THE COMMUNITY OF INQUIRY AS A FRAMEWORK IN STUDENT TEACHERS' MUSIC EDUCATION

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Abstract

Music education today seeks to respond to the changing demands of 21st century learners (Portowitz et al. (2014). Today's music educators face a great challenge how best to take advantage of the digital music technology in music education, involving students with different musical backgrounds, with the different readiness of music technology and how digital music technology can be used in different learning environments. Blended learning provides solutions on how to create e-learning environments and how to make them useful for students as well as teachers. The teaching in this project, is based on the idea of community of inquiry (CoI) introduced by Garrison (2017) and the research at hand asks what kind of possibilities will the community of inquiry framework offer in student teachers' music education in the blended learning environment. The data consist of 19 students' written communications with the teacher. The analysis started as data-based, by searching to find out what the data tells us, then continued as theory-guided content analysis. Referring to Dana and Dumez (2015) and using both inductive and, to some extent, deductive approaches, this study's research strategy followed the logic of content analysis. The analysis is completed as theory-guided content analysis (Krippendorff, 2004). The methodological approach is mainly qualitative and constructive, which allows for an open-ended view of the data and even unexpected results (Kasanen et al., 1993). This research reveals that in studying music in the blended learning environment from the perspective of community of inquiry, there are students who are knowledgeable, students who have sight-reading problems, students who notice the progress of one's playing skills, students who do not give up and students who have ability to face challenges.

Keywords: Community of inquiry; blended learning; music education;primary school student teachers

1. Introduction

Today's young people are often deeply immersed in using digital technologies in their everyday lives. A great challenge is how best to take advantage of the digital music technology in music education, involving students with different musical backgrounds, with the different readiness of music technology and how digital music technology can be used in different learning environments. Jonathan Savage (2009) introduces two models of musical practice with ICT. The first model is *The Extrinsic Model* and the second model is *The Intrinsic Model.* In the first model, the musical keyboard is linked to the computer software. Using digital devices, students study the elements of traditional Western music that have roots in the European music of the mid-eighteenth century. The second model focuses on the opportunity to use a standard personal computer as a musical instrument. This means that sound itself becomes the source for many new ways to make music through a process of exploration.

In the study at hand, the main focus is the extrinsic model because in this study most of the student teachers are novices at music practice. In the Finnish National Core Curriculum for Basic Education (FNBE, 2014), music as a subject can be considered a combination of the following approaches: singing, listening, playing musical instruments, composing or connecting music with for example physical movement, picture and/or technology. According to the FNBE, one of the aims in music education in Finnish schools is to help students understand the basic principles of the music symbol system with the help of musicing. (FNBE, 2014). In practice, this means that student teachers should learn among other things the music symbol system of traditional Western music.

Digitalization has become a part of Finnish education from elementary schools to universities. Blended learning provides solutions on how to create e-learning environments and how to make them useful for students as well as teachers. The concept of blended learning is understood as an educational combination that combines the traditional face-to-face teaching and online learning (Bonk & Graham, 2012; Crawford, 2017; Garrison, 2017; Graham, 2006; Kerres & de Witt, 2003; Picciano, 2014; Watson, 2008) Pedagogically, blended learning combines the most effective aspects of face-to-face learning experiences and online learning experiences with good technology devices (Ruthman & Hebert, 2012; Pike & Shoemaker, 2013; Tobias, 2013).

The study presented in this paper was conducted at the University of Lapland in Finland in spring 2017. At the faculty of education, music education for every student teacher is offered during the first academic year. The students who participated in the research were students of the primary school teacher training program.

2. Problem statement

In the future, technology will shape more and more independent music learning. Digital technologies are obvious in our daily lives as we use applications on our computers, tablets and smartphones to exchange information to communicate with our friends (Gardner & Davis, 2013; Turkle, 2011). Digital devices of different kinds allow teachers and students almost seamless access to musical resources (Purves, 2012). Research shows that online electronic devices can support student learning in a variety of subject areas, including music, especially when digital tools are designed to support student self-regulation (Brook & Upitis, 2015). Today's music learners live in an environment with new technologies, which have made it possible for even the most novice of composers to write music with software like Apple's GarageBand. GarageBand has provided essential software for creating music without the demands of reading traditional notation and playing a traditional music instrument. For students and teachers, Apple's GarageBand provides an unusually simple music production tool including software instruments and a sound library. GarageBand's content and user friendly interface make it easy to construct multitrack recordings.

