

Available online at www.sciencedirect.com**SciVerse ScienceDirect**

Procedia - Social and Behavioral Sciences 45 (2012) 381 – 390

Procedia
Social and Behavioral Sciences

The 5th Intercultural Arts Education Conference: Design Learning

The Internet as a learning environment in guitar playing: Rane's search for information and expertise

Heikki Ruismäki^{a,*}, Antti Juvonen^b, Kimmo Lehtonen^c^a*Department of Teacher Education, University of Helsinki*^b*Department of Applied Education, University of Eastern Finland*^c*Department of Teacher Education, University of Turku*

Abstract

In this article, we focus on a single student who uses the Internet as a learning environment in informal instrument learning. Our research explores one individual, “Rane” and the way he studies guitar playing in an Internet environment. We consider what kinds of teachers motivate him and which programmes encourage him in learning. Furthermore, we try to determine the paths by which his learning processes progress. The Internet as a learning environment is explored as a case study of an informal learner. The empirical part of the research is done through observing and interviewing the informant, “Rane”. This is a description of a learning process.

© 2012 Published by Elsevier Ltd. Selection and/or peer review under responsibility of Professor Heikki Ruismäki and Adjunct Professor Inkeri Ruokonen. Open access under [CC BY-NC-ND license](http://creativecommons.org/licenses/by-nc-nd/4.0/).

Keywords: guitar playing; informal learning; music as a hobby; internet; open-access learning environments; network learning; computer applications

1. Introduction

The Internet has offered a new learning environment for those music learners who are able to use it (see Bauer, 2001; Ho, 2004). Computers and the Internet broaden the field of music education even further in the informal field of learning. Many computer programmes and software as well as the whole Internet have developed music-making, composition, and accompaniment, and made practice and improvisation easier and more meaningful than ever before (see Ho, 2007; Georgii-Hemming et al.,

* Corresponding author. Tel.: +358-40-5408958
E-mail address: heikki.ruismaki@helsinki.fi

2010). Music and music making is increasingly taking place in the field of informal learning (see Waldron, 2009; Salavuo, 2006b; Salavuo, 2008).

Using the Internet to learn music may be approached from different points of view. The Internet may be seen from a pedagogical, educational point of view as we observe the effects in learning. Alternatively, one may concentrate on the technological aspects of the Internet that can be used to develop pedagogically useful, practical and efficient solutions for teaching and learning music, as in this case, guitar playing. What help could the Internet offer in learning instrument playing? How could the learner practise guitar playing, learn chords, free accompaniment, blues, and different styles of popular music at home with a guitar? What options does the Internet offer to learners?

Broadly speaking, the Internet can be seen as an open learning environment; it is usually informal, but in some ways, it is also a formal environment in which learning experiences can be seen as part of a life-long process (compare Tapscott, 1999). The difference between the concepts is also explored in the article by Vadeboncoer (2006). Often network learning is seen as a part of the formal learning environment. Learning through the Internet plays an important role in learning processes especially among the youngest learners. Network learning motivates young people, and offers essential support for home learning today. In this research, Internet learning is explored as an informal learning environment (see Maarschalk, 1988).

To a music enthusiast the Internet offers a broad learning environment. There is learning *through* the Internet or learning *with the help of* the Internet. In learning guitar playing using the Internet, the learner typically imitates learning where a model is shown and the learner imitates it, just as in master-journeyman learning. There can also be audio-visual learning. Naturally, learning an instrument using the Internet requires much practice, repetition and drilling as well as self-reflection on one's own playing. The learner must engage in purposeful exercise and set his/her own targets and learning speed and engage in self-evaluation. He/she is also in charge of learning. The role models and idols offer a good motivational base for the learning and playing. Practising instrument skills through the Internet can be seen as learning through the imitation of idols, and it has connections with different learning strategies.

Furthermore, learning through the Internet can be seen as information searching or more widely seeking information and expertise, and we can examine the different searching processes that are used by a novice learner up to an expert. Internet learning can also be seen as a part of learning through social media where peer learning is part of the learning process (compare Lebler, 2008). For example, countless video clips offer hints and tips on learning chord riffs by guitar.

The websites meant for music learning can contain different learning material: information and illustration material, interactive problems and practices as well as dynamic pages built by web-communities. There are lots of pages for learning different instruments, different styles, solos, scales, and chords or techniques of playing musical instruments.

2. Research design

2.1. Research questions and methods

The research assignment for this study is to analyse how the target of the investigation, in this case "Rane", learns guitar playing in the Internet environment. The article is a description of guitar learning and a description of information and expertise search processes. The Worldwide Web offers plenty of material suitable for music teaching and learning. According to Salavuo and Myllykoski (2006, 217-218), it best suits independent and informal music education. The use of the Internet requires not only a functional technical infrastructure, but also a certain level of technical ability and information-seeking skills from the user. Our research questions are:

- How does Rane learn guitar playing in the Internet environment?
- How does Rane search for information to develop as a guitar player?
- What processes does Rane use in his information searches?
- What Internet pages does Rane use in his learning?

This research is a case study in which we describe the learning processes of one person in the Internet environment. We aim at gaining an understanding of the phenomenon through this one case without generalizing. A case study can be chosen as a method when a researcher wants to understand a phenomenon deeply and explore its context (see Yin, 1994; Merriam, 1998, 2009; Stake, 1995). In Rane's case, we also try to highlight different points of view about opportunities to use informal learning environments in formal teaching and learning. Through describing this case thoroughly, we hope to be able to find information that surpasses the limit of dealing with one case only.

The interview was conducted in autumn 2011 when the informant came to the interviewer's home with his guitar and computers and demonstrated his own "learning paths" in the Internet environment. The informant was selected using discretionary selection. The interviewer and informant know each other well because they have been playing in the same band (see The Brustones: www.brustones.com) for five years.

The interview lasted two hours and the informant has read and corrected the text of this article making valuable remarks and improving several details in early spring 2012. Thus, the reliability, meaningfulness and validity have been improved.

2.2. "Rane plays guitar in The Brustones"

The informant is a 50-year old enthusiastic guitar and music learner who has listened and still is listening to many different kinds of music. He is an eager Bruce Springsteen fan, who has seen his idol in about 15 concerts. The informant has been playing guitar using chord marks from the time he was ten until he was 16 years old. Rane stopped playing guitar when he was 16; now he has been actively playing the guitar for the past five years.

Rane plays guitar in the band, The Brustones.¹ The band has been playing together since early 2007. The musical idols of the band are Bruce Springsteen and the Rolling Stones and they have impacted the name of the band. The Brustones plays hit music from the 1960s up to today, both international and Finnish. Songs from The Beatles, Eric Clapton, CCR and Finnish bands and artists like Hurriganes and Juice can be found in the playlists, and naturally the band plays the music of Bruce Springsteen and the Rolling Stones. The Brustones' motto is "The recognisability of the songs is obvious".

Rane is a certified engineer in the portable phone business. He practises guitar playing in his free time, several hours per week. He is a self-taught guitar player. In his opinion, a good instrument inspires to play and learn. As his skills have improved over the time, he has purchased several high-quality guitars.

What kind of music does Rane play and practise? On the Brustones' Internet pages (<http://www.brustones.com/>) the songs² he plays with the band are listed. In addition, Rane has written his own songs and put them into mikseri.net under the alias "Rane Ruis". Rane is a hobbyist, an amateur who has been driven into learning music and learning guitar playing with enthusiasm. Informal learning offers a channel for many similar adult hobbyists to learn more as they have stopped their hobby during the teens for one reason or another. In this respect the learning context can be described using the concepts: "adolescent", "youth", "informal learning", "non-school", after-school programs", and "community organizations" (see Vadeboncoeur, 2006).

3. The Results

3.1. *Rane as an information and skills searcher*

Next we inquire about Rane as an information and skills searcher. How does he experience information and skills searching? Mostly Rane searches for music and practice materials using Google and You Tube, but he also uses an iPad and especially video podcasts available from iTunes. He has searched for material for guitar playing during the past five years to develop his skills as a guitarist. From the vast amount of learning material that is available, Rane seeks first a teacher or a set of pages that is suitable for his own skill level. He summarizes his process as follows: “It all depends on what I want to learn; if I, for example, wish to learn a blues solo, I write “guitar blues solo” or when I want some exact song I just put the name of the song in the search box. The problem is that there is so much material and it takes a lot of time to find a good teacher. Seeking and finding that information is what takes a lot of time”

Rane mentions many Internet addresses important to him that he often uses in his studying. Earlier he used to save good addresses in bookmarks, but nowadays he searches using directly certain keywords, because he has found that when he collected many bookmarks it became impossible to remember which the really good one was. Different portals are not central in Rane’s searching process because the search machines have become so efficient that the portals very quickly become old and useless.

How have Rane’s practice habits changed over the years? In the interview, he described them as follows: “In early days in 70ies, the learning process often stopped when we could not find the chords anywhere to a particular song. One possibility was to spy on good guitarists. They sometimes played with their backs turned to listeners so that others could not copy the chords and ideas, but this culture has totally changed now. I wish I had had this Internet opportunity when I was 12-13 years old. “

Does this opportunity weaken the playing by ear, when you see how it should be done? “I can answer for my own sake only. For example, I listened to “Stairway to Heaven”, a Led Zeppelin song, many, many times, but I never found the right way to play it. I don’t have that ability to learn by ear; my ability would not get any better by time as it maybe does for Vesku or Sepi or you (the members of the Brustones). It doesn’t matter how much I would practise by ear; I would never get to the same level as Vesku, who has totally different starting point in his playing. He probably sees this guitar neck totally differently from the way I see it; Vesku can immediately play any song from any key, just by hearing it. His way of perceiving a song by ear is totally different. “What kind of improvements would you suggest in internet learning? “As I said, it would be good to be able to find the tasks suitable for one’s own learning more quickly. “

According to Rane, many guitar teachers first put their lessons on the Internet (YouTube) free and later, as soon as the searches have reached a level high enough, they have changed their lessons to a fee-based business or also begin to sell their material on DVD. Many of the pages are meant for music making and for teachers. They also form a marketing route for bands on their way to fame. Often well-built pages lead the customer to other interesting websites. The pages offer a guitar enthusiast many kinds of practice material.

The Internet environment has become step-by-step a kind of communal notebook, which Rane also can exploit in musical problem-solving. It is interesting to notice that Rane’s information seeking processes have gone from almost accidental to more precise and his searches have more direction. The point of view in finding a good teacher has gone through a selection process and Rane has clearly developed in analysing different videos aiming to find the best possible learning tools for his guitar playing. On this score, the skills of information seeking have improved and become more professional and through practice the guitar playing skills have clearly improved. Still, according to Rane, the vast amount of information and material does not make the search processes very easy.

3.2. *Good pedagogues, suitable for individual skill level are sought*

The first teacher Rane has found is Siggie Mertens;³ about him he says: “He has such great guitar riffs and he shows how they go, along with the chords to about two hundred songs. Siggie Mertens was the one I started with. He is from Germany, but he speaks good English, and he is a suitable teacher for my own skill level”. In the beginning, Rane even wrote to the teacher (using You Tube commenting feature) and asked questions about guitar playing, and Siggie answered his questions. However, this could not continue, as Rane describes it: “But then at some point Siggie wrote that he was no longer able to answer because he was getting 700 responses (in You Tube) and emails every day. He no longer had time to answer every one of them. Siggie’s principle was in the beginning to teach free of charge. This was a good philosophy, not to start making money immediately. First, he started to do things which hooked hobbyists. Then it was time to think of a way to make some money out of it”.

According to Rane, “I have bought one DVD from Siggie. The problem in the Internet is that it is hard to find a teacher who suits your own skills, who does things that are not too difficult or too easy”. Rane also gives a hint to the search engine companies: “Here is how to make millions: teach a search engine to recognize the skill level of the customer!” It can easily take an hour to find a good teaching video. Rane mentions one example of a teaching video that was too difficult for him, “Lick Library Guitar Lessons”,⁴ are all too difficult for me; they do not tell in detail what to do; they only show and play in quick tempo”.

Rane mentions one another good teacher, who is suitable for his skills: Marty Schwartz.⁵ Some teachers have their own channel to which they have uploaded their videos. For example, Marty Schwartz has hundreds of thousands of visitors in his teaching video pages. There are also now advertisements on his pages. As an example of good visualization, Rane mentions Eric Clapton’s “Tears in Heaven” guitar lesson [www.FarhatGuitar.com]. Rane has also found suitable material from NextLevelGuitar.com.⁶ In the best teaching videos, Rane notes that there are good pedagogues who can teach songs by splitting them in suitable small parts.

Well-known songs are taught in dozens, or even hundreds of different videos. The more famous a song is, the more there are all kinds of videos concerning it in YouTube. According to Rane, “When I search for the song “Ain’t no sunshine”, the starting point is the one which gets the most hits. That “most viewed” may not necessarily be pedagogically the best one, but there is likely something good in it and it offers a good starting point. On <http://www.mytwangyguitar.com> pages, there is the song, “Cadillac Ranch”⁷, the guy has found a good idea. He doesn’t say anything, he has only filmed the song as he plays it, the music comes from the background and the picture moves from hands from one to another etc. He does not show what effects he is using; he doesn’t show his face nor say anything. Still, it works”.

3.3. *The use of YouTube, BackingTracks and Google*

Rane also learns guitar playing using the backing tracks found on YouTube or he goes to Google and does a search using such phrases as: “backing track” or “guitar backing track”. He explained: “This is what I use a lot; normally the key is also right. I use this very often; it is where good songs are found”. As good examples, he mentions guitarbackingtrack⁸ and backing jam tracks⁹. Finnish songs are seldom found in YouTube. Rane thinks that the Finnish page, Rockway¹⁰ is quite a difficult source for songs because of the different skill levels; the search is difficult and in addition, the channel is subject to monthly charge. Rane said, “The user interface was quite difficult to use; it doesn’t suit my idea of a good user interface”.

Nowadays Rane searches for music mainly from YouTube using the names of the songs, and from the two backing tracks websites. Finnish songs are not easily found but everything else can usually be found if he has enough time to search. Rane uses sometimes also tabulators, but never note writing. He has found that, with time, it is also possible to learn to play even quite a challenging solo. He said, “Solos

should be taught in small parts and if the lesson is good I only need to use my eyes and ears to watch how to do it. The best teachers play slowly: they play a quick solo very slowly and divide the solo in small parts”.

For his band, Rane normally searches for songs using such tags as “chords”. He said that e.g. chordie.com¹¹ is a good page, where even the key of the song can be changed. In most of the pages, the texts are too small and use strange fonts and they must be edited and checked before they can be used by the band. Rane uses MS Word in editing and he puts the songs into his songbook using a clear and big font so that the words can be seen even in dim light. When the songs are ready and edited, he brings them to the band rehearsal where the chords are reviewed through together and the chords are corrected when necessary. Rane stated that there were many mistakes in the words and chords of the songs. He noted “There are quite often false chords here and there or they are in wrong places in relation to lyrics”. Rane’s opinion is that it would be a good business for Google if they could profile the user when he or she is searching for music. However, he also noted, “One of my colleague is very sensitive when he thinks that someone—big brother—is watching and that Google knows how you behave, your hobbies and can profile you. However, I think that it is good to have intelligent systems, but some people become crazy when they know that Google is profiling them”.

3.4. Teaching programs on the iPad

Today Rane practises a lot with his iPad2. He described that process as follows:

“Lick library is good in iPad, sometimes they speak difficult English, but iPad has some licklibrary lessons free as video podcasts. I use iPad quite a bit for learning: I just connect my guitar to the “garage band” and I can play on readymade tracks. Garageband has lots of effect boxes and a visual user interface. I use iTunes to get video podcasts which I have loaded in my iPad so I can use those also when I am offline. A podcast is a certain kind of a free video-audio clip. For example, from <http://www.steviesnacks.com> I can get teaching videos as podcasts to my iPad. I just go to iTunes and from there to podcast and then you put search-word “guitar” there. This teacher in StevieSnacks speaks a little too much, but still he is a quite good teacher;¹² these are subject to charges in the Internet, but free of charge on the iPad.” We can say, that iPad has given Rane a whole new environment to study music in Internet.

3.5. Rane’s points of view about the potential of guitar learning from the Internet

We also asked Rane to consider the potential of the Internet using a SWOT four-field in Internet guitar learning. (SWOT analysis by Rane)

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Time or place are free, a student can practise whenever suitable • Quick set up, the lesson starts at the student’s convenience • The student can see and hear; it is easy to stop and repeat (sometimes there is even a tabulator to show how to do it if it cannot be seen from the video) • The student may choose the teacher and also the skill level of teaching • There are so many good free lessons available that it is not necessary to pay to get a learning video 	<ul style="list-style-type: none"> • Broad amount of material including low quality material (in both sound level and pedagogic level) • Lack of lessons in Finnish (however, that is not a major problem) • There is a Finnish Rockway, but it is subject to monthly charge • If one wishes to learn some Finnish songs, they are difficult to find from Internet

POSSIBILITIES <ul style="list-style-type: none"> • Wide variety of different lessons available: basic skills, learning certain songs and even more precisely, learning certain specific solos (like, “Sultans of Swing, solo1 and solo2), different genres (blues riffs, power chords) 	THREATS <ul style="list-style-type: none"> • I cannot see any threats except that it is so much fun, that it may cause addiction to spend lot of your time in the Internet.
--	---

Fig. 1. Rane’s SWOT analysis

It seems that the strengths and possibilities are clearly stronger than threats and weaknesses considering Rane’s searching for music on the Internet. Rane is probably quite typical and represents a homing type of active information searcher.

4. Conclusions

The Internet is a vast treasure chest for those musicians who search for music on it. The Internet has revolutionized music learning possibilities and offers totally new opportunities for hobbyists and music enthusiasts who play such instruments like the piano or guitar. The best known songs can be learned from videos at many different levels. The motivation is excellent as the idols lead the hobbyist towards the skills and the style of the master without making a big mess of it. In the case of Rane, one motivation he had was to learn the songs to play them in the band.

Although the songs Rane learns represent rock classics from recent decades, the Internet also provides sources for learning the contemporary music. Different teaching videos or cover versions of a song published yesterday will pop up in the Internet immediately. For example, the new single record of Bruce Springsteen, “We take care of our own” was already covered by many performers a couple of days after the publication. This kind of forum did not exist before the era of YouTube (1995).

The problem in the Internet is the vast amount of information. On the other hand, it may be seen as a paradise of information. In summary, we can say that Rane has learned to know for what he is searching. He has learned what a good teacher for his skill level is like and what a good teaching video contains. The information searching skills have improved through the years of practice, but still the amount of the material causes trouble as searching via YouTube will take a lot of time, despite the fact that Rane knows certain addresses and teachers that he usually uses to help in guitar learning. The search engines have developed and they increasingly consider the searcher’s profile. Intelligent search systems and divination are becoming more essential in search-engine technology development. (cf. e.g. Micarelli, 2006.)

It seems that the Internet as a learning environment for guitar playing is significant based on this case study. Pages with videos of guitar playing and teaching are a great help to a hobbyist. This is when pedagogically well-designed teaching moments find a learner with a suitable level. For example, teaching guitar playing: chord markings, chord changes, the structure of the chords, bass lines, riffs, scales and naturally different songs are quite easily adapted for learning purposes and the use of video supports the teaching of these areas. The teaching mostly takes place using the master-journeyman pattern where a skilful master shows his or her pupils how to play the sound similar to a recording or a concert situation. The learning is truly homing. We also discussed with Rane the significance of a real guitar teacher. Rane noticed that he has received many hints and ideas from better guitarists (like Vesku and his colleague, Dennis) in guitar playing, use of vibrato and right-hand techniques, but for the time being, he has not felt the need for a professional guitar teacher that he has to pay for.

In a good teaching video, there is an efficient user interface that is clear, visual and easy to find. The teaching material is divided in suitable portions or sectors for the learner. Rane supports intelligent search engines where the profiling of the customer is possible. It helps the search process when the engine

proposes suitable songs for a guitarist on his or her own level. Of course, there are advertisements for guitars every now and then. It seems that in the future the suggestions will be based on client profiling from the search engine.

This exploration concretized the motivational side of a hobbyist, but it has also shown the possibilities that are offered to an adult learner in the Internet (compare Barron, 2006; Valdrón, 2009) in instrument playing. This target group is often outside formal learning institutes because institutional/formal learning aims at children, youngsters and young adults. As a music hobbyist, an amateur, the motivational side of the guitar playing is naturally in good shape. This study also lifts up the central significance of the hobby bringing quality and well-being to all life.

The informal learning has taken a particularly important role in music learning today. Its significance will continually grow in the future as young people concentrate on learning more and more outside the formal school institution. How could teachers take advantage of this informal learning? We may also ask, to what extent is the media and music technology included in the current curriculum? What are the consequences of network learning for a music enthusiast—a novice or an expert when he/she is learning musical instrument playing?

In this study the learning environment for Rane was the Internet. Naturally, during the period he played in the band and probably learned something there as well. It also raises questions about to what extent music schools, conservatories and teacher education institutes could use the Internet as a learning environment in their curricula in guitar or piano studies (see Burnard, 2007; Feichas, 2010; Green, 2006). Could Internet learning increasingly be a solution for the lack of resources in these institutions? It is worth considering how informal learning environments could be taken advantage of as a part of formal learning processes. At least in Rane's case, it is central and irreplaceable as a studying and learning environment.

Acknowledgements

Rane wants to especially thank the following teachers (and their Internet pages mainly in YouTube) for supporting his guitar learning and offering significant and motivating hints to develop guitar skills.

- Teachers: Siggie Mertens, Marty Schwartz, Justin Sandercoe.
- YouTube channels: NextLevelGuitar, MyTwangyGuitar, freeguitarvideos, freeOnlineGuitarLesson, justinguitar.com, StevieSnacks.
- Other pages: www.guitarbackingtrack.com, www.freejamtracks.com, www.steviesnacks.com

References

- Barron, B. (2006). Interest and Self-Sustained Learning as Catalysts of Development: A Learning Ecology Perspective. *Human Development*, 49, 193–224.
- Bauer, W. I. (2001). Using the internet to enhance music teacher education. *Journal of Music Teacher Education*, 11(1), 27.
- Burnard, P. (2007). Reframing creativity and technology: promoting pedagogic change in music education. *Journal of Music, Technology and Education*, 1(1), 37-55.
- Feichas, H. (2010). Bridging the gap: Informal learning practices as a pedagogy of integration. *British Journal of Music Education*, 27 (1), 47-58.

- Finney, J. & Philpott, C. (2010). Informal learning and meta-pedagogy in initial teacher education in England. *British Journal of Music Education*, 27(1), 35-46.
- Georgii-Hemming, E. & Westvall, M. (2010). *British Journal of Music Education*, 27(1), 21-33.
- Green, L. (2006). Popular music education in and for itself, and for 'other' music: current research in the classroom. *International Journal of Music Education*, 24(2), 101-118.
- Green, L. (2008). *Music, Informal Learning and the School: A New Classroom Pedagogy* (Ashgate, Popular and Folk Music).
- Ho, W. (2004). Use of information technology and music learning in the search for quality education. *British Journal of Educational Technology*, 35(1), 57-67.
- Ho, W. (2007). Students' experiences with and preferences for using information technology in music learning in Shanghai's secondary schools. (2007). *British Journal of Educational Technology*, 38(4), 699-714.
- Karlsen, S. (2010). BoomTown Music Education and the need for authenticity—informal learning put into practice in Swedish post-compulsory music education. *British Journal of Music Education*, 27(1), 35-46.
- Lebler, D. (2008). Popular music pedagogy: peer learning in practice. *Music Education Research*, 10(2), 193-213.
- Maarschalk, J. (1988). Scientific literacy and informal science teaching. *Journal of Research in Science Teaching*, 25, 135-146.
- Merriam, S.B. (2009). *Qualitative research: a guide to design and implementation*. San Francisco: Jossey-Bass Publishers.
- Merriam, S. B. (1998). *Qualitative Research and Case Study Applications in Education*. Revised and Expanded from "Case Study Research in Education." San Francisco: Jossey-Bass Publishers.
- Micarelli, A., Gasparetti, F. & Biancalana, C. (2006). Intelligent search on the Internet. *Reasoning action and interaction in AI theories and systems*, 4155, 247-264.
- Myllykoski, M. (2006). Mediatalenteet ja sovellusohjelmat musiikin lähiopetuksessa. [Media savings and software in music education.] In J. Ojala, & M. Salavuo, & M. Ruippo, M. & O. Parkkila (Eds.), *Musiikkikasvatusteknologia*. Suomen musiikkikasvatusteknologian seura. Keuruu: Otava.
- Reese, S. (1999). Internet-based music composition and music teacher education. *Journal of Music Teacher Education*, 9(1), 25.
- Ruismäki, H. & Juvonen, A. (2009). The new Horizons for Music Technology in Music Education. The Changing Face of Music Education (CFME09) in April 23-25, 2009. *The Changing Face of Music Education. Music and Environment*. Tallinn University, Institute of Fine Arts, Department of Music, Estonia, 98-104.
- Salavuo, M. (2005). *Verkkoavusteinen opiskelu yliopiston musiikkikasvatuksen opiskelukulttuurissa [WWW based studies in classroom teacher education culture.]* <https://jyx.jyu.fi/dspace/handle/123456789/13416>
- Salavuo, M. (2006a). Avoimet musiikin verkkoyhteisöt. [Open net communities in music.] In J. Ojala, & M. Salavuo, & M. Ruippo & O. Parkkila (Eds.), *Musiikkikasvatusteknologia*. Suomen

musiikkikasvatusteknologian seura. Keuruu: Otava.

Salavuo, M. (2006b). Open and informal online communities as forums of collaborative musical activities and learning. *British Journal of Music Education*, 23, 253-271.

Salavuo, M. (2008). Social media as an opportunity for pedagogical change in music education. *Journal of Music, Technology and Education*, 1, (2-3), 121-136.

Stake, R.E. (1995) *The art of case study research*. Thousand Oaks, California: SAGE Publications.

Tapscott, D. (1999). Educating the net generation. *Educational Leadership*, 56(5), 6.

Vadeboncoeur, Jennifer A. (2006). Engaging Young People: Learning in Informal Contexts. *Review of Research in Education*. 30, Special Issue on Rethinking Learning: What Counts as Learning and What Learning Counts, 239-278.

Waldron, J. (2009). Exploring a virtual music 'community of practice': Informal music learning on the internet. *Journal of Music, Technology and Education*, 2(23), 97-112.

Waldron, J. & Weblen, K. (2009). Learning in a Celtic community: an exploration of informal music learning and adult amateur musicians. *Bulletin of the Council for Research in Music Education*, 180, 59-74.

Webster, P. R. (2007). *Computer-based technology and music teaching and learning: 2000–2005*.

Webster, P. R. (2012). Technology in Music Instruction and Learning. *Encyclopedia of the Sciences of Learning*, Part 20, 3285-3287.

Väkevää, L. 2010. Garage band or GarageBand®? Remixing musical futures. *British Journal of Music Education*, 27(1), 59-70.

Yin, R. K. (1994). *Case study research—design and methods*. Newbury Park, CA: SAGE.

¹ Brustones: [<http://www.brustones.com/>]

² <http://www.brustones.com/>

³ Siggi Mertens: Proud Mary CCR Guitar Lesson by Siggi Mertens

[<http://www.youtube.com/watch?v=T5qCS9tFGcQ>]

⁴ Dimebag Darrell - Walk - Solo Performance Guitar Lesson DVD With Andy James [<http://www.licklibrary.com>]

⁵ Marty Schwartz: Learn the Pentatonic Guitar Scale Solo [<http://www.youtube.com/watch?v=9ORvFp0eeVc&feature=related>]

⁶ <http://nextlevelguitar.com/>

⁷ Cadillac Ranch: Bruce Springsteen cover. [<http://www.mytwangyguitar.com/twc/?s=cadillac+ranch&x=0&y=0>]

⁸ [http://www.guitarbackingtrack.com/play/clapton_eric/wonderful_tonight.htm]

⁹ <http://www.freejamtracks.com/>

¹⁰ Rockway: [<http://www.rockway.fi/>]

¹¹ <http://chordie.com/>

¹² <http://www.steviesnacks.com/about-steviesnacks/>