, but the emphasis is on the unique, i.e., intensive case study, which is a specific case involving a limited number of students at a specific time. In this research project, we are interested in the experiences and meaning-making processes of each student (Travers, 2001). Consequently, the research questions gradually became more specific after the data collection (Eriksson & Koistinen, 2004). On the other hand, in this research project, we aimed to outline the broader context of appropriateness in the development of e-learning. The collective case study approach (Stake, 1994) was applied when we compared the issues raised by individual students and compiled them for the entire group of students. The aim was to create models of the resulting categories.

According to Yin (2014), the aim of a case study is not statistical generalization, in which the conclusions drawn from a selected research group are representative of the entire population. In contrast, the aim of a case study is analytical generalization. Here, we can use theory extension to compare the empirical results with those of previous studies. With a case study, we are, so to say, seeking new research targets, and thus, the results of a case study cannot be generalized (Yin, 2014). These factors were also a limitation of this case study. According to Alasuutari (1993), the objective of a case study is also to explain the phenomenon that is being studied. However, case studies do not seek to prove the existence of the studied phenomenon. Qualitative research is characterized by anomalies that make the researcher reconsider his findings. They should be consistent with the interpretations (Alasuutari, 1993). Similarly, in this study, we examined the phenomenon under investigation, in which we also allowed for the occurrence of anomalies.

Learning Diaries

In this study, each student produced a story in the form of a learning diary, which was analyzed and interpreted by the main researcher and another researcher. It was necessary to use the learning diary as a tool for monitoring, structuring, and reflecting on the students' own learning. In it, the student reflects on structures, and, at the same time deepens what they have learned and experienced with new knowledge, skills, and experience. While reflecting on these themes, the student also reflects on and evaluates their own learning journey, what they learned, what needs to be developed, and what the learning meant to them (Lindblom-Ylänne et al., 2003). This method has also been applied to the development of writing skills (Lonka & Lonka, 1993; Lonka & Lonka, 1996). In this study, writing skills were of indirect value, and the focus was on the content rather than on how skilfully the diary was written. The students wrote about their experiences and meaning-making processes during the course. The writing process was represented by the summarization of the learning diary into about five pages. In this way, the students reflected on their experiences and ideas once more and formed themes in an analytical way. The students' learning diaries served as research material, containing a very intensive level of information about each student's learning process and experiences. At the same time, they provided feedback on the course (Heinonen & Poikkijoki, 2006). In this study, we were also concerned with how the students perceived the implementation of the course and the ideas regarding its development. In accordance with ethical principles, we collected research consent for the use of the learning diaries, including a data protection notice, in accordance with the general data protection regulation (GDPR).

For this study, we saw the learning diaries as the most suitable instrument because the nature of the study is related to the learning process. Interviews might have added an interesting layer to the data collection, but would have not been focused on the process, would have required more time and effort on the part of the students, and could have reduced students' willingness to participate in the study.

Data-Driven Content Analysis

In accordance with the chosen research strategy, we chose data-driven content analysis (Tuomi & Sarajärvi, 2009) to analyse the data. The inductive analysis process has three main stages: preparation, organization, and reporting. This method is used with case studies when their topics have not been studied extensively (Elo & Kyngäs, 2008). Tuomi and Sarajärvi (2009) have certain reservations about inductive analysis in the context of data-driven content analysis. They present a step-by-step progression of the analysis process, in which the first step is reduction. This is followed by grouping the data (clustering) and, finally, creating theoretical concepts (abstraction). In this study, we applied the methodological starting points of Tuomi and Sarajärvi (2009), which have qualitative research characteristics similar to those that Patton (1990) refers to in his research.

In the first stage of the analysis process, as the main researcher responsible for the e-learning course, I read the learning diaries and evaluated the returned assignments. Then, I reread and familiarized myself with the content of the texts. Because the nature of an inductive case study is to obtain rich data and to analyze it, I used a word processor to add the necessary notes in the margins of the pages. This processor allowed me to group and create lists based on the text. Next, I looked for similarities and differences, which I further grouped into the resulting subcategories and, subsequently, according to common factors. The main concept was last to emerge. I always divided the analysis steps into new documents, in which we completed the next step of the process. When documenting the data, we proceeded as follows:

1. compiling the original stories on a single file,
2. re-reading the material and making observations,
3. performing color coding and making additional comments,
4. grouping of original expressions and anonymising of students with the code Opi1–7,
5. the formation of categories and removal of the codes from the original expressions,
6. the formation of connections and main classes, as well as the reporting of results,
7. editing the results four times in four files, and
8. the preliminary abstraction of the results. In this stage of the research, another researcher was involved to re-assess the grouped data. We then compared the resulting categories and made the necessary refinements. Finally, I, the main researcher, as a material developer as well, edited the abstraction of the results.

The reliability of a case study is judged based on how carefully the study is reported (Yin, 2014). In this case, the research can be replicated in another context because the steps of this study have been described according to the reliability criteria. Syrjäla and Numminen (1988) highlight descriptive validity, which relates to the collection of data, as an aid to research reliability. Theoretical validity focuses on the use of concepts and the resulting theory. The validity of concepts, in turn, is linked to their appropriateness to the data (Syrjäla & Numminen, 1988). In this study, the reliability of the data was strengthened by using another researcher's analysis. The data were re-analyzed, the results were compared with the earlier analysis, and we took the few necessary changes into account.

RESULTS

Which Perceptions did the Online music Course Change?

The e-learning course did not change the students' perceptions of the use of digital technology in various subjects per se. Some students were not previously aware of the fact that music can also be

studied independently online. The students felt that the course was structured well, and this helped them to complete the tasks successfully. Moreover, the experience of playing instruments during the e-learning course also changed their perceptions in that they came to perceive that it is possible to learn to play new instruments as an adult as well (See Table 1).

Table 1

Perceptions of e-learning

Original expressions	Simplified expression	Sub-category and connections	Main category and synthesis
Online learning as such did not change my perception of the use of technology in music teaching, but much like in other subjects, I feel that technology can and should be taken advantage of in teaching.	E-learning did not change the students' perceptions of how technology can be utilized in teaching	Their perceptions of e-learning did not change	Perceptions of e-learning
It was interesting to see how even a subject like this could be studied remotely rather successfully, if the course is designed well.	There was a change in the perceptions of the possibilities for using e-learning when teaching music	A change in perceptions of online music studies and lifelong learning	
These online lessons changed my perceptions of playing other instruments. I can, in fact, learn to play new instruments, even as an adult.	Changing perceptions about the possibility of learning to play a musical instrument in adulthood		

Which Aspects of the Online Music Course did the Students Find Meaningful?

The meaningful experiences of the online music course fell into four main categories: the timing and the completion of studies, skill development, the enjoyment of making music, and learning and strengthening one's self-efficacy (see Table 2). The students considered the timing of the studies, which took place during the summer term, and finishing their studies within the allotted time to be important. In terms of skill development, the students focused on their development of instrument skills, music theory, and vocal skills, as well as the meaningful learning experiences they had gained from these. The students considered their experiences of joy and excitement, as well as the will to process lifelong learning, to be important factors. E-learning also

Table 2*Meaningful experiences of the online music course*

Sub-category and Original expressions	Connection	Main category	Synthesis
Completion during the summer term: I am grateful that this course was organized and could be completed online as a summer course.	Online studies during the summer term	Timing and completion	Meaningful
Completion of the course by the designated deadline: - - I am pleased to say that I managed to complete the course perfectly on time.	Completion within the deadline	of studies	experiences of
Instrument skills: I feel like, most of all, the online course reminded me of what it's like to REALLY know how to play an instrument and understand music – playing music is much more than playing the piano by ear/from YouTube tutorials.	Improvement in instrument skills, music theory and vocal skills	Skill improvement	the online music course
Music theory: If I study music theory diligently, learning new songs becomes much faster and easier.			
Music reading skills: - - My music reading skills were revised and developed when playing different instruments. - - I also don't play music solely based on memory.			
Vocal skills and vocal exercises: As I mentioned, online studies also reminded me of the importance of warming up before singing as well as all of the different techniques.			
Rediscovering the excitement and the joy of playing music: But in the end, I think the most important takeaway from this course was rediscovering the joy of playing music, since this course “forced” me to find time for it.	Experiencing excitement and joy	The joy of making music	
Learning new things, becoming more confident and wanting to improve: To sum up, this course gave me more confidence. I learned a lot of new things and was left with the spark to learn more.	Lifelong learning		
Self-confidence and perseverance: This course gave me more self-confidence and also perseverance; like, I can learn if I only practice.	Increased self-confidence and confidence overall	Learning and strengthening self-efficacy	
Confidence in using instrument skills in teaching: When it comes to teaching music, I feel that I now have a little bit more confidence to start teaching new instruments as well – and, on the other hand, more skills to practice playing them myself.			

strengthened their feelings of self-efficacy. Furthermore, e-learning helped the students to gain more self-confidence, perseverance, and assurance in both making and teaching music in their future careers (see Table 2).

How did the Online Music Course Aid the Students' Learning?

The students considered online teaching to be a suitable form of teaching and through it, they practiced various skills. E-learning allowed the students to practice at their leisure, without any external pressure. When students were practicing and recording songs, they did not have to be nervous or embarrassed about their playing. One of the students even felt like they could “put themselves out there” more than they could have in a group. In order to be successful during online learning, the students believed that mastering self-management skills was important. These skills were also necessary during this course (see Table 3).

In Table 3 below, the experiences of the students regarding the effectiveness of online teaching in terms of their own learning are compiled. The main categories are the suitability and safety of e-learning and the abilities of self-management abilities.

Table 3

Learning through online teaching

Original expressions	Simplified expression and sub-category	Connections	Main category and synthesis
I found that online teaching worked very well for me.	An independently completed online course is a suitable form of studying		
- - filming was, in my opinion, convenient, because it allowed me to have several takes of me playing different instruments, which helped to lessen the nervousness of playing.	No need to be nervous or embarrassed	Suitability and security of e-learning	Learning through online teaching
- - no need to be embarrassed of anyone but the neighbors. While practicing at home, I had the courage and the guts to put myself out there more than I would have done at school.	Having courage to practice music		
- - it was safe to try new things alone (due to COVID).	Studying is safe		
In general, however, I think that a course like this requires a fair amount of self-management skills.	One must be able to work in a self-directed way	The art of self-management	

ASPECTS THAT WORKED AND AREAS OF IMPROVEMENT

Almost all of the students felt that the e-learning course **developed their self-management skills**. As a form of learning, the course required commitment, willingness, and motivation on the part of the students to study and learn. Progress was seen

in the planning of and adherence to timetables, the studying of music theory, and the use of digital technology. In particular, the importance of videos was highlighted in the practice of learning process. Here, digital means, such as repetition, allowed for the return to and revision of skill areas that required practice. The self-managed practice of independent learning was possible with the help of videos. The students felt that it was motivating to recognize their own improvement and to notice that their studies were progressing on schedule.

Example 1: Because there was no one else “forcing” me to work, I just had to take it upon myself to look at my plan and figure out how I could fit the course in with the rest of my summer studies. I also made smaller goals along the way related to a certain point in the course, such as learning certain chords or rhythms.

Example 2: At the same time, digital technology can be used to practice self-management.

Example 3: The videos, in particular, supported self-management, - -.

During the study, it became clear that the e-learning course did not develop everyone's self-management skills. In Example 4, a student said that they are used to studying independently and that this course enabled them to use and apply their self-management skills they had learned in the past. On the other hand, this can also be seen as a new learning experience, because the students were able to apply their self-management skills to a new subject, i.e., studying music.

Example 4: I don't think that this course developed my self-management skills, because I am used to studying independently anyway and I was able to use the skills I had learned before.

In the course description any requirements regarding **basic instrument skills** or experience with music were not specified; there was only a mention that this course requires more from beginners. The students perceived the demanding nature of the online course in two ways. In terms of succeeding well, the students felt that it would be beneficial for the students to have some previous experience with playing an instrument. On the other hand, some thought that beginners could also have also achieved the objectives and completed the exercises of the course. This was possible due to good materials, which are precisely what is useful in independent learning.

Example 5: Personally, I can't say what kind of experience this has been for people who did not know how to play anything prior to this course. I do think, though, that even such people will have been able to get the hang of it thanks to the great package and good materials. After all, I did not know much about accompaniment before this course, even though I could read sheet music and play from it. A great course!

Example 6: I would recommend this approach to others, especially if they have previous experience of playing instruments.

One issue was the **number and complicity of tasks**. The students considered the course to be quite meaningful and good as a whole, but also demanding in terms of the workload. The large amount of material gave the students the impression that they should have progressed to the most demanding exercises in all topics. Online learning allowed the students to assess and define their own objectives and areas of focus. Through the use of a practice diary, I, as the main researcher, aimed to have the students track their workload in relation to the credits. I created a great deal of online material to provide the learners of different levels, including those with a background in music, with sufficient challenge and motivation to develop further.

Example 7: - - a meaningful course that I was very happy to work on.

Example 8: However, I think that, if the course had been completed perfectly, the number of credits would be far too low.

The students thought that scheduling the online course to be completed during the **summer term** was successful. During the summer, it was easier for the students to schedule their studies at the time and place of their choice.

Example 9: Overall, I really enjoyed this course and especially the opportunity to complete the course remotely and independently during the summer this year.

The students also enjoyed the **freedom** they were given through independent studies. They were free to create their own schedule for practicing and completing tasks. The content they learned and the pieces they played were shaped by the individual needs and desires of each student. This gave the students the opportunity to supplement their skills in weaker areas and, at the same time, strengthen their specific areas of expertise.

Example 10: I also liked the fact that there were no distance meetings, so we could complete the course at times that suited us best and progress as we saw fit.

Example 11: And I was able to concentrate on the areas that most needed strengthening.

During the online course, the **exercises** were mainly carried out independently, but there were also some interactive tasks. These included exercises in which the student played their instrument over a recording or a video. The student then received direct feedback on the success of the tasks (gamification, music software). In these exercises, as well, the interaction took place through digital means, and there was no direct human contact. One of the suggestions for improvement was to add interactive tasks alongside the existing ones. These tasks could include, for example, commenting on one another's instrument recordings or doing group work.

Example 12: - - this way, we were able to fulfil our own interests, and also, we discovered completely new songs that we might not have heard before.

Example 13: Perhaps the possibility to do some of the exercises in groups, if the student so wishes, could bring in more interactivity.

Example 14: For example, each student could post a video of them playing and everyone else could comment on that. This would bring at least some sense of community to an otherwise functional course.

The students found that the online course had a **clear structure** and it was functional. It was easy to understand the structure of the course with the help of the various tabs. The instructions were largely clear, and the materials were sufficiently illustrative. The students even considered the first impression of the Moodle page to be successful. The content of the introduction received both positive feedback and one suggestion for improvement. The importance of good instructions played an important role when the students worked independently and without guidance. This is something that must be addressed in the future. In addition to the introduction, individual suggestions for improvement emerged concerning the theory exam and the recordings that the students made. This feedback was also focused on the clarity of instructions and receiving sufficient information.

Example 15: - - when the course structure is functional. This, of course, has required a lot of work from the teacher who is in charge of the course. They have been very successful in this. The structure of the course is clear, and every section is presented and taught in an understandable way.

Example 16: The Moodle platform had clear tabs that indicated what was to be learned, and each tab had detailed instructions on how the parts were meant to be completed.

Example 17: It was also great that the first introductory tab had a summary of what the course is about, what will be done, and what requirements there are. So, there was a clear list of “do this first - then this” etc.

Example 18: - - I would have liked to have seen a short summary of the sample recordings (e. g., Piano, five samples, etc.) in the introduction, so that all the exercises could be found in one place.

Example 19: In the exam, I would have liked that some of the instructions would have been more detailed.

Example 20: Especially with band instruments, I wondered how long, for example, a single sample of me playing the drums should be and would I have to play the entire song and all of the verses on the guitar or the ukulele. I didn't find any guidelines for this, so I concluded that the students could do as they pleased.

The students were satisfied with the **achieved objectives** during the course, and they stated that working on this course left them feeling good. The materials of the course encouraged the students to practice beyond the objectives they had originally set for themselves. When practicing, the students were so immersed that most of them lost track of time. One of the students suggested that material and exercise-specific feedback could be provided because this would make it easier to monitor their objectives and

their own progress. This would be done with the help of a grid that would show the student's own progress.

Example 21: However, as I achieved the objectives I had set for myself, I feel like this course was successful in terms of online teaching. Moreover, this course left me with feeling good and, all in all, it was nice to complete the course in this manner.

Example 22: The course, as a whole, encouraged us to practice music theory, play different instruments, and sing. This inspired me to keep working on these things and to developing my own skills!

Example 23: In terms of the course platform, I would have found it more supportive of my own learning process if there were progress boxes throughout the course, for example, also for the reading materials, so that I my progress would be more tangible.

The students found the **materials of the online course to be clear, versatile, and functional**. In addition to the text, the materials contained many images and videos to illustrate how a skill could be practiced step-by-step. The students felt that the materials provided answers regarding how to practice and complete various exercises, and as a result, studying was perceived as meaningful and easy. Suggestions for improvement were focused on individual observations. One student required guidance on how to improve their singing voice; however, the student could not suggest how this could be done online. Another suggestion for improvement concerned the grouping of materials according to different levels, which one student wished to have been even more detailed.

Example 24: I felt like the materials were good and supported my learning, because they allowed me to explore each topic in many different ways through texts, pictures and videos. I could utilize the texts and the pictures as I was reflecting on some issues, and the videos helped to clarify them and/or confirmed my own thinking.

Example 25: - - with the help of an excellent material package, studying and getting started with it was easy and meaningful.

Example 26: In terms of vocal skills and developing my vocal technique, I would have wanted more support or something, but on the other hand, I suppose this was caused by the limitations of e-learning.

Example 27: - - it would have been easier, if the groups were broken down, for example, by skill level, desired grade, or importance.

The students found that the music **theory exam was a good package** that motivated and encouraged them to practice and apply various areas of theory in action. There were some instances in which the students wanted more clarifications of the instructions, and these included, for example, concerns regarding the time limit and the clarification of individual questions. Otherwise, the exam was considered to be comprehensive.

Example 28: At the same time, we had to apply our knowledge during the exam, which was interesting!

Example 29: The exam was comprehensive and encouraged us to study the theory broadly. I think this was a very good implementation.

Example 30: - - I didn't know if there was a time limit or something (during the exam).

Example 31: During the exam, I hoped that some of the instructions would have been more detailed.

The students found the videos to be clear and versatile. The videos addressed the objectives of playing instruments and learning vocal skills and music theory. Even though there were plenty of videos available in the course materials, a need for more data was expressed, which highlights the importance of instructional videos in independent skill practice. The **videos act as learning guides and make practicing motivating and inspiring**. The experiences of success encouraged the students to face new challenges.

Example 32: We quickly moved on to playing instruments and learned many chords and different rhythms. We began slowly at first, but, in the end, we played along with the normal tempo, and the videos often had many different songs. The slides and the videos for piano were versatile and motivating, even for someone who had played piano before. These days, there are all kinds of games where you can play the piano. It's great that playing music is made fun and inspiring through modern technology.

Example 33: Perhaps, I would have liked to see even more educational videos linked to the materials in all topics.

All students had the necessary **instruments available** at home or in their immediate circles. Some students were left wondering what the situation would be like if all the instruments were not available. The instructor would have had to find a solution to this problem if a situation like this had arisen; after all, the students are not obliged to purchase instruments because of their studies.

Example 34: In our family, - -, we had all of the instruments, except for the bass, which could easily be replaced by a guitar.

Example 35: One of the challenges of online learning is, of course, the availability of instruments.

The online materials helped to guide the students' learning. It also gave them tips on **how to develop their skills further**. Thus, the materials helped to revise what had been learned and to develop it further, and they also helped the students to **recognize the objectives of lifelong learning**. One student made an individual mention of the pre-assigned questions and their meanings, which helped to improve the practice of vocal skills. There were no improvement suggestions regarding the guidance of learning.

Example 36: Technology makes it possible to manage my own training and also get help, even when the teacher is not available.

Example 37: So, I did get some tips on how to develop my skills further in the future as well.

The exercises of the course also included ready-made **questions to guide students' learning process**. These would support the students' practice in, especially in vocal skills.

Example 38: The questions during the course supported my vocal skills practice.

The objects of this online course did not include the development of pedagogical skills in music teaching at all. Therefore, the materials and exercises related to this topic were missing from the course platform. Despite this, the **students made many pedagogical observations** regarding the materials of the online course and their own practice, or in other ways reflected on their experiences in other ways. They also reflected on how they could apply the music teaching content to the primary school environment. In their learning diaries, the students also reflected on the content of the curriculum used in primary education, and how music education is integrated with other school subjects. At the same time, they have realized the importance of practicing various skills and multiliteracies. The instructional videos that guided the students' learning provided examples of models and tips for teaching new skills at school. While doing so, the students discovered that there are ready-made materials online that can be utilized. The skills and knowledge the students acquired during this course made them feel like as if their ability to teach music had improved. This learning experience had clarified the students' understanding of what aspects they needed to pay attention to when teaching. With this certainty also came a greater desire and enthusiasm to try teaching music.

Example 39: For my own future skills, I also found it helpful that the online material contained many videos that could be used later both, for my own skill development and for planning my lessons in the future.

Example 40: I also considered how, for example, different rhythms could be practiced not only during music lessons, but also in P.E. and other subjects as well as using them a sign for requesting silence or starting a joint activity. This way, the pupils could practice and revise things for the music lesson as well, where the rhythms could be used in a more versatile way than before.

Example 41: After completing this course, I am hugely excited to teach music to my students, to learn more with them and get to enjoy the joy of music together!

The students hoped that materials and exercises from music textbooks and information on the use of school instruments would be added to the course. As described above, these were not part of the objectives of this online course. The division of the course objectives into two different phases was illustrated in the introduction tab of the course. There, the set of objectives was presented. Having a clearer presentation of the

objectives for music courses for large student groups could also be an area for further development. This would make students more aware of the overall content of the two separate courses in music education.

Example 42: It would also have been nice if different music textbooks were introduced. It may be that this part is included in the pedagogical courses.

Example 43: - - what other instruments can be used in music teaching – Rhythm instruments, different percussion instruments and, for example, Boomwhackers (a musical instrument: hollow, color-coded plastic tubes).

SUMMERIZING THE RESULTS AND DISCUSSION

The students found the online course to be successful and functional package that was meaningful and made studying feel easy. With the help of the course, the students were able to practice and achieve the learning objectives, which were the same as for the contact teaching version of the course. What differed was that during the online course, the practice and the exercises had to be done completely independently, with the help of the Moodle platform. In addition, the materials were designed exclusively for e-learning. The feedback the main researcher received, as a developer, and organizer of the course was encouraging. Furthermore, the students also provided great practical examples that can be used to develop and modify the course in the future.

Based on the results, the online course did not change the general perception of the possibilities of using digital technologies in various subjects. For some, it was an eye-opening experience to discover that music can also be studied online and various musical skills can be learned in adulthood. The students felt that online learning was the right choice for them. They also felt that studying was safe and that it was a meaningful way to learn, as well as noticing their own improvement during the course. The students agreed that, in order to complete their studies, they had to be skilled in self-management. Studying provided meaningful experiences because the student noticed that their skills and their knowledge had developed. Practicing also sparked joyous feelings about making music. All of this reinforced the students' feelings of self-efficacy. In addition, the students felt like the course was successful and effective. They also provided us with suggestions for improvement, through which the materials of the course can be further developed.

In Table 4, what worked and what needed to be improved are compared. This table also summarizes the results obtained regarding the effectiveness of e-learning. One of the common themes was self-management, and the online course was suitable for students who were able to work independently and autonomously. At the same time, they were motivated and engaged in their studies.

In Table 4, e-learning is used as an umbrella concept. Self-management, demandingness, freedom and exercise formats, the guidance of learning and pedagogical

skills for teaching music were the top categories in terms of what worked during the course and what must be developed (see also Figure 3).

According to the results, it seems that the students improved their self-management skills during the course. In contrast, one student who had already done a great deal of independent study online did not feel that he had made much progress in self-management. That student, therefore, had mastered the skills required to work independently. Some students felt like the course was demanding, and for these students, it would have been useful to write a note in the introduction tab explaining that not all the material is intended to be covered (see Table 4 and Figure 3).

The learning environment of the course and the material package, which was created on Moodle, was considered to be clear and successful by the students. The students enjoyed the freedom they were given to choose the tasks and the schedule for their training. They also had the freedom to differentiate their choice of tasks and to set their own starting levels and the target levels of performance to which they wanted to progress during the course (see Table 4 and Figure 3).

Because this online music course was being organized for the first time, there were no way of knowing in advance how many students would attend the course. The assumption was that only a small number of students would attend this course, which could pose challenges for the execution of interactive exercises. However, one student did request more interactivity. The tasks could, for example, consist of free-form and task-specific discussion platforms and comment on one another's video submissions in the future. It is challenging to organize real-time joint sessions, in which the students can play music together online, because of the delay and time lag in the audio. After all, the song must be played according to the same basic beat in order to allow for co-rehearsal. To address this, new systems and software to help reduce the time delay have been created (Ruippo, 2018; Ruippo & Sallinen, 2020). As this online course is being developed further, these possibilities should be taken advantage of if appropriate.

Suggestions for improvement also included the better grouping of the material by skill level and the clarification of some of the instructions. A clearer grouping of materials into different skill levels and grades could have facilitated students' choice of materials, but on the other hand, the materials progressed from easier to more difficult exercises. The challenge of categorizing the groups according to skill level was that the same style of accompaniment can be applied to different songs with varying levels of difficulty. In addition, fluency and performativity bring their own difficulties to the assessment of skill level when grouping. In view of these challenges, the assessment criteria for grades were compiled in the introduction tab of the course. In them, playing a particular piece was not specified as a prerequisite for a particular grade. The grade consisted of a set of overall skill level criteria that were given as a guide.

