TOWARD A BLENDED LEARNING MODEL OF TEACHING GUITAR AS PART OF PRIMARY TEACHER TRAINING CURRICULUM

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Abstract

This study focused on the challenges that students face during the early state of learning to play the guitar. Based on those challenges, a model of blended learning was developed, which provides a solution to how to organize teaching and answer students' diverse needs with the aim of encouraging our students to take advantage of blended learning environments and styles. Data were gathered with semi-structured theme interviews. The most critical factors in organizing teaching and designing a blended learning guitar course fell into four categories: Instrument specific challenges, heterogeneous group, learning facilities and course structure, and motivation. The results added depth to knowledge of previous studies on e-learning. Students want to have an instrument in hand when they watch instructional videos online; otherwise, they are just watching videos without learning. This indicates a need to define the concept of autonomous learning more specifically. When and where exactly is it supposed to happen? Results of the relationship between face-to-face lessons and e-learning were in line with earlier research, in which both were seen to support each other.

Keywords: Blended learning, music education, primary school teacher education, studying guitar

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1. Introduction

The development of innovative learning environments has an important role in the Finnish education system. New digital technologies and new approaches to communication and use of information are expanding rapidly and creating pressure to modernize education. Digitalization combines audio, visual, kinesthetic and text-based experiences and cater to diverse learning styles and the need for technology-based learning environments. Blended learning theories provide a framework for creating models that use e-learning environments and combine different learning and teaching styles and environments efficiently. Vaughan, Cleveland-Innes, and Garrison (2013, p. 8) defined blended learning as the organic (grounded in practice) integration of thoughtfully (significant rethinking of how to approach the learning process) selected and complementary face-to-face and online approaches. Blended learning is more than just combining face-to-face and online learning experiences. According to Garrison (2017, pp 101) "the essence of blended learning is the blending of individual and collaborative learning activities using synchronous and asynchronous verbal and written modes of communication that are congruent with the intended goals".

The study reported in this research paper took place in the Faculty of Education in the University of Lapland. Learning the basics of guitar playing is part of the primary teacher training curriculum. The purpose of this study was to develop a prototype model of blended learning that can be adapted to teaching and learning to play the guitar in a student teacher program. Hietanen et al. (2016) studied and mapped the possibilities of developing the faculty's music curriculum, which set up the groundwork for this study. This study focused on how students think blended learning should be organized in teaching and learning to play guitar. This research paper shines a light on a student-friendly model of arranging course content, teaching and course material. As a part of this study, students were encouraged to use informal learning environments and to experiment with different learning styles. This way, students may discover that learning is not linear, and it does not need to be. In the best case scenario, students may be enlightened about their understanding of themselves as learners.

2. Problem statement

2.1. Background of the study

Teaching and studying in a university is challenging for educators and students as these differ significantly from practices in primary and high schools. When new students have been socialized to a certain way of learning in primary education, it becomes part of their learning habits, which might cause the students to think that university is similar to school when they

enter the academic world. Primary and high school education have often been more or less strictly guided and teacher centered (Honkimäki, 2001).

This study focused on first-year university students. In addition to those for whom music is a hobby, play instruments during their free time and presumably practice often using the Internet as a guide, first-year university students are not necessarily familiar with e-learning music sites. As blended learning utilizes web-based learning environments and styles, creating a blended learning model for students can be challenging. Developing the faculty's music studies curriculum to incorporate a modern digital learning environment, the aim of this study was also to increase student participation in their music studies in different learning environments. Instead of just adding digital content to an e-learning platform, the researchers aimed to incorporate the students' personal experiences and opinions into the research. The objective of this was to show that there are multiple paths to learning the basics of an instrument, and learning does not have to happen linearly. This study intended to reveal the main demands that would steer the method of guitar teaching in the future.