In the context of this study, the blended learning approach means that students are studying music online in the music technology classroom. They have the opportunity as well to study music flexibly anywhere and anytime if they have the necessary music technology devices available. In the pre-scheduled face-to-face lesson, the teacher who is the corresponding author, is present to help and guide the students if needed and who will conduct a few minutes of interventions in the topics raised by the students.

The teaching in this project, is based on the idea of community of inquiry (CoI) introduced by Garrison (2017). In constructing a community of inquiry, it is essential that members of the community learn to know each other. Constructing a community of inquiry can be a challenge as well, because the group cannot be pressured to construct a community of inquiry. Pardales and Girod (2006) remark that the term 'community' is something more than a loosely associated group of people. It takes a long time to develop, as it is not an automatic occurence that can take place in just any environment. The teacher, as well as administrative and curricular support have to be in place to foster the right environment for the teacher and students to build the CoI (Pardales & Girod, 2006). In the perspective of CoI, the instructor's role is important, because she/he designs the online of the coursework to support students' cognitive development and facilitates interactions among the students and between the instructor and students (Akyol & Garrison, 2011).

3. Purpose of the study

Music education today seeks to respond to the changing demands of 21st century learners (Portowitz, Peppler & Downton, 2014). At the faculty of education of the University of Lapland, during one academic year, the student teachers have to attain musical knowledge and skills required for teaching music in primary schools. The face-to-face lessons have been remarkably diminished and the size of the group of students studying music simultaneously, also piano-studies, has been increasing (see Enbuska, Rimppi, Hietanen, Tuisku, Ruokonen, & Ruismäki, 2018; Sepp, Hietanen, Enbuska, Tuisku, Ruokonen, & Ruismäki, 2018). Therefore, for several years at the university in question, the music lecturers have developed and investigated various ways to utilize blended learning as a principle when designing their learning environment settings (Enbuska, Hietanen, & Tuisku, 2016; Enbuska et al., 2018; Hietanen & Ruismäki, 2017; Hietanen, Ruokonen, Ruismäki, & Enbuska, 2016; Tuisku & Ruokonen, 2017). To enable the student teachers to attain the goal of the primary school teacher training, this study examines ways in which the blended learning environment, through the specific application of the Community of Inquiry approach, can contribute to student teachers' music education

4. Research question

Based on the findings in the studies focusing on the previous blended music learning trials carried out at the university in question, the research question is formulated as follows:

What kind of learning possibilities will the community of inquiry framework offer in student teachers' music education in the blended learning environment?

5. Research design

5.1. Theoretical departure point

The origins of CoI can be found in the philosophical work of Peirce (1877, cited in Lipman, 1991). The notion of community of inquiry was adopted from Peirce and developed by educational theorists of different orientations (Garrison, 2013, 2017; Garrison, Anderson, & Archer 2000; Lipman, 1991, 2003; Lipman, Sharp, & Oscanyan, 1980). According to O'Neill (2011) "inquiry refers to the process of using selected questions to guide our learning in a way that is exploratory and responsive, yet focused on something of importance to us" (p.186). Lipman (2003) emphazises that not all schooling is inquiry. There must be some doupt that all is well, some recognition that one's situation contains troubling difficulties and is somehow problematic. Above all, inquiry in education is a student-centered approach in that

inquiry involves questioning, more narrowly a quest for truth, more broadly a quest for meaning. Students' questions do not necessarily have any easy answers (Awbrey & Awbrey, 1995; Hubbard & Power, 1993; Lipman, 2003; O'Neill 2011).

Lipman (2003) states that a CoI is where "students listen to one another with respect, build on one another's ideas, challenge one another to supply reasons for otherwise unsupported opinions, assist each other in drawing inferences from what has been said, and seek to identify one another's assumptions" (p. 20). Garrison (2017) argues that critical reflection and discourse is central to the CoI. "Community of Inquiry provides the environment in which students can take responsibility and control of their learning by negotiating meaning, diagnosing misconseptions, and challenging accepted beliefs" (Garrison, 2017, p.24). Lipman (1991) stresses that the essence of education is inquiry. He suggests, "The community of inquiry is perhaps the most promising methodology for the encouragement of that fusion of critical and creative cognitive processing known as higher-order thinking" (Lipman, 1991, 204).

According to Lipman (2003), the community of inquiry presumes the following:

1. Education is the outcome of participation in a teacher-guided CoI;

2. Teachers stir students to think about the world when teachers reveal knowledge to be ambiguous, equivocal and mysterious;

3. Knowledge disciplines are overlapping and therefore problematic;

4. Teachers are ready to concede fallibility;

5. Students are expected to be reflective and increasingly reasonable and judicious; and

6. The educational process is not information acquisition but a grasp of relationships among disciplines (pp. 18–19)
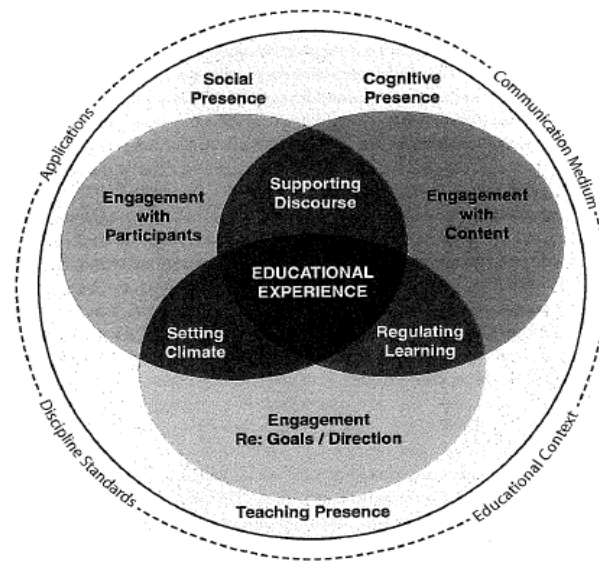
In the CoI, the teacher has a different nuance from that of the instructor or guide:

The teacher's role in the community of inquiry is a complex and a changing one: here the teacher is a guide, there a conductor, and perhaps as ordinary contributor on some other occasion. Certainly, the teacher needs to guide the children in the ways of inquiry. If the children are to learn how to run their inquiry, they need to be taught. Yet the teacher must not be dominant or directive in ways that make it difficult for the children to take the reins. Knowing how and when to "pass the reins" or to take them back is every bit as important as knowing your way around the inquiry (Cam, 1995, pp.17-18).

At the core of people's interaction is mutual trust. Marková (2016) states that "the well-established interpersonal trust between the teacher and learner is necessary for epistemic trust

in order to achieve the goals of education" (p.152). Haynes (2018) stresses that knowing how and when to pass the reins requires trust in the students' competence and cooperation within the CoI. Uslaner (2002) distinguishes between *strategic trust* in which you have to know those in whom you place trust, as subjects, and *moral trust* in which you can trust a complete stranger. Above all, in the CoI, it is question of *moral trust* (Haynes, 2018).

The CoI represents a process of meaningful learning experiences through the development of three interdependent elements: social presence, cognitive presence and teaching presence (Figure 1).

Figure 1. Community of Inquiry Framework (Garrison 2017, p. 25)

Social presence creates the environment for trust, open communication, and group cohesion. *Cognitive presence* has been defined as the "extent to which learners are able to construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry" (Garrison, Anderson, & Archer, 2001, p. 11). The third and cohesive element, *teaching presence*, is associated with the design, facilitation, and direction of a CoI. (Vaughan, Cleveland-Innes, & Garrison, 2013, p. 12). Students in a CoI are engaged in a way that fosters self-regulation and self-monitoring as well as that of fellow learners. For this reason, the third element is referred to as *teaching* presence and not *teacher* presence. In other words, everyone has the opportunity to contribute by way of facilitation and direct instruction. In a blended environment, the faculty administration must provide the opportunity for peer

interaction and teaching face-to- face as well as online (Vaughan, Cleveland-Innes & Garrison, 2013, 48).

Recently, the emphasis in pedagogy has shifted towards the social and cultural context of learning (Barrett, 2011; Lamont, 2011; Pritchard & Woollard, 2010; St. John, 2005; Wells & Claxton 2002; Wiggins, 2011). Until the middle of the 1990s (Westerlund, 2002), social interaction and its role in the quality of learning and teaching was considered a non-musical factor. Moreover, within the field of music education, there has been a growing shift in emphasis from teaching to learning (Kenny, 2014).

In the current study, *teaching presence* is comprehended from a dialogical perspective. The dialogic approach can provide opportunities to reduce barriers between teaching and learning (Matusov, 2011; Rule, 2015). For Matusov (2011, p. 39), the teacher is not 'the objective expert' but rather "a subjective and interested epistemological learner among other fellow learners". *Social presence* is comprehended as well from a dialogical perspective proposed by Burbules (1993). According to Burbules (1993, p. 8) in a pedagogical environment, dialogue is a *pedagogical communicative relationship.* He states that dialogue does not have a predetermined communicative form with questions and answers. On the contrary, dialogue is a social relationship that attracts its participants to communicate. Burbules (1993) states that in a pedagogical environment dialogic activities require three rules: the rule of participation, the rule of commitment and the rule of reciprocity. The rule of participation requires a voluntary and open engagement of its participants. This means that any participant should be able to raise topics, pose questions and challenge other points of view. The rule of commitment requires the flow of conversation to be persistent and extensive across a range of shared concerns. In practice, this means that students should be able to raise questions with a teacher who should be responsive to students' questions. The third rule of dialogue, the rule of reciprocity, requires a spirit of mutual respect and concern, and must not take for granted roles of privilege or expertise (Burbules 1993, pp. 80-82). According to Burbules (1993, p. 9), narrow categories of 'teaching' and 'learning' do not fit many instances of dialogue well, because they dichotomise the roles of teachers and students. Instead of the dichotomy between teaching and learning, a dialogical approach emphasises what is often termed as 'scaffolding' in the relationship between teachers and students, depicting one significant form of interaction in learning contexts (Wood, Bruner, & Ross, 1976).

Cognitive presence can also be viewed from the dialogue theory proposed by Burbules (1993). The role of learners in blended learning environments constitutes multiple roles and responsibilities. This creates role complexity, as participants must assume varying degrees of responsibility to monitor and regulate the dynamics of the learning community. This is

consistent with the very nature of a community of inquiry with shared academic goals and processes (Vaughan, Cleveland-Innes, & Garrison, 2013)

Next we have to consider why a group of student teachers can be regarded as a CoI.

1. One of the student teachers' duties is to study music.
2. A student is assigned to a student group that works on different school subjects.
3. A good team spirit promotes an individual student's studies. There are lots of small group lessons in the classroom teacher training program that makes it possible to form a good group spirit.
4. A group has a common agenda according to the curriculum of the faculty of education
5. The administrative and the curriculum support the proper study environment for the teacher and students.
6. This project is described from a transactional perspective and it includes the principles of dialogue (Alexander, 2008; Burbules, 1993; Burbules & Bruce, 2001).
7. The dialogical perspective is related to the CoI approach (Garrison 2017; Haynes, 2016)

It is essential to note that even if students are working individually on their music, playing their keyboards and using headphones, they are working together in the same room at the same time. This means that although they are playing in different spaces as well as at different times, they experience learning as a group. In one sense, using headphones when playing in the music techonology class allows for a safe atmosphere and a good morale for students to work on their music. Even though students' work is not audible to others, they are free to visit each other, listen to and comment on each other's work. From time to time, there are intense discussions among the students, for example of some of the interesting GarageBand sounds or arrangements. During these lessons, the music technology class is filled with the joy of making music, generating successful solutions to problems, alternating with frustration at times when the work is not successful, when students have problems with GarageBand, and so on. For these reasons, this study presumes that the activity of a group can be viewed from a *CoI* perspective.

For the purpose of this study, the methodological approach was qualitative in nature comprising the generation of themes emerging from written feedback provided by the student teachers. It needs to be mentioned here that this is an exploratory investigation. Hence, no

verified research instruments were used to generate the data. The written feedback was generated based on questions formulated from the experiences of the authors as teachers of this program and their interest in identifying the needs of the students in a blended learning environment. This is based on the CoI fundamental premise that knowledge is fluid and dynamic and based on the students' (and teachers') experiences as they navigate the teaching-learning journey.

5.2. Context of the Research

The University of Lapland uses *Optima*, used in many universities nationwide, as one of its main e-learning environments for students. *Optima* is an online learning environment, which offers opportunities to utilize different learning models and and pedagogical ideas. Teachers are able to add materials to *Optima* for autonomous learning purposes. In this vein, the corresponding author created folders in *Optima* for student teachers to refer to. The folders contain information and tasks related to the music theory and videos of a piano being played. These videos were recorded from above so that the student can see the piano keyboard, the passage to be played, and the movements of the player's fingers. The videos consist of five levels of difficulty of each piano arrangement with the first level being the easiest and the fifth level being the most difficult.

The study at hand elicits the opportunity to participate in an online learning environment, like *Optima*, where students can set their own agenda of inquiry, and partly, because there is no direction towards an 'objective' or 'aim' but rather a holistic open inquiry (Haynes, 2014). In student teacher music education at the University of Lapland, one aim is that students deepen and expand their musical skills and pedagogical abilities in individual and community learning environments by experimenting, and reflecting on their own and common ideas. The aim is for students to recognize the role of music technology in the teaching of music as well as the building of their own music teaching studies in the embedded learning environments by seeking dialogue with their peers.

Since student teachers studying at the University of Lapland have different musical readinessses and musical interests, it is important that every student can build their personal study path, which optimizes her/his music studies. Therefore, this study considers the holistic view to be more effective in promoting student teachers' music studies at the University of Lapland than a view with precisely defined goals. The assessment of the students' music

studies is based on the students' self-assessment and the teacher's view of student's musical progress.

In practice, this means that students are free to choose what level of *Optima* passages they want play and in which order. They can also play other pieces of music than those provided in *Optima*. It has been mentioned earlier that at the core of people's interaction is mutual trust. Haynes (2018) stresses that 'teacher' has a different nuance from 'instructor' or 'guide' in the CoI. The teacher has to know how and when to pass the reins and this requires trust in the students' competence and cooperation within the CoI. The CoI can only grow through its reciprocity, openness and mutual trust of each member (Haynes, 2018).

This study utilizes a Flex Model of blended learning which means that the content is being delivered on an online format, but students can be present in the actual classroom during a lesson or study the material on their own time. They can also study in a space other than the music technology classroom if they have necessary devices. This model allows for more independent studying and requires students to take responsibility for their studies, while teachers are available to offer tutoring and guidance as needed and on a case-by-case basis. Students are able to move flexibility through different learning modalities optimizing their learning experience based on their specific needs.

In this study, the Flex Model is applied in the following way: Students study the basics of piano in the music technology classroom playing keyboards by using GarageBand. They play passages presented in *Optima* with headphones, so that other students cannot hear the individual student's work. The aim of the lesson is that the students study the passages presented in *Optima* mainly independently with the help of *Optima*'s videos. They can also play passages other than passages in *Optima*. By utilizing GarageBand's wide range of instruments and sound effects, students create the arrangements of different pieces of music, at first with the tutoring of the teacher and then independently. Some students compose their music with the help of GarageBand. The teacher's duty is to guide and advise students' work, if necessary. In other words, this is the face to face teaching part and the independent study part comes in when students utilize online learning material. Every student has a return box in *Optima*, to which she/he can record her/his work converting her/his GarageBand versions to MP3 format. This way, students can listen to their work, for example, with their own mobile devices. In *Optima*, only the teacher and the student owning the return box can listen to the student's work.

Optima's return box plays an important role because first, the MP3 work of the student's return box permits the student to monitor the development of her/his work. Second, with the help of return boxes, the teacher is able to instruct the individual student by writing

feedback or other comments both in real time and afterwards. This comprises the online teaching part of the learning environment where the teacher is present either at the same time in the same room with the students or at the different times and at the different spaces with the students.

5.3. Research Group

The research group consists of ten groups comprising eight to ten students per group, totalling 84 students. However, it must be noted here that only 19 students out of the 84 responded to the written communication task in the folders, which provided the data for this study.

5.4. Data collection

The research data was collected in Spring 2017. The data consisted of written communications between students and the teacher with the help of *Optima*'s return boxes. 19 students of 84 students responded with these written communications in return boxes. Students were not specifically asked to comment on their studies, but some of them did it voluntary. The aim of the study was to maintain the naturalness of the learning environment as much as possible, where the research aspect would not be over-emphasized. The non-mandatory nature of the written feedback could be the reason why only 19 students commented on their studies. The researchers obtained the student teachers' permission to collect this data. The research stages are explained in the following section.

5.5. Analysis

In the first phase, written communications between students and the teacher were copied from Optima to the same file. The next step was to study the types of themes emerging from the students' texts so that the material could be classified for analysis. The key themes that emerged from the material were problems related to sight-reading, the progress of playing skills, the confidence in one's knowledge, resilience, musicianship and the criticality of one's own work. The themes that emerged from the analysis were the basis for classification. The categories were named so that they describe the content of the category as accurately as possible. Next, each student was assigned to the category that best represented his/her written communication and every category was described by example of the written communication between a student and the teacher. The analysis was completed according to the perspective of the CoI framework (see section 7, Conclusions). The analysis started as data-based, by searching to find out what the data tells us, then continued as theory-guided content analysis.

Referring to Dana and Dumez (2015) and using both inductive and, to some extent, deductive approaches, this study's research strategy followed the logic of content analysis. Thus, the analysis was completed as theory-guided content analysis (Krippendorff, 2004). The methodological approach is constructive, which allows for open-ended view of the data and even unexpected results (Kasanen et al., 1993).

6. Findings

The research question for this study was to identify the learning possibilities offered in the CoI framework for student teachers' music education in the blended learning environment. Five key themes emerged in the analysis as related to the research question; *Knowledgeable, Sight-reading problems*, *Progress of playing skills*, *Resilience to attain the goal* and *Ability to face challenges*. These will be further elucidated with appropriate student comments in the following sections.

6.1. Knowledgegeable

The category of *Knowledgeable* means that a student is confident of her/his own music knowledge and playing skills. The written communication between this student and the teacher revealed that the student, in the following extract, had played the piano many years ago. Two of the songs (Christmas songs) that she played were unfamiliar to her, but were easy for her to pick up because of her knowledge of piano playing skills.

Student: *Ok. It is easier to play with the metronome* (Twinkle, twinkle, little star). *A beautiful song. It is much harder to play, because the song is not familiar to me, but it went well (A Finnish Christmas song)*

This song was not familiar to me, but it just worked well. The chords still need to be practised for all songs. (Jolly Old St Nicholas)

Teacher: *Assured playing. You've learned well!*

Apart from the above student, two other students from the sample were also assigned in the category of *Knowledgeable*.

6.2. Sight-reading problems

The category of *Sight-reading problems* relates to those students who are uncertain about their sight-reading skills. Sight-reading was challenging for most of the students in this sample though only seven students were assigned in the category of *Sight-reading problems*.

The criterion of classification is most strongly highlighted with these seven students. In the following extract, the student is almost desperate because sight-reading is very challenging for her.

Student: *The rhythm was more difficult of this song than the songs I had played before* (A Finnish folksong). *I feel it hard the rhythm or counting the rhythm. I feel it hard to play the chords as well.*

Teacher: *The song starts with a pick-up bar and that makes the rhythm little bit harder. I think that the rhythm is sometimes a very difficult element of music. The rhythm has been a challenge for me through time. It is essential that the beat would be equidistant. I will talk more about chords later. You play the song convincingly.*

Student: *How to learn to play without notes? (another Finnish folk song)*

Teacher: *Today there are many digital devices with sight-reading applications. If you do not have such applications, you can learn by ear. You should play first the most familiar melody, and then practice a lot.*

In the extract above, the teacher does not know if the student has such devices, therefore he advises the student to practice using the method which has been practiced through the ages.

6.3. Progress of playing skills

In the category of *Progress of playing skill,* the student is pleased with the progress of her/his playing skills. Six students from the research sample fell in this category. The following extract describes in detail one students' progress of playing skills.

Student: *It is still hard to play with both hands* (An easy Finnish folk song)

Teacher: *Awesome playing!*

Student: *In patches* (Mary Had a Little Lamb)

Teacher: *You did play fine.*

Student: *At the end there is a small blunder, but otherwise it is going to work.* (A Circus Parade; an Italian song)

Teacher: *Just like this. Rhythmic matters can always be refined, but the most important thing is the wholeness.*

Student: *This must be improved* (The old man Noah; a Swedish song)

Teacher: *It's all right. Great!*

Student: *Not a successful version, but okay* (Twinkle Twinkle Little Star)

Teacher: *That's it!*

Student: *It is going to work* (London Bridge)

Teacher: *That's it too!*

Student: *Towards better* (A Circus Parade; an Italian song)

Teacher: *Otherwise ok, but the rhythm of the second bar? It should be played at the same time as the first bar.*

Student: *I did not get further today.* (Stand By Me)

Teacher: *You play convincingly. Continue from here and arrange more instruments.*

In the discussion above, the student is critical of her playing, because she is unsure about what is considered good playing skills at this stage of her piano studies. According to the teacher, she plays quite well already at this stage.

6.4. Resilience to attain the goal

In the category of *Resilience to attain the goal,* a student does not give up. Two students were assigned in this category. As the following extract reveals, the student has great difficulties with her left hand playing a Finnish folksong; nevertheless, she plays the song from the beginning to the end. She is pleased with her achievement: "…*here's the best I got.*" She emphasizes that although she faced difficulties playing, it was important to try it out: "*I tried it anyway.*"

Student: *It was really hard to play with so many different positions on the left hand, but here's the best I got. I tried it anyway.* (A Finnish folksong)

Teacher: *Well done. Many chords always add to the difficulty, but you played them just fine*!

Student: *This is a difficult piece to play. So I just played a little bit, but now I am trying to play from beginning with both hands* (As Tears Go By)

Student: *This was really difficult but I tried! I forgot to play at the beginning of d and at the end I also played one point incorrectly. It was not any beautiful music for the ears, but I tried!* (As Tears Go By).

Teacher: *You played well enough for this stage.*

6.5. Ability to face challenges

In the category of *Ability to face challenges,* a student shows that he/she has the strength to face the challenge. Only one student was assigned in this category. Most of the students seem to be able to face challenges, but the student in the following extract, challenges herself with a difficult task. She had not studied music before the teacher training program, but now, she knows she will be teaching music in a primary school. For her class work, she composes an arrangement of a Finnish pop song with GarageBand software, which she will convert to MP3 format.

Student: *An elementary group should be formed for music lessons to understand what is being discussed in the lessons*

Teacher: *You are right, but it is not possible to make such a group at our Faculty due to the minimal resources. That is one of the reasons why we strive to make use of music technology to support students' music study and our music teaching.*

Student: *Oh yeah! Can you do something somewhat easier, there's so much to me that I can not fix it* (As Tears Go By)

Teacher: *This song is really really a hard one. But this works well.*

Student: *In this MP3 format there sound all the instruments that I have arranged for this. Nice jumble. I'll put another one what I'm going to use at my lesson* (A Finnish pop song).

Teacher: *If it is possible for you or you want to continue with this song, I'm available.* (A Finnish pop song) *Of course, I will help you with other songs if you need.*

The student in the extract is critical of the music education she received when she was at school. She wishes that there should be an elementary group in music education in the class teacher training program. The teacher explains why this kind of an elementary group is not possible at the Faculty of Education at the University of Lapland, but offers the student alternative digital solutions to learning music and personal guidance as well.

7. Conclusion

Traditionally, educational interaction has been based upon oral communications between teachers and learners. Oral communication in a face-to-face context provides multiple non-verbal or paralinguistic cues such as facial expression and tone of voice. In the study at

hand, besides oral communication, written communication plays a key role with the help of *Optima*'s return boxes. Garrison (2017) states that written communication is central to e-learning and its use can only strengthen the educational experience through sustained online discourse and reflection. He continues that text-based communication in an e-learning context would be advantageous to support collaborative approaches to thinking and learning. Written communication may well be more effective for facilitating critical thinking and discourse (Garrison, 2017).

Written communication in conjunction with nonverbal communication provides versatile and profound knowledge of the teaching / learning event. In this context, we can talk about a transactional perspective proposed by Garrison (2017). The transactional perspective refers to a collaborative, constructivist educational approach that is dependent upon open communication and a cohesion of purpose directed to critiquing and constructing shared solutions (Garrison, 2017, p.10). Asynchronous written communication is not only reflective but it is less intimidating and encourages intellectual risk-taking. This freedom of expression, in turn, enhances the face-to-face session as more students participate and increasingly feel more comfortable participating in the interaction (Garrison 2017).

Dialogue types presented by Burbules' (1993) overlap and are presented in an education transaction. As Burbules (1993) states, "a degree of flexibility and pluralism in the dialogical approach is essential" (p. 129). According to Garrison (2017) dialogue as conversation (feelings of trust, respect and concern) is directly associated with the need to create social presence. Dialogue as inquiry and dialogue as debate relate to cognitive presence dynamics. Dialogue as instruction relates to the teaching presence element of the CoI framework. He states that the challenge is how we design and deliver educational experiences in an e-learning environment that integrates the four types of dialogues through synchoronous verbal and asynchoronous written discourse (Garrison, 2017, 17).

Next, we have to consider how the five categories of written communications established in this study between students and the teacher can be viewed from the CoI perspective. It is reasonable to presume that the category of *Sight-reading problems* is related to dialogue as inquiry and cognitive presence of CoI. The category of *Progress of playing skills* speaks to both dialogue as conversation and dialogue as instruction. Hence, the category of *Progress of playing skills* is related both teaching presence and social presence of CoI. Dialogue as inquiry and dialogue as conversation combine in the category of *Resilience to attain the goal* which relates to both cognitive presence and social presence of CoI. Dialogue as debate is related to the category of *Ability to face challenge* related to cognitive presence of CoI. The category of *Knowledgeable* resembles dialogue as conversation and social presence

of CoI. Community of inquiry (CoI) has been one of the frequently used frameworks in online learning and pedagogy (Annand, 2011; Garrison, Clevelant-Innes & Fung, 2010), but CoI suitability for studying music learning and teaching has not been verified. This research reveals some limitations in applying the CoI principles to study learning and teaching music. For example, we cannot be sure about how credible students' activities are. Furthermore, students reflected only on their own music learning experiences and not for example on the significance of the group in their music learning experiences. In other words, in addition to written communications, video recordings may offer a better view how to use CoI in music learning research in a group learning situation. However, this study argues that if students have the opportunity to study music with the resources presented in the study, students' music learning can be viewed from a CoI perspective.

8. Implications

Future generations will increasingly experience new technology applications that will be utilized both at school and outside the school. It is probable that in the future, in addition to the face-to-face learning environment, increasingly student teachers' music education will take place in the online environment with digital learning devices. With future technological applications, students will learn, for example, formal music knowledge and will be able to compose both traditional music and new music that we can only fantasize about today. The content and methods of music education will be revolutionised both at school and at higher education institutions. As such, there should be more discussion about a transactional perspective in music education, as part of the teaching and learning process, where teachers are learners and learners are teachers. This perspective raises fundamental questions concerning issues of responsibility for learning and control of the (music) educational process (Garrison, 2017). However, it is also true that collaboration depends not only upon the skill of the user but also upon the tools used, and that technology "inevitably shapes the way people relate to each other" (Schrage, 1995, p.137). It may be that different media have different potentials to address cognitive, social and teaching presence (Garrison, Anderson & Archer, 2000, p. 92). The music technology classroom offers in addition to face-to-face learning environment, incentives and opportunities to undertake a variety of non-traditional ways to study music in the e-learning environment. Music technology facilitates the development of the student teachers' musical skills and knowledge, and allows the discovery and further

development of their own musicianship as they learn how to apply music technology in their future work as teachers.

This study presumes that digital learning technologies, such as the GarageBand computer application, which is integrated with a digital musical instrument, like a keyboard, will support the conventional understanding about the music literacy while fostering the aesthetic and creative enterprise of developing music literacy. Hence, technology has enabled people to express themselves musically in ways never before accessible which supports the democratization of music creativity (Williams, 2014). This study argues that musical democracy in all its forms is one of the most important perspectives in music education in institutions and in people's daily life. While the technologification of teaching and learning, and of music enterprise is an excellent alternative to traditional educational practises, this study also posits that it should be borne in mind that, technology has its limitations, and cannot replace good teachers and effective face to face teaching practises (Rosenberg, 2001).

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