A great deal of instructional videos were included in the course materials to support the students' learning process, and this was much appreciated by the students. The videos aided their learning and helped the students to revise and view the overall

Table 4*Aspects that worked and areas for improvement in e-learning*

Aspects that worked	Common subcategory	Areas for improvement	Common top category
Developing self-management, planning and following a timetable when studying music theory, taking advantage of technology, e. g., videos	Development of self-management	Does not improve self-management skills: Students can utilize previously learned skills for independent work.	Self-management
Suitable for all levels, including beginners	Instrument skills before the course	Requires some previous experience with playing instruments	Difficulty
Lots to learn, a meaningful course	Number and complexity of tasks	Heavy workload, demanding course	Freedom and task types
Students can complete the course independently as a part of summer studies	Summer studies		
The students have the freedom to work independently when scheduling and completing tasks, choosing learning content and songs	Freedom		
Independent exercises	Exercises	Interactive tasks were missing	Structure and clarity
The e-learning module has a clear structure and is well implemented as a whole	Clear structure, overview, and guidance	More clarity in the instructions of the assignments, theory test and instrument skill samples	
Good and interesting first impression of the course			Objectives and motivation
Adequate informative content in the introductory tab	Achieving goals and encouragement of additional practice	Aspects to add: progress tracking (tasks), digital feedback	
Achieving of the objectives of the course and a comfortable way of working			Materials and necessary equipment
Encourages students to practice and learn more	The contents of the materials and their sufficiency	Something more for vocal lessons, materials grouped according to skill level	
Variety of e-learning materials (e. g., pictures, texts and videos), functionality, clarity, material that provides answers, learning was easy and meaningful	Contents and instructions of the theory exam	More detailed instructions for the theory test	
The theory test motivated and encouraged the students to practice and apply the theory comprehensively, the entire package was good	Video links to materials	More video links to materials	
The videos were clear, comprehensive and informative. They covered all objectives in instrument and vocal skills as well as music theory	The availability of instruments	Gaining access to some instruments can be a problem	
Learning to play a new instrument and its benefits.			Guiding the learning process
The needed instruments needed were easy to find	Revising and developing what was learned and supporting lifelong learning		
The course helped guide the students' own learning and they received tips on how to further develop their skills	Questions in the exercises		Pedagogical skills for teaching music
Questions helped to support practice, e. g., with vocal skills			
Tips on how to develop one's pedagogical skills for teaching music and planning lessons	Skills, knowledge, and materials for teaching music	More information on music textbooks and instruments (NOTE: not included in the course objectives)	
- Tips for developing your own competencies and planning your teaching			
- Making use of ready-made digital materials			
- Material to guide learning			
- Combining different skills and practicing multiple literacies			
- Integration with other subjects and the benefits of this			
- The objectives of the curriculum open up the content of music teaching			
- Students' own experiences of playing			
- Getting excited about teaching music			

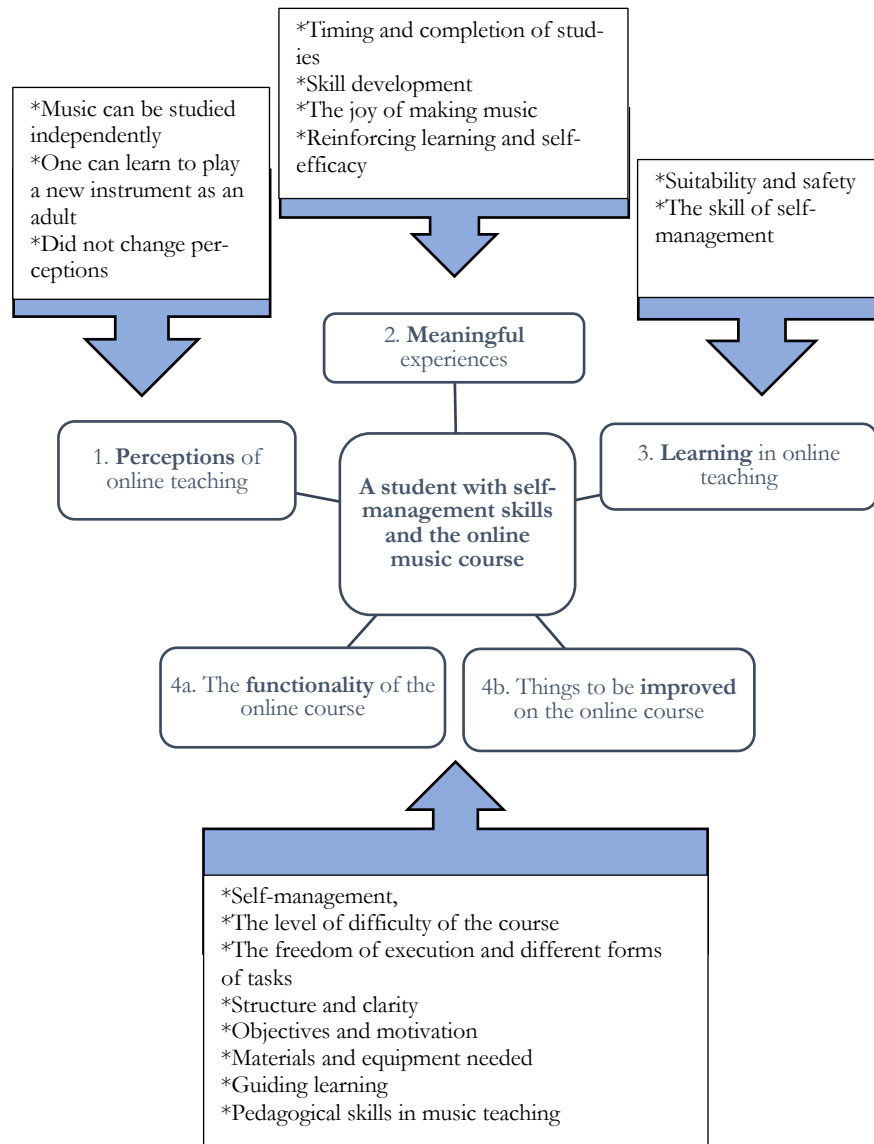
performance correctly. They helped the students to focus their attention correctly on the key points in learning each skill. Students even requested more videos to be linked to the materials. The number of these can be increased as the material package for the e-learning course is further developed. The students were also concerned about the availability of instruments, but during the course, this problem did not arise. If some students had had trouble accessing instruments, the university would have offered these to borrow.

It seems that the development of students' pedagogical thinking skills was supported by the progression of online tasks from easier to more challenging ones. This also directed their thinking about how to guide the analysis of learning. At the same time as the students were exploring easier tasks, they reported on what they had learned, and found this to be a good thing. While doing so, the students also received unobtrusive guidance on the pedagogical issues of guiding learning. As the designer and the implementer of the online course, the main researcher found this to be an excellent addition. The course also supported the students' pedagogical skills (see Table 4).

These results (see Figure 3) encourage the further development of the online course. This experiment has already provided excellent feedback on the success of the course. The course is especially suited to those students, who are able to learn in a self-directed way. However, a certain level of instrumental skills is seen as an advantage in terms of progressing on their studies. For a beginner, the course could, for example, include scheduled points at which instrument practice and teacher guidance would take place in the classroom. This would ensure that the student would continue progressing and remain motivated. However, some of the students who completed this course said that they did learn independently as well. They developed their skills by doing their own research and practicing. Thus, the students' acquired instrument skills are not necessarily the only prerequisite for completing the course; rather, how motivated the student is to learn, work, and develop skills is also important.

CONCLUSION

For the first time, an online music course conducted by *University of Jyväskylä's* Teacher Training Department offered students the opportunity to study music independently online on the Moodle platform. This e-learning package allowed students to progress individually, regardless of time and place. The feedback on the course provided a new platform for the discussion of the extension of e-learning to music teaching and

Figure 3*Results of the music online course by research question*

its further development in classroom teacher training. Learning diaries were used in this study. These offered a very interesting and deep viewpoint on the learning process.

According to the results, it seems that the students who applied for the course were already skilled in self-management. According to Deci and Ryan (2000), self-management includes autonomous freedom in making decisions; competence enhanced by experiences of learning, development, and success; and encouraging oneself as an authentic person without role-playing. Self-management skills also include self-regulation and control, intrinsic motivation, and strategic skills. When describing self-direction, Sydänmaanlakka (2006) refers to the skill of self-management, which includes finding meaning, relevance (focus), and renewal; being seen as a genuine person; self-discipline;

sensitivity; and humility in the face of one's own incompleteness. These basic needs and self-management factors mentioned above were also evident in this study.

Earlier studies have also highlighted these aspects of self-management (e.g., Guglielmino, 1977; Koro, 1993; Skager, 1984; Vesisenaho, 1998). They differ very little from one another, and attention was drawn to the different groupings of self-management traits.

In order to better compare the results of this study with a wider range of students, more students would be needed to take part in a similar course. In this case, the students represented a single group of participants with previous experience in playing instruments and the ability to work in a self-directed way. According to Patton (1990), a homogeneous group represents a broader group of the same type. In this case, it would be possible to generalize these results to a wider range of students (Patton, 1990). However, because this study is a case study, the results are not generalizable to a larger group. Instead, we compared the results with those of previous studies (Yin, 2014). The results obtained are consistent with previous studies in recommending the inclusion of interactive tasks in adaptive e-learning (Ruippo, 2009; Salavuo, 2005). The combination of synchronous and asynchronous tools in e-learning has been beneficial for students (Coman et al., 2020). In this case, preconceptions about music making and self-directed ways of working would not play such an important role in the completion of studies if interactive encounters were occasionally scheduled during the course.

As in studies of e-learning (e.g., Ruippo, 2018), the focus of this study was on the accuracy, structure, and variety of content of the online material and how these guided learning. Students' learning styles and skills can vary quite widely (Tynjälä, 1999), and due to this, the content of e-learning materials should be more representative of learners with different backgrounds (Vainionpää, 2006). This study did not provide comparative data on these areas. A heterogeneous group of students would have provided comparative research data on learning styles and their relationship to the effectiveness of the material. This could be the subject of further research, and indeed, the role of a case study is to generate new research questions that explain the selected phenomenon in a broader sense (Yin, 2014). This kind research could provide a new perspective on the guidance needs of a novice student. It can be assumed that this may be one of the most important tensions that students experience when making the decision to participate in online studies. For a beginner, it may be an advantage for the course to include a period between independent instrument practice and teacher guidance. This approach can be seen as similar to competency- or mastery-based approaches to education. In these approaches, students learn independently and move forward when they have demonstrated evidence of competencies or mastery (McClarty & Gaertner, 2015; McIntyre-Hite, 2016).

What was also new in this study was that the online environment, which was completely self-contained, encouraged and created an atmosphere of joy in making music. It created a spark for making music and motivation to continue practicing after the

course. These are important starting points for learning, especially when this learning is completely self-directed and there are no remote or face-to-face meetings between teacher and students. What was also new was that the students felt that a thorough theoretical package was necessary to develop their instrumental skills and also thought that an exam in this area was necessary. In addition, the students had reflected on the application of the experience and materials from the e-learning course to music pedagogy and teaching, although these areas were not included in the learning objectives and the materials of the course. Thus, the students in the study group were clearly in the process of constructing their teacher identities, in which experiences were already automatically mirrored in their professional development (see also Laine, 2006). Furthermore, according to the research of Biasutti et al. (2019), the online course they conducted contributed to the professional development of music teachers that were already working in the field. Their study took place in a three-year collaborative network in which teachers shared their teaching experiences online (Biasutti et al., 2019). It is noteworthy that interactivity was not included in the summer online music course presented in this study. Thus, professional development was built independently as the classroom teacher trainees worked with the online materials and assignments.

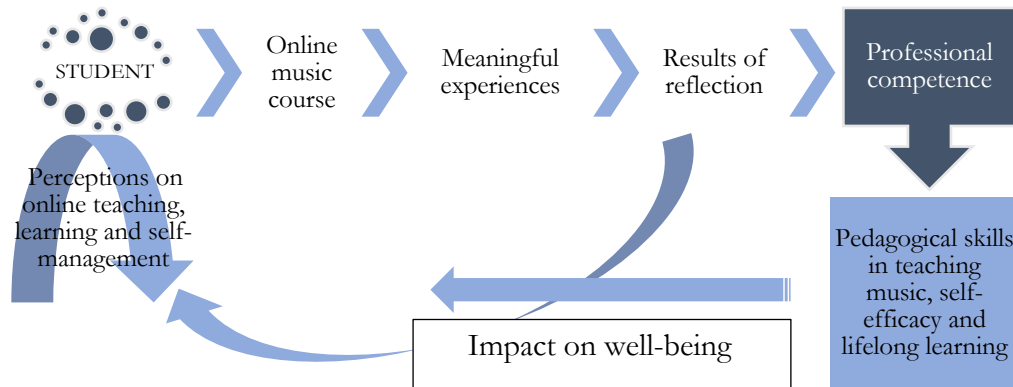
Based on the experience gained from the e-learning course, it is possible to further develop it. The main areas for improvement are the creation of more interactive tasks and the construction of better feedback systems, e.g., gamification. In addition, online materials can be developed and used alongside face-to-face and/or distance learning to support self-directed learning (e.g., practicing at home). Thus, this material could be used in a hybrid learning context, where teaching can take place through distance learning, face-to-face learning and independent learning. In this way, synchronous and asynchronous teaching would alternate, and in the case of multimedia teaching, there seem to be similarities with Allen and Seaman's (2014) division of course types. When the part of the course conducted online is between 30% and 79%, this is called hybrid or embedded learning (Allen & Seaman, 2014). Online music course materials can also be developed to support face-to-face teaching, in which course materials and assignment feedback would be online. In this type of course, the term 'Web-facilitated course format' can be used (Allen & Seaman, 2014).

The focus of this study was the self-managed student, whose meaningful experiences of the online music course encouraged and reinforced the practice of skills. In addition, they encouraged the students to further develop their own skills and apply those skills to music teaching at school (see Figure 3).

The results are further processed in Figure 4. Here, the successful e-learning course, the students' perceptions and the skills of learning and self-management created meaningful experiences. As a result of this reflection, these experiences influenced the student and the student's professional competence, which strengthened their self-efficacy, desire for lifelong learning, and pedagogical competence (see Figure 4).

Figure 4

The theoretical model of this study: meaningful experiences of learners' starting points (perceptions, learning and self-direction) and online music learning as a result of abstraction, as well as effects on the part of learners and their professional competence and well-being as a result of reflection.



Lifelong learning can be seen in this research project, as being defined, similarly to Pantzar (2006), as a process, which also takes into account the depth dimensions of learning. This can be seen to include, for example, processes of meaning, areas of growth in learning awareness, and areas for further development (Pantzar, 2006). In previous studies, links have been found between experiences of meaningfulness and self-efficacy and the strengthening of professional competence (Lipponen & Kummulainen, 2010; 2011). This is based, among other things, on the individual's beliefs, perceptions, and experiences of performing various tasks (Bandura, 1977). Like motivation and action strategies, self-efficacy is considered to be part of a teacher's professional agency (Soini et al., 2015). Thus, it can be argued that online music education has also been able to strengthen students' professional agency, through which pedagogical competence is strengthened (see Figure 4). According to Toom et al. (2017), this creates the conditions for the further development of agency in working life. This creates ways of working that strengthens the lifelong learner's ability to believe in their own ability to survive in certain situations (Partanen, 2011).

Research also shows that student communities play an important role in strengthening self-efficacy (Yli-Rämi & Tapani, 2020). In this study, self-reliance developed solely through making and experiencing music independently, but by reflecting on their experiences, the students also supported their professional development (see also Kärkkö et al., 2016). In this research, experiences related to music and pedagogical skills, as well as their further development, played an important part. Through joy, as well as positive and meaningful learning experiences, students can also be considered to have achieved well-being (see Figure 4) in their lives (see also Fredrickson & Kurtz,

2011; Soini, 2001). This was reflected in the strengthening of self-efficacy and lifelong learning in music skills and pedagogical competence.

In today's world, digitalization opens up new opportunities for developing and executing music education online. Thus, based on the experiences and results of this study, we can continue to develop digital materials and create new ways of providing and delivering learning and guidance.

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