Hietanen et al. (2016) found that educators must acknowledge and appreciate formal, informal and non-formal learning environments and experiences in music education and value all kinds of music equally. This sets the groundwork for this study. Blended learning provides an opportunity to arrange teaching to meet the diverse needs of first-year students (Dennis et al., 2012; Osguthorpe & Graham, 2003). However, when presented with various possibilities of the Internet, such as formal, informal and non-formal learning environments, students who do not have a complete idea about how studying in the academic world works could be overwhelmed. Additionally, previous studies have pointed out that there is a lack of clear evidence that face-to-face lessons are superior compared to e-learning or vice versa (Asarta & Schmidt, 2016; Bolliger & Martindale, 2001; Johnson, Aragon, Shalik, & Palma-Rivas, 1999; Redding & Rotzien, 2001). Ruismäki, Juvonen, and Lehtonen (2012) have examined the Internet as a learning environment in guitar playing. In their study, an informant called "Rane" described his e-learning methods. "Rane" acknowledged YouTube as a kind of the e-learning platform where he could watch instructional videos created by his idols that motivated him to play and practice (Ruismäki et al., 2012). Juntunen, Ruismäki, and Ruokonen (2011) investigated e-learning in the violin distance teaching context. The teacher in the study taught violin online in northern Finland and the results were positive. Daily practice is crucial in music education, and online teaching provided an opportunity to repeat lessons, because they were available 24/7 (Juntunen et al., 2011). According to Ruismäki et al. (2012), students already benefit from learning environments outside educational institutions. Second, Partanen et al. (2009) pointed out how students are capable of autonomously exploiting online materials.

This study focuses on the same issues: we wanted to encourage our students to take advantage of informal and non-formal learning environments.

This study focused on identifying the critical factors experienced during the e-learning and blended learning approaches to guitar playing. Previous studies have investigated the critical factors of e-learning in general. Sun et al. (2008) developed an integrated model of critical factors for e-learning with six dimensions: learners, instructors, courses, technology, design and environment. This study investigated the critical factors that affect learners' satisfaction with e-learning. The results revealed that learner computer anxiety, instructor attitude toward e-learning, e-learning course flexibility, e-learning course quality, perceived usefulness, perceived ease of use and diversity in assessments were the critical factors that affect learners' perceived satisfaction. Through the application of this model, institutions can improve learners' satisfaction and the quality of the e-learning implementation (Sun et al. 2008). So and Brush (2008) found, in their study of the critical issues connected to learning in a blended learning environment, that the course structure, the emotional support and group communication were the most critical factors associated with student perceptions of collaborative learning, social presence and satisfaction. Mozelius and Hettiarachchi (2017) investigated critical factors to be considered in the design and implementation of blended learning in higher education. These included: Technology, didactics, course outcomes, collaboration and social presence, course design, synchronicity vs. a-synchronicity, the heritage from technology enhanced distance courses, multimodal overloading, trends and hypes, and economy (Mozelius & Hettiarachchi, 2017).

2.2. Purpose of the study

The purpose of this study was to develop a prototype of a blended learning model for guitar playing for a primary teacher training curriculum. This study focused on identifying the critical factors student teachers experienced in learning to play the guitar in a blended learning environment, which then formed a base and contributed to the development of a blended learning model. The researchers' goal was to outline the kind of blended learning model that works best for student teachers and create such a model to meet students' different needs and learning styles.

2.3. Research question

Based on the literature review and the purpose of this study, the research question was: What critical factors do student teachers manifest in learning to play the guitar in a blended learning environment?

3. Study design

3.1. Research methods

The methodological approach in this qualitative study was action research. The functions of action research are to produce new knowledge about learning processes and to develop teachers' practices in enabling those processes (Elliott, 1998; Stenhouse, 1980). The research team or group is typical in undertaking action research (Manfra, 2009; Sagor, 2009). The present study is a part of the project where a group of experts; one professor, three university lecturers in music education and didactics and one lecturer in music technology (corresponding author), developed the music education learning and learning environments at two Finnish universities (Hietanen & Ruismäki, 2017; Ruokonen et al., 2017). In addition, one research assistant participated in the investigation by data gathering, transcribing the interviews and during the discussions among the experts.

In the current study, action research is understood as a practice-based research strategy (Carr, 2006). Normally, there are spirals of cycles typical of action research (Carr & Kemmis, 1986). In the current investigation, there are several types of cycles. One cycle consisted of the student teachers' various learning processes (cycles of students' personal learning experiences) through the entire program of music studies in the students' consecutive courses taught by several educators. Another cycle came from the discussions between the educators at the two universities and the research assistant concerning continuing circles of planning, reflections and evaluations when the student teachers' studies progressed during the academic year (cycles of educators' development of learning environments). Various approaches to the same phenomenon of music (for example, music theory) in the consecutive courses taught by different educators (cycles of approaches to content) constituted their own cycles as well (McIntosh, 2010).

3.2. Participants, context and the data collection

A total of 73 first-year student teachers participated in the present study. In April 2016, students were learning to play the guitar in a blended learning environment as part of a general music course for first-year student teachers. The guitar teaching organized by the corresponding author featured a combination of face-to-face and online activities, involving two face-to-face lessons of 45 minutes each. Students learned to play guitar in groups of 7- 9 in the classroom context, instructed and supervised face-to-face by the author. Students also had access to multimedia material (text, images and videos created by the author for this course) in the e-learning environment Optima. Optima is an institutional online learning management system widely used at the University of Lapland. Access to the system is limited

to university students and teachers. Students also had the opportunity to use the online music learning service Rockway, that has been in use as a trial run for two years in the University of Lapland. A week before the start of the face-to-face lessons, the students were instructed to study the online material independently during their own time. Practically, the online material in Optima and the face-to-face lessons consisted of the same basic information and instructions for the first steps of learning to play the guitar which lasted two weeks.

The data in this study were collected using semi-structured theme interviews in April 2016, a week after the face-to-face lessons. Students were interviewed in five groups by the corresponding author and the duration of the interviews were between 17 to 22 minutes. In this case, the themes of the interview and the focus of discussion were defined in advance (Gillham, 2007). The interview themes concentrated on the most challenging as well as rewarding learning experiences of students' learning process. Additionally, the students were asked to identify the level of their personal guitar playing skills and to provide their opinions about how the early phase of guitar teaching should be organized. Students gave written informed consent to use their responses for the interviews for this study. In addition, the students could opt to drop out of the study in the middle of the data-gathering process without any consequences.

3.3. Analysis

Each interview was recorded and transcribed into text document by the research assistant who listened to the audio recordings of the interviews a number of times to ensure familiarization and accurate transcription of the data. After becoming thoroughly familiar with the data, the data were analyzed and codified into nine emergent themes based on the research question. Reduction of the data was completed by aggregating the nine themes into four main categories.

4. Results

A total of 73 student teachers participated in the guitar course in the present study. At the beginning of the interview, the majority of the students (63%) identified themselves as beginner guitar players (see Figure 1).
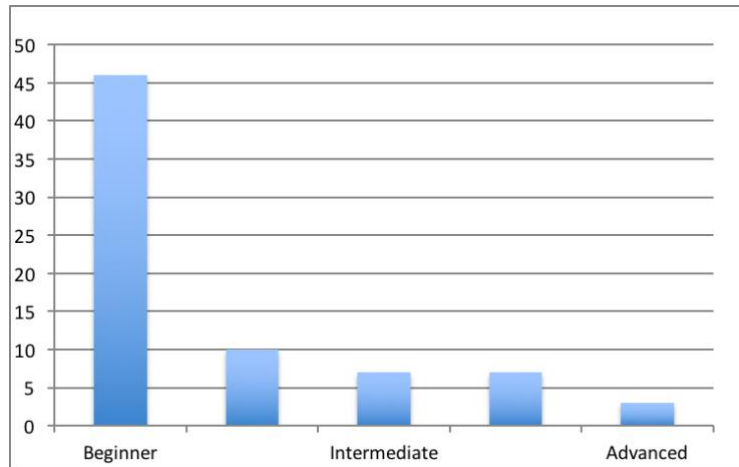
Figure 1. Level of guitar playing defined by the students

Of the students who participated in the theme interviews, only 44 (60%) of them talked with the corresponding author or participated in the discussion, hence affecting the reliability of the study. The possible reasons for the lack of respondents is discussed in the conclusions.

As a result of the analysis of the responses of the theme interviews, nine themes emerged. Figure 2 presents the themes, relative amount of the responses in percentage, and the number of respondents (in brackets) who talked about the theme in question. Reduction of the data was completed by aggregating the nine themes into four partially overlapping main categories: Instrument specific challenges (themes 1,3), heterogeneous group (themes 4,7), learning facilities and course structure (themes 2,6), and motivation (themes 5,8,9).
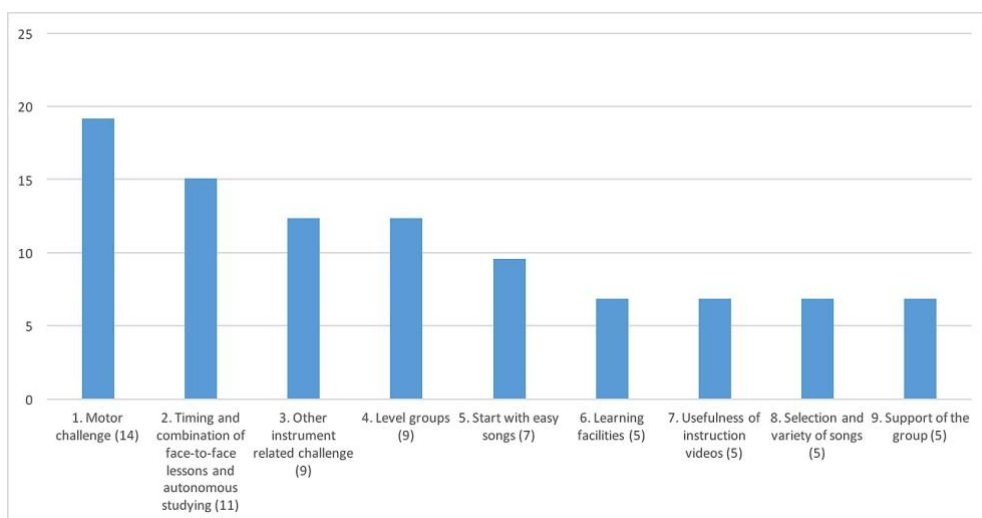
Figure 2. Nine themes reflecting the critical factors manifested during the learning process

4.1. Instrument specific challenges

Considering the large number of beginners, it was not surprising that many students faced motor challenges with fretting a note and fingering chords. A motor challenge was mentioned by 14 (21%) respondents. For many students, just placing the hand in a certain way was difficult and took a long time. Fretting a note hurt the fingertips for the novice player, and it was challenging to change finger positions quickly enough. The following responses represent the typical sample of a motor challenge:

Even if you know where to place your fingers, the chord doesn't sound clear unless you are fretting a note just in the right way. (Student 1, April 4, 2016).

It's easy to finger chords, but difficult to get it sound good. (Student 32, April 8, 2016).

It's a challenge to change finger positions; it hurt my fingertips. (Student 15, April 7, 2016).

9 (12%) students raised other guitar related challenges than a motor challenge. For beginners, the guitar is not an easy instrument to get familiar with and to understand and remember the logic of the guitar fretboard is not necessarily an easy task even for the more advanced player. Students referred to previous experiences of instrument studies and compared the challenges of learning guitar with learning piano. The following responses shows the variety of challenges experienced during the students' studying process:

It is more like a resolving a code, than playing an instrument. (Student 39, April 8, 2016).

When playing piano, you can see both hands. When learning guitar, it is difficult to pay attention to both hands wide apart. (Student 10, April 5, 2016).

Even though I have played guitar for many years, I still don't remember the notes [in the fretboard] without thinking a moment. In a piano, you can see right away where is F, where is C. (Student 36, April 8, 2016).

In my opinion, when playing piano, it is easier to hear when you play wrong. (Student 9, April 5, 2016).

4.2. Heterogeneous group

Each student brought his or her background, learning habits and level of guitar playing to the guitar study lessons, creating a complex situation for the educator and the students themselves. In Finnish teacher education, students are very heterogeneous in their musical skills, because they are not selected according their musical background (Anttila, 2010). Most students feel very insecure to start their instrumental studies in music and they need help; especially beginners who need time and repetition to practice basic skills. Students mentioned the importance of peer support for their learning, but based on the following responses, some beginners felt uncomfortable to practice basic skills with more advanced players:

> Some of our group has played guitar before. The basics were boring for them. Then there is me, who has never played guitar and studied chords before. It would be fair for them that I study [chords] before. (Student 16, April 7, 2016).

> I'm already depressed, because I'm so totally lost. The others are playing the whatever chords of the world and I'm trying to figure out what is C. (Student 36, April 8, 2016).

Students suggested that forming certain level groups could provide solutions to these problems: Advanced players in their own group, and beginners together. However, the same level groups were also criticized and the heterogeneous group was seen as an option to enhance learning. The following responses reveal the student teachers' varied opinions about the same level groups:

> It would be easier for beginners…you could ask stupid questions safely and in peace without disrupting the advanced players. It would be a win-win situation. (Student 26, April 7, 2016).

> Forming a certain level groups would be good. (Student 33, April 8, 2016).

> There is no need for level groups, if beginners can have remedial instruction [before the face-to-face lessons]. (Student 13, April 7, 2016).

> If it were [same] level groups, it would be good to merge the groups at some point. Beginners can learn from advanced players and vice versa. (Student 19, April 7, 2016).

Heterogeneity of the group was reflected also in the students' opinions about the instructional videos. The Rockway videos were seen as both useful and inconvenient. Those who found the videos inconvenient stated it involved just sitting in front of the screen without learning anything. The following responses reflect the students' opinions about the usefulness of the instructional videos:

Optima is okay, but it depends on the learning material. Rockway is good, because they use videos that are easy to understand. (Student 35, April 4, 2016).

Rockway videos are good. I should have watched them right when we started. (Student 31, April 8, 2016).

When you open the laptop at home and watch the videos, I personally feel that any kind of musical learning is not happening. There has to be a connection to practice, not just watching and listening. (Student 43, April 8, 2016).

No matter how long I watch the videos, I have already forgotten them when I enter the face-to-face lessons. (Student 15, April 7, 2016).

4.3. Learning facilities and course structure

A total of 16 (22%) responses deal with learning facilities and course structure. In previous responses, students complained that learning is not happening just by watching videos. However, students said if a guitar had been available when they were watching the videos, more positive learning would have occurred:

The videos are good, but there is still something missing. (Student 32, April 8, 2016).

Interviewer: What that might be?

Some instrument. I have to come here (to music classroom) to watch the videos with an instrument to learn. I feel that there is no musically holistic learning happening just by watching videos. (Student 32, April 8, 2016).

I believe that it would be the most effective to study independently with the guitar in your hand. Then you can combine theory and practice. (Student 5, April 4, 2016).

You should have guitar in your hand, when studying in Optima. (Student 6, April 5, 2016).

One respondent appreciated the possibility to practice alone in peace:

For me it's very important that no one is hearing when you practice. You can play in peace. (Student 34, April 8, 2016).

About the timing and combination of face-to-face lessons and autonomous studying the students' opinions varied. Some responded that the face-to-face lessons should be at the beginning of guitar studies, when everything is new, whereas autonomous learning was best located after basic guidance (see Dennis et al., 2012).

Guidance in the beginning is very important. Without proper initiation in the subject matter, you aren't interested in studying pre-task assignments. Learning guitar requires effective initiation and introduction. After that, you can start and try to work independently. (Student 4, April 4, 2016).

However, access to online material in Optima *before* face-to-face lessons was also seen as positive, as stated in the following responses.

I like pre-tasks. You can recall and learn new things before the face-to-face lesson. Then you are not totally lost in the subject matter, which is a good thing. (Student 7, April 5, 2016).

I'd suggest studying independently at first. If you don't have any previous experience, you possibly don't even know what to ask. After an independent work period, you would benefit more from instructors' guidance. (Student 1, April 4, 2016).

With pre-assigned tasks, you can clarify the essential subject matter and compare it to your own know-how. What is my level of knowledge compared to the course standard. (Student 10, April 5, 2016).

4.4. Motivation

Themes related to *start with easy songs*, *selection and variety of songs* and *support of the group* dealt with motivation and included a variety of students' practical suggestions about

how the early phase of guitar teaching should be organized. 6 (8%) of the respondents suggested to start practicing with very easy songs to quickly achieve the feeling of success. Based on the following responses, the style and variety of music matters too.

> Start with songs easy enough. When you succeed, you get more enthusiastic. For me, it was easy enough to play together in a band. For the first time of my life, I managed to play along with the guitar. (Student 6, April 5, 2016).

> If you don't like the music style of a song you are practicing, you lose the interest to instrument also. (Student 1, April 4, 2016).

> If you like the song, you have a motivation to practice it again and again. (Student 10, April 5, 2016).

Studying in a group with peer support was seen to increase motivation and to improve also musical skills other than guitar playing. The support of the group or teacher was mentioned by 5 (7%) respondents. The following responses show the benefits of a studying in a group:

> It is nice to play in a band. You have help at hand, teacher and the students who know how to play guitar. It would be more challenging to start and to practice alone. (Student 13, April 4, 2016).

> [When playing together] you learn to follow the score and to stay in a beat. (Student 27, April 7, 2016).

According to the interviews, the critical factors to consider when organizing teaching and designing a blended learning guitar course consisted of four partially overlapping categories: *Instrument specific challenges*, *heterogeneous group*, *learning facilities and course structure* and *motivation* (see Figure 3).
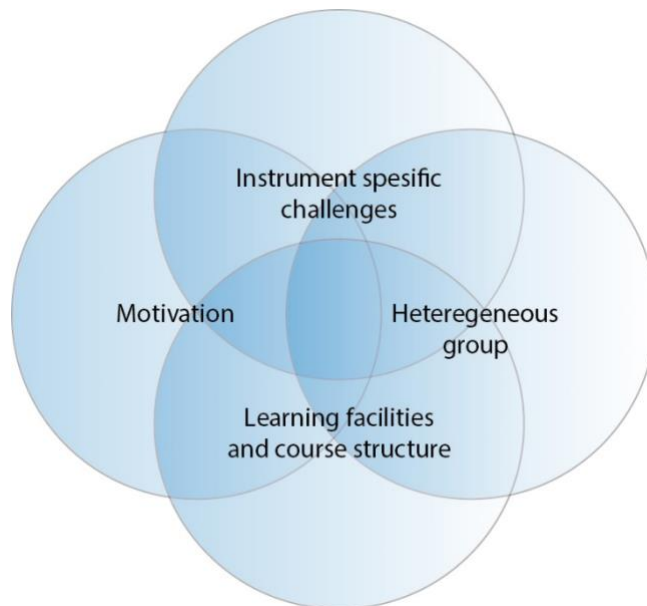
Figure 3. The four categories of critical factors manifested during the learning process

5. Conclusions

Learning to play an instrument requires the acquisition of a wide range of skills of great complexity. Learning to play a guitar is unique; there is no shortcut to mastering it. Understanding the logic of the guitar fretboard and various motor skills require hours of intensive work. Even basic fingering techniques require a lot of repetition for novice players, which alone is still not enough. Thus, teaching should be organized to allow enough time to practice and to get familiar with the instrument. For a novice, there is a lot to learn, and the guitar is only one instrument among others in the music curriculum for student teachers.

There are many different types of learners, which calls for diverse possibilities to study based on students' interests and preferences (see Dennis et al., 2012; Osguthorpe & Graham, 2003). In the study data, this diversity was manifested and reflected in the students' opposing opinions and viewpoints on many subjects. Students' diverse opinions revealed the inherent heterogeneity of the group and the real need to explore the possibilities and benefits of blended learning methods.

Students explained how peer support is important, but based on the responses, the grouping comprising different levels of guitar playing skills created social pressure during the face-to-face lessons, thus negatively affecting the learning situation. It would require a complementary enquiry to verify, but the manifestation of distress during the group situation found in the responses, was presumably just the tip of the iceberg. It should be noted that some

students felt uncomfortable (to respond verbally) during the group interviews leaving the most personal and delicate statements unheard. Audio recording turned out to be a partially deficient method of data gathering, because of the lack of the recorded non-verbal communication. Of the 29 (30%) interviewees who did not respond verbally, not all were totally outside the debate. Some displayed positive or negative body language such as occasionally nodding during a classmate's comment which was indicative of participation, though indirectly. This, however, was not factored into the data analysis.

Most of the students who participated in theme interviews were novice guitar players, which left the voice of the more advanced players almost unheard. However, the majority of the students involved in the study identified themselves as beginners, thus sustaining the reliability of the study. Further investigation is still needed to get the advanced players to articulate their opinions as well. It is noteworthy, that none of the more advanced guitar players criticized the heterogeneous group, though they were presumably, at least, somewhat frustrated too. In any case, the relatively high number of responses (12%) in the level (of mastery) groups category indicates that students' different levels of guitar playing is an essential factor to take account to when organizing guitar teaching.

The students' responses also indicated that face-to-face lessons and e-learning environments supported one another. This is in line with previous studies on the relationship between e-learning and face-to-face lessons (Bolliger & Martindale, 2001; Brooks & Upitis, 2015; Johnson et al., 1999; Redding & Rotzien, 2001; Upitis & Abrami, 2017). Face-to-face lessons offered personal guidance, whereas the e-learning platform was used mainly for self-practice (Juntunen et al., 2011). However, the students suggested that autonomous studying online would be more useful to them if they had access to a guitar. Otherwise, watching guided videos of how to play a particular song was not necessarily fruitful for learning as mentioned by a respondent: *"It's just watching the video; learning is not happening"* (Student 42, April 8, 2016). This concurs with Partanen et. al's findings (2009) and indicates a need to define the concept of autonomous studying in this case more specifically, incorporating questions like when and where exactly it is supposed to happen. Course structure as a critical factor was in line with previous studies of So and Brush (2008) and Mozelius and Hettiarachchi (2017).

6. Implications

The Internet is a treasure trove for a music learner, but the process of searching for pedagogically and personally usable and interesting material is fraught with challenges even for more experienced guitar players and Internet users (Ruismäki et al., 2012). However, the vast amount of information and material on the Internet, including Rockway, with the proper

guidance (for example, playlists arranged by the educator and/or use of intelligent search machines) can open up various and personally structured learning paths to advanced players as well. While beginners can focus on the basics, the more advanced players could seek personal challenges through Rockway and YouTube videos.

To avoid the overwhelming confusion of too many options in using the Internet, the essential material with precise instructions should be presented and arranged in Optima by the educator. This material is course specific and designed for the needs of the teacher students. An invaluable benefit of using an institutional e-learning platform with restricted access, in this case Optima, is that it permits (with certain limits) the use of copyrighted material. That may significantly ease the task of designing and providing online content. The online content should provide a comprehensive variety of learning material to support different learners, to motivate to study and to stay motivated (Ruismäki et al., 2012).

However, online content alone is not enough. Based on the interview responses, it is clear that face-to-face guidance cannot be replaced by autonomous studying online. In different situations, students need and want to have somebody to ask for help and to lean on, but, not all the time and not necessarily the teacher, but peers as well. The face-to face approach is important to support, guide and encourage the learning especially the beginners, which also includes peer-learning learning, although it occurs often more spontaneously and serendipitously compared to the face-to-face lessons.

At this point, it can be ascertained that the blended learning model includes three essential elements of design blended (guitar) course activities: The Internet, course-specific online material (e.g., Optima) and face-to-face lessons. Based on the findings and conclusions, the proposed blended learning model for teaching and learning guitar in the primary school music curriculum is presented in the figure 4.

Through the application of this model, the students can be encouraged to take advantage of the blended learning environments and styles and to create their own personal learning paths. To meet the diverse needs of a heterogeneous group, the proposed model is based on individual rotation. The aim is to let students progress on individual and fluid schedules among learning activities based on their individual needs. Every student does not necessarily rotate to every station or start the course from the same station. More advanced guitar players could complete the coursework online at home and participate in the face-to-face lessons just to get the instructions to carry on autonomously or attend only the required evaluation sessions with a teacher, for example. It should be stressed that because this model can give students a high degree of control over their learning, they need to assume a higher *responsibility* over their learning too.
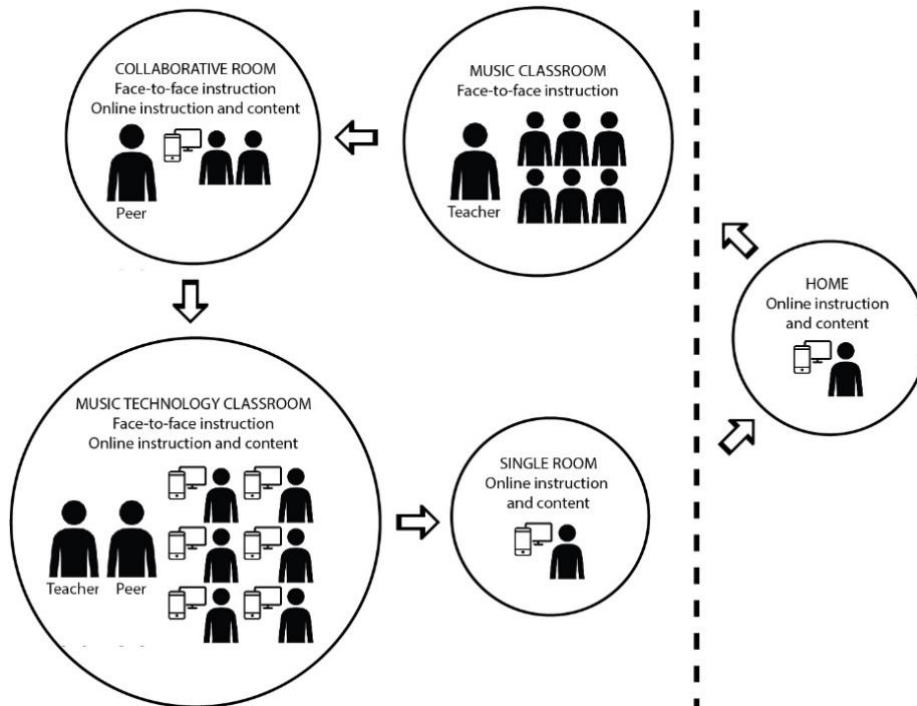
Figure 4. Blended learning model for teaching and learning guitar in the primary school music curriculum

To acknowledge learner differences and get students motivated to study, the proposed model utilizes versatile teaching and learning styles and environments. In the music technology classroom, the teacher and peer(s) provide support on as-needed basis while students work through the online content. The use of personal headphones allows individual coursework and working in peace if necessary. Practicing alone allows learning in total peace, online instruction and content permits studying at home, face-to-face time is used for teacher-guided practice, and collaborative learning utilizes the support of the group and peers.

To resolve or at least ease the instrument specific challenges, flexible schedules allow a sufficient time to practice and to get familiar with the instrument. According to the interview responses, there is a need to have a guitar available when studying online. In the best case scenario, the proper learning facilities, including the provision of a guitar, should be available 24/7 to facilitate daily practice (Juntunen et al., 2011). Although it may be challenging to put into practice as a whole, through the use of individual rotation and flexible groups, every student should have the opportunity to practice at his/her own skill level. Forming different mastery level groups has never been a practical didactic solution, especially in student teacher training programs, because the student teachers come in with multiple levels of skills which

would make it a logistical nightmare to organize numerous special learning groups according to their special mastery levels.

It is vital to find the optimal combination for online and face-to-face lessons. However, at this early state of designing a blended guitar course, many challenges remain unsolved such as: what is the content-specific relationship and interaction between face-to-face guidance and online activities?; how is it possible to choose and generate a personal and non-linear learning path in practice?; what does autonomous learning exactly mean in this case? Crawford (2017, p. 210) predicts that "as pedagogy changes to meet the challenges of twenty-first-century education, blended learning will become a necessity in formal music education". Implementing blended learning, however, requires a new approach to learning and rethinking of teaching pedagogy: What is the educators' role and expertise required in this model? Ruokonen & Ruismäki (2016) state that "blended learning requires resources, new methods of instruction, course content development and university pedagogical knowledge". According to Linder (2017, p. 16) "hybrid (blended) courses often cause a shift from pedagogical principles (i.e., teaching methods aimed at children) to andragogical principles (teaching methods for adult learners)". Considering all these challenges, the next phase in the cycle of the action research would be to implement the proposed model in practice and conduct a new investigation on using it (Carr, 2006).

Based on this study, there is a lot of pedagogical potential in combining face-to-face settings, online material and instructions for teaching guitar in a primary school music curriculum. There are still many different kinds of online activities to explore. Vaughan et al. (2013) defined eight categories of social media applications that can be used to design, facilitate and direct learning activities in blended courses and programs such as social bookmarking, blogs, wikis, social networking, social content, mashups, synchronous communication and conferencing and virtual worlds. Thus, the full potential and effectiveness of blended learning remain to be seen. In the future, the combination both of developing online learning environments and face-to-face learning are needed. Also, more research is needed to uncover the best blended learning solutions in music studies for teacher education.

Acknowledgements

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