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E-learning in Music Education

POVZETEK – Pouk na daljavo se je prvič pojavil v 18. stoletju, in sicer kot pouk, namenjen manjšemu številu učencev, ki niso mogli obiskovati rednega pouka. Danes je učenje na daljavo podprto z visoko razvito tehnologijo, z njim se zaradi trenutnih epidemioloških razmer srečuje večina učencev po vsem svetu. Pouk, ki temelji na e-učenju, predvideva učenje in poučevanje na daljavo s pomočjo elektronskih medijev z možnostjo učenja na sinhroni in asinhroni način. Tako kot ostali načini učenja tudi e-učenje temelji na pedagoških teorijah in modelih učenja, kot so biheviorizem, kognitivizem, konstruktivizem in konektivizem. Tehnološki napredek je glasbenemu izobraževanju omogočil dostopnost tehnologije za učenje glasbe. Pa vendar se zdi, da neformalno glasbeno izobraževanje v primerjavi s formalnim hitreje in bolj uspešno vključuje tehnologijo za izboljšanje učnega procesa in učenja. Prispevek postavlja e-učenje v okvir pedagoških teorij in modelov in poskuša razložiti, katera področja vključujejo e-učenje pri pouku glasbe. Izpostavlja prednosti in pomanjkljivosti vstopa tehnologije v glasbeno izobraževanje.

ABSTRACT – Distance learning first came into practice in the 18th century as a way of teaching intended for a smaller number of students who could not attend regular classes. Today, distance learning, assisted by highly developed technology, is intended for most students worldwide due to the current epidemiological situation. Teaching based on e-learning involves distance learning and teaching using electronic media with the possibility of learning in synchronous and asynchronous ways. Like other forms of education, e-learning finds its foundations in pedagogical theories and learning models such as behaviourism, cognitivism, constructivism, and connectivism. In the field of music education, the changes caused by technological advances have made the technology intended for learning music accessible. However, it seems that non-formal music education uses the benefits of technology to improve the teaching and learning process in a faster and more successful way than the formal music education. In this paper, e-learning will be placed in the framework of pedagogical theories and models together with an attempt to explain what e-learning includes in music teaching. The advantages as well as the disadvantages of technology implementation in music education will be highlighted.

1 Introduction

Due to changes caused by the coronavirus (COVID-19) pandemic, we are witnessing that the question "How much technology is (should be) used in teaching?" is now being replaced by the question "How to effectively apply technology in teaching?". Can we imagine teaching at any level of education today without the use of technology? Moreover, when exactly did that turning point happen? Although the greater demand and use of information and communication technology (ICT) for educational purposes has been influenced by recent events, the entry of technology into teaching has not happened overnight, and the need for this type of teaching has always existed. The begin-

nings of the implementation of technology in education can be traced back to the introduction of the concept of open distance education, which appeared as a new system of teaching in the 18th century. According to Matijević (2000), distance learning is carried out between a teacher and a learner who are not in the same room or place (Dubovicki and Balen, 2018). Such communication takes place with the help of media, such as a letter, telephone, fax, radio, television or computer, and involves a highly sophisticated knowledge representation as well as the ability to learn independently. The first distance learning was correspondence teaching in which the teacher and the student exchanged materials through the postal service, waiting several weeks for mutual replies (Miller, 2014). The University of London was the first university in the world to offer graduate education through distance learning in 1858 (Price, 2020). With the introduction of radio and television in education at the beginning of the 20th century, we can talk about the technology of distance multimedia education. With the emergence of the Internet in 1990, the computer, satellite television and mobile telephony entered not only our everyday life but also made a grand entrance into education. Researching the new ways of education with the help of online connections, a virtual space was created in which teachers and students communicated with the help of computer technology (Ćukušić and Jadrić, 2012). Today's distance learning relies mainly on communication via the Internet, so the term itself is replaced by new versions such as e-education, which Bubaš (2005) defines as a mixed use of the Internet and computer technologies for the implementation of distance education. Jay Cross (2004) was one of the first to use the term e-learning, and this term refers to forms of learning in which the communication between students and teachers mostly takes place through digital devices and is considered one of the ways of e-education. Additional terminology for e-learning can often be found in the professional and scientific literature, e.g., expressions such as Internet learning, networked learning, web learning, tele-learning and virtual learning.

In the last decade alone, e-learning has undergone several major changes: from computer-aided instruction through the intelligent tutoring system and smart classrooms to m-learning or mobile learning (Liping et al., 2009). The aforementioned changes occurred in a short period of only 50 years, and the time period between each new change is getting shorter. As an example, we can analyse the audio compact disc (CD), which was patented as a medium for storing and recording music in the 1970s, and today, fifty years later, almost no computers have a disc drive for that medium. Likewise, a music player or a CD player is more valuable today as a museum artefact than as a conventional music listening device. Such an accelerated transformation also requires the rapid adjustment and adaptation of the pedagogical framework of e-learning to new circumstances that would serve as a theoretical support for lesson planning in teaching based on e-learning. Today's students in general-education schools are digital natives; they use digital language almost as their second mother tongue and they were born into the world of the Internet, computers and video games. While today's teachers can be called digital immigrants, who are more or less enthusiastic about the new technology, but are still faithful to the time and habits of the past (Prensky, 2001). The conclusion is that students with their knowledge and experience in the digital world surpass the knowledge and experience of digital immigrants, i.e., of (most of) their teachers.

2   Features of teaching based on e-learning

Learning as a process is defined ambiguously with respect to different scientific approaches. According to Pastuović (1999), learning results in a permanent change of the learner through his/her own mental activities. According to Vizek Vidović et al. (2003), learning as a psychological process is manifested for the most part by a permanent and acquired change in the actions of the individual. Taylor and Mac Kenney (2008; according to Bognar, 2016) place more emphasis on learning as a process, and less on the result that emerges through students' experiences and activities. The definition of learning by Cindrić et al. (2010) is also based on the descriptions by which learning is defined as a change and a process, with the addition that through learning students are able to do what they could not do before learning. A broader description of learning includes the cognitive, motor and affective areas of the learner and the acquisition of certain knowledge, skills, habits, values and attitudes (Matijević and Topolovčan, 2017).

E-learning is a term that can be explained in several ways and as with learning in general there is no single widely accepted definition. The prefix e- before the word learning can mean learning with the use of electronic devices or, more broadly, the use of the Internet or web technologies (Bognar, 2016). Some authors emphasize the mobility of e-learning when defining it, including Engelbrecht (2005; according to Ćukušić and Jadrić, 2012) who describes e-learning as distance learning and teaching with the assistance of electronic media with the possibility of learning whenever and wherever. Due to the time distance, e-learning can take place synchronously and asynchronously. In synchronous e-learning, teaching takes place live but via electronic media and the Internet, while in asynchronous e-learning, the students access the learning content when they want and how much they want. Furthermore, the organization of e-learning can be implemented as formal, non-formal or informal learning (Bognar, 2016) with guidance (teachers, instructors), with the use of a computer, or a mixed model that includes all of the above.

3   Pedagogical theories and e-learning

Cognitive science research studies the characteristics of learning in humans and intelligent systems such as computers by observing the ways of acquiring and using knowledge, e.g., learning, memorizing, problem solving, decision making, etc. Planning and learning activities are adapted to students and their circumstances. Learning can be studied through theories and models of learning such as behaviourism, cognitivism and constructivism, which represent a traditional and more homogeneous approach (Ćukušić and Jadrić, 2012), but also through some newer theories with a more open and diverse approach, such as connectivism (Siemens, 2004). All these theories and models of learning have contributed or will contribute to the creation of materials for the organization of e-learning and are important for the further development and understanding of learning; they will be described as such below.

According to the behaviourist approach developed in the early 20th century, learning is based on external behaviour that followed as a response to a stimulus. It does not study the processes that occur within the learner, such as thinking, information processing, emotions, etc. (Matijević and Topolovčan, 2017), because it is impossible to measure these internal processes; however, it does study the reaction expressed in behaviour that is measurable and as such can serve as proof of learning. Researcher Burrhus Frederic Skinner, who studied this approach to learning, felt that it did not happen fast enough in practice, so he devised the use of electronic learning devices and programmed teaching, in which content was broken down into smaller parts after which students solved tasks and progressed according to their success in solving them (individualization of learning) (Bognar, 2016).

Behavioural learning theory finds its place within e-learning in the part relating to the shaping of learning strategies. According to Ally (2004, pp. 20–21), the implications that behavioural learning theory has for e-learning are visible in establishing clearly outlined learning outcomes, checking achievement levels, the order in which learning content is presented, and providing timely feedback to students. The connection between behavioural theory and e-learning in music education is manifested in accomplishing independent learning skills among students so they are able to self-evaluate the achievement of the set outcomes. It can also be observed in the division of teaching content into more concise parts; from the more familiar and simpler parts to the unknown and more complex parts, including the teacher's timely feedback on what has been accomplished, combined with precise and clear instructions for procedures that will additionally improve the student's performance.

As behavioural learning theory dealt mainly with external behaviour as the outcome of learning, the question of the role of the mind and cognitive processes in the learning process soon arose. There are several answers to this question, and the theory that studies it developed in the first half of the twentieth century under the name of the cognitive model of learning.

According to cognitivist theory, learning is the active acquisition of new knowledge that leads the student from a passive to an active state. Learning takes place in the form of insight, information processing, memory and perception, where the student processes and organizes information and stores it in sensory, short-term and long-term memory. Cognitive theory initiated a programme of technological learning in the 1960s and the development of intelligent teaching systems. This way of learning occurs with the help of computer technology in communication between students and the intelligent system. The system evaluates the learning success according to the model set in advance. The student's performance is compared to that model and the feedback is sent to the student by the system in order to help the student during the second performance (Selwyn, 2011). This way of learning is especially popular in adult education, as well as for learning military skills based on computer simulations. According to Gertner and Van Lehn (2000, according to Selwyn, 2011), such intelligent teaching systems are based on a computer-controlled problem-solving system that encourages students to independently create new knowledge on the basis of several small incentives; this enables learning by doing, not only learning by being instructed.

Cognitivist theory is evident in e-learning in music education in the use of video and audio content by which musical instrument teachers encourage their students to

study the performances of top artists. In this way, students can study certain parts of their performance in shorter sequences and thus gradually work on improving their own.

Constructivist theories of learning portray learning as an active process in which the student is not only a passive recipient and supplier of information but also a creator of his/her own vision of the world based on individual research, prior knowledge, and both personal and professional experience. Lock and Johnson (2015) link constructivist learning theory and online collaborative learning by triangulating interactive ways of learning: student-student, student- content, and student-teacher interaction. According to Ally (2005), the connection between the constructivist approach and e-learning is visible in encouraging students to think, to link available information with personal experience, and to learn in a collaborative way; it is also visible in the role of teachers as guides through the learning process, using examples from the student environment and multiple levels of knowledge. E-learning in music education relies on content that is available online. Sometimes these contents are accessed according to the teacher's instructions, but students often explore on their own, guided by their own preferences and experience. By doing this, students can choose examples of their peers' performances, but also collaborate with them. During this process, reflection plays an important role that will emphasize the difference between mere browsing (surfing) and a critical study of content.

Connectivism, according to Siemens (2004), is a new model of learning that adapts to the rapid changes of our society where learning is no longer just an individual and personal activity in which the way of learning and working changes under the influence of the network environment. Learning according to connectivism includes diversity of opinion, connecting sources of information, noticing connections between different areas and ideas, placing the emphasis on knowledge acquisition skills along with accurate and currently valid knowledge (Siemens, 2004, p. 5). This learning model describes very well the e-learning that has been going on for the last year in music education. Students should learn how to critically observe, connect and select the most relevant and useful things from the vast offer of content and sources of information. In these circumstances, the teachers' focus is on developing skills that involve how to learn, not just what.

4 Organization of e-learning in music education

The need to set and establish a framework for e-learning models is highly emphasized today and it requires synchronized and systematic research and verification conducted by scientists and experts in order to build an effective and sustainable model of e-learning in music education as soon as possible. To support these efforts, Johnson (2020) proposes a conceptual model for teaching music online (Figure 1). In this model, areas of online music teaching are divided according to the learning approach, learning methods, environment, and expected learning outcomes. The approach to online learning, according to Carmody and Berge (2005), should cover five areas of learning: physical, social, emotional, intellectual and spiritual, which consequently imposes the need

to use several different approaches. Thus, in the learning approach where the student is the centre of learning, the emphasis will be on involving the student in the choice of activities and ways to achieve the predetermined learning goals as successfully as possible. It is firstly important to set the goals and then to organize the planned activities (reading scores, listening to other performers, playing a song, etc.) accordingly. Sometimes the learning content will also be at the centre of learning, e.g., a new piece of sheet music, or new ways and techniques of playing a particular instrument will be at the centre, which is a frequent and challenging instance in music education.

Figure 1

Conceptual model for teaching music online (Johnson, 2020)
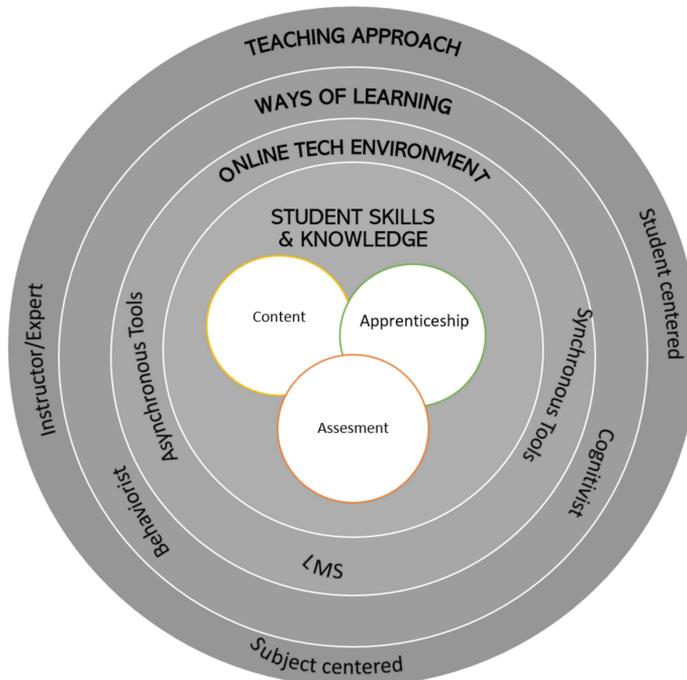
E-learning can take place in a synchronous and asynchronous way, and through the Learning Management System (LMS). The model and ratio of using these three methods depends on the creator of e-learning, in this case the teacher, and his or her ability to navigate in each of them. The synchronous e-learning mode is most commonly used in teacher-student communication at a given time, using a variety of live video or audio streaming tools. Video communication is possible via social networks (e.g., Viber, Skype) or video applications (e.g., Zoom, Google Meet) which, in addition to audio and video, provide screen sharing options; in doing so, these applications also enable the sharing of sheet music as well as synchronized editing of music. Unlike synchronized tools, the asynchronous approach to e-learning involves access to online learning content whenever, wherever. These aids include tools and programs for recording sound

and videos, and also provide Internet servers for storing and sharing files. All of these are very suitable for demonstration and a consecutive review of techniques and skills in the performance of music, but also for archiving and sharing materials with other students.

LMS provides a platform for storing content, communicating with students, tracking students' progress and evaluating students (e.g., Loomen, Merlin, Teams, Edmodo, Google Classroom). They usually include noticeboards for fast communication, the option to publish video and audio content, a calendar, a forum, quizzes and tests, a chat feature, and the option to hold a video conference. They also provide the monitoring of students' progress through evaluation rubrics and folders. In a word, these systems represent an e-classroom or virtual classroom and a safe place for communication between all students and teachers on the Internet.

The outcomes that the student will achieve at the end of a certain educational period are placed at the very centre of learning.

The acquisition of music content in e-learning can be adapted to the available time and to the current knowledge and abilities of the students themselves. The students access the contents repeatedly and at a time that suits them, choosing the parts they want to practice more and eventually master. Evaluation as an indispensable part of learning and teaching should be approached systematically and consistently in e-learning also. It can range from the evaluation of what has been learned, for which students can prepare a video of playing/singing given compositions that the teacher then evaluates with the help of evaluation rubrics, through the self-evaluation of students, in which the students listen and review their own work in order to improve, to peer evaluation through forums and groups where views and opinions are exchanged.

5 Pros and cons of e-learning in music education

There are numerous positive outcomes of using technology in teaching and learning music. Some of them are: allowing students to progress according to their own abilities; developing problem-solving skills; saving time spent in learning and teaching; archiving materials and their own work; providing the option of additional repetitions in addition to training students for independent learning (Nart, 2016). Technology can help in an individualized approach to each student and provide equal opportunities for all. The role of the teacher changes from the role of the only source of knowledge to the role of instructor and advisor through the learning process. However, targeted planning of the use of technology is important, in which students would not only be passive observers and recipients, but also active musicians and music creators.

Negative circumstances in the use of technology in music education can be divided into technical and user-related disadvantages. Technical disadvantages refer to how well-equipped the schools are with special computer parts, computer programs with instructions in the mother tongue, the high cost of individual programs and licences (Nart, 2016). User-related disadvantages include teachers' lack of knowledge about the

use of music computer programs as well as the lack of methodological frameworks for planning and conducting technology-assisted teaching.

The specific characteristics of conventional music education cannot be completely replaced by e-learning because music education is multidimensional, and includes a physical element (holding the instrument) and a high artistic level that can be achieved only with live collaboration between professionals and students.

6 Conclusion

Distance learning is not a new concept, but its extreme popularity can be attributed to the latest circumstances due to the epidemic that has affected almost the entire world. Technology has been implemented in formal education as a teaching aid in recent decades, while it has taken on a leading role in non-formal education. Due to the already mentioned circumstances, its role is rapidly changing and it is becoming more of a need, and less of a tool that might or might not be used in teaching. E-learning involves structured work with technologies in learning and communication between teachers and students that are spatially (sometimes even temporally) separated. Like other types of learning, e-learning can also be studied through theories and models of learning that are important for understanding and further developing e-learning. Formal music education in the Republic of Croatia has the potential for the realization of e-learning and the use of good practice examples offered by non-formal music education.

Whether this is a technical problem (the equipment of music schools), or a problem of the teachers' competence and motivation – and to what extent – remains a question for further research. It will certainly be necessary to take into account both the negative and positive opinions of teachers who, more or less, use technology in their teaching. In this way, scientists and technology designers can generate technological tools that will help future musicians to master their skills, develop their profession, and, moreover, push formal music education towards the future.

Dr. Zrinka Šimunović

E-učenje v glasbenem izobraževanju

Pred kratkim so se strokovnjaki spraševali, koliko sodobne tehnologije naj bo vključene v pouk, danes pa se sprašujemo, kako jo učinkovito uporabljati pri pouku. Spremembe se niso zgodile nenadoma, lahko pa rečemo, da jih je pospešila pandemija, saj se je z njo povečala potreba po novih oblikah poučevanja in učenja. Pojem pouka na daljavo se je pojavil že v 18. stoletju kot dopisna oblika, v okviru katere sta učitelj in učenec gradivo izmenjevala preko pošte. V 20. stoletju sta v izobraževanje vstopila radio in televizijski sprejemnik, ki sta prinesla tehnologijo multimedijskega izobraževanja na daljavo. Leta 1990 so v vsakodnevno življenje in izobraževanje vstopili internet in z njim računalnik, satelitska televizija in mobilna telefonija. Današnji pouk se tako v

živo kot na daljavo opira na sporazumevanje po spletu, zaradi česar raste tudi število pojmov, povezanih s tehnologijo. Po Bubašu (2005) se e-izobraževanje lahko definira kot sinhrona uporaba spleta in računalniške tehnologije. E-učenje med prvimi navaja Cross (2004), nanaša pa se na obliko učenja, v katerem se večina sporazumevanja med učencem in učiteljem odvija s pomočjo digitalne tehnologije. V strokovni literaturi lahko srečamo tudi druge podobne pojme, kot so spletno učenje, učenje na omrežju, tele-učenje in virtualno učenje. V zadnjem desetletju je e-učenje napredovalo od t. i. računalniško podprtega poučevanja (ang. Computer Aided Instruction), sistema inteligentnega poučevanja (ang. Intelligent Tutoring System), pametnih razredov (ang. Smart Classrooms) do m-učenja ali mobilnega učenja (ang. Mobile Learning). Neprestane spremembe zahtevajo tudi hitro prilagajanje izobraževalnega sistema in usklajevanje pedagoško-didaktično-metodičnega okvirja e-izobraževanja kot podpore pouku, ki temelji na e-učenju. E-učenje je izraz, za katerega v literaturi obstaja več definicij. Pomeni lahko učenje z uporabo elektronskih naprav, v širši definiciji pa uporabo spleta oziroma spletne tehnologije (Bognar, 2016), poučevanje na daljavo s pomočjo elektronskih medijev z možnostjo učenja kadarkoli in kjerkoli (Engelbrecht, 2005; po Ćukušiću in Jadriću, 2012). Časovno lahko poteka neposredno po elektronskih medijih in spletu ali pa asinhrono, pri čemer učenec pristopa k vsebinam e-učenja, ko mu ustreza. Organizacija e-učenja je lahko formalna, neformalna ali informalna in se lahko izvaja ob vodstvu predavatelja, po računalniku ali v obliki mešanega modela.

Pri oblikovanju in organizaciji gradiva za e-učenje nam lahko pomagajo teorije in modeli učenja (Batič, 2021, str. 4). Biheviorostični pristop zagovarja individualizacijo učenja in predlaga oblikovanje učnih strategij glede na učne rezultate, preverjanje stopnje doseženega, vrstni red predstavitve učnih vsebin in zagotavljanje pravočasnih povratnih informacij učencem. Povezanost te teorije in e-učenja v glasbenem izobraževanju je možna na področju samoocenjevanja učencev po izvedbi skladbe, pri delitvi učnih vsebin na manjše dele in pri dajanju hitrih povratnih informacij učitelja s predlogi za izboljšanje izvedbe (Zadnik, 2021, str. 54). Kognitivistična teorija postavlja učenca v aktivno vlogo raziskovalca, ki proučuje, obdeluje in organizira informacije. Naslanjanje na kognitivistično teorijo je v e-izobraževanju vidno pri uporabi video in avdio vsebin, s katerimi učitelj instrumenta učenca spodbuja k spoznavanju vrhunskih glasbenikov, zgodovinskih izvedb glasbenih del in novih tehnik igranja. Učenci lahko posnetke poslušajo ali gledajo po delih in tako postopoma izpopolnjujejo svoje sposobnosti izvajanja glasbenih del. Konstruktivizem, močno povezan z e-učenjem, je aktiven proces, v katerem si učenec ustvari svojo vizijo sveta na podlagi lastnega raziskovanja, znanja in preteklih izkušenj. Učence spodbuja k povezovanju informacij, dostopnih na spletu, k raziskovanju izvedb glasbenih del po lastnem okusu, izvedb njegovih vrstnikov ter k sodelovalnemu učenju in muziciranju. Pri tem načinu e-učenja bo učitelj z refleksijo poudaril razliko med neorganiziranim in površnim pristopom v primerjavi s kritičnim in sistematičnim raziskovanjem spletnih vsebin. Konektivizem, novi model učenja, se prilagaja hitrim družbenim spremembam. Zanj je značilno, da učenje ni več individualna oziroma osebna dejavnost, ampak vključuje povezovanje različnih mnenj in virov informacij. Poudarja se povezovanje interdisciplinarnih področij in idej ter usvojitev bistvenih znanj. E-učenje se v glasbenem izobraževanju zadnje leto odvija večinoma po spletu. Velika ponudba vsebin in virov informacij zahteva od učenca kritično razmišljanje, izbor in povezovanje koristnih vsebin, kjer je najbolj pomembno,

kako in ne samo kaj se naučiti. Vloga učitelja kot vodje procesa pridobivanja veščin je pomembna in nezamenljiva.

Vzpostavitev modelov e-učenja v glasbenem izobraževanju zahteva sinhronizirano in sistematično znanstveno in strokovno delo. V ta namen je področja e-učenja potrebno razdeliti glede na pristop k učenju, načine učenja, okolje in pričakovane učne rezultate (Johnson, 2020). Vsa področja e-učenja morajo težiti k postavljenemu cilju, pri čemer bo kdaj v središču učenec, drugič pa učni rezultat ali vsebina. Ko sta v središče učenja postavljena učenec in učni rezultat, se poudarja vključevanje učencev v izbor aktivnosti in načinov doseganja zadanih učnih ciljev, npr. branje partitur, poslušanje izvedb, igranje skladb ipd. Pri pouku instrumenta je v središču učenja pogosto vsebina, npr. nov notni zapis ali novi načini in tehnike igranja, kar je ravno tako način za doseganje ciljev e-učenja.

Obstaja več načinov uporabe e-učenja v glasbenem izobraževanju, najbolj pogosto govorimo o sinhronem in asinhronem učenju ter učenju preko sistema LMS oziroma sistema za upravljanje učenja (ang. Learning Management System). Pri sinhronem učenju se uporabljajo različna digitalna orodja za neposredno video in avdio sporazumevanje, npr. družbena omrežja (Viber, Skype) ali video aplikacije (Zoom, GoogleMeet), ki omogočajo delitev zaslona. Navedeno je uporabno pri sinhroniziranem urejanju notnih zapisov. Asinhroni način omogoča pristop k vsebinam kadar koli in kjer koli. S pomočjo orodij in programov za zvočno in video snemanje ter spletnih strežnikov za shranjevanje in delitev dokumentov se lahko prikazuje in pregleduje posnetke izvedb ter izmenjuje materiale z ostalimi učenci in se jih arhivira. Sistemi za upravljanje učenja nadomeščajo pravo učilnico z virtualno in omogočajo shranjevanje vsebin, sporazumevanje z učenci ter spremljanje in ocenjevanje učencev (npr. Loomen, Merlin, Teams, Edmodo, GoogleClassroom). Njihova uporaba je široka in vključuje oglasne table za hitro sporazumevanje, možnosti objavljanja video in avdio vsebin, koledar, forume, kvize in teste, klepetalnice, možnosti izvedbe videokonference in spremljanje učencev po rubrikah in mapah za ocenjevanje.

E-učenje je v glasbenem izobraževanju mogoče individualno prilagajati učenčevi trenutni sposobnosti in njegovemu znanju ter razpoložljivemu času. Do vsebin lahko pristopa večkrat, ko mu ustreza, temam pa lahko nameni več časa, predvsem če se želi vanje poglobiti (Habe, 2018). Ocenjevanje kot pomemben del učenja je tudi pri e-učenju neizogibno, potrebno ga je načrtovati in dosledno izvajati. Snemanje lastnih izvedb je primerno tako za ocenjevanje kot samoocenjevanje učencev. S pripravo rubrik za ocenjevanje bosta učitelj in učenec ocenila napredek ter prepoznala možnosti in prostor za izboljšanje izvedbe. Pri ocenjevanju na ravni razreda je mogoče oblikovati skupine za izmenjavo mnenj in jih nato deliti po forumu v virtualni učilnici.

Prednosti uporabe tehnologije tako pri učenju kot poučevanju glasbe stroka šele odkriva in prepoznava. Govorimo o možnostih napredovanja učencev glede na lastne sposobnosti, razvoju sposobnosti za reševanje problemov, prihranku časa pri učenju in poučevanju, arhiviranju materiala in lastnih del, možnosti večkratnega ponavljanja in o usposabljanju za samostojno učenje. Vloga učitelja je, da kot vodja in svetovalec s ciljno uporabo tehnologije pri učnem procesu usmerja učenca k samostojnosti, pri čemer učenec ni pasiven opazovalec, temveč aktiven ustvarjalec glasbe.

Tehnologija ima v glasbenem izobraževanju tudi svoje negativne strani. Glasbene šole se srečujejo s pomanjkljivo programsko in tehnično opremljenostjo ter visoko ceno in nedostopnostjo programov v maternem jeziku. V praksi se srečujemo z nizkim strokovnim znanjem učiteljev pri uporabi glasbenih računalniških programov in pri metodah za organizacijo in izpeljavo pouka s pomočjo tehnologije. Glavna pomanjkljivost e--učenja v glasbenem izobraževanju pa je v tem, da ne more zamenjati klasičnega učenja instrumenta in petja, saj je le-to večdimenzionalno in vključuje fizično sodelovanje (postavljanje glasu, drža instrumenta) ter tako omogoča umetniško raven poustvarjanja.

Vprašanje uporabe tehnologije in e-učenja v formalnem glasbenem izobraževanju je vsekakor zanimiva tema za bodoče raziskovanje, v katero je potrebno vključiti učence in učitelje različnih starostnih skupin. Zavedamo se, da je prihodnost družbenega razvoja usmerjena k tehnologiji in njeni uporabi na vseh družbenih področjih, tudi v glasbenem izobraževanju. Raziskave na to temo so pomembne za iskanje rešitev, kako tehnologijo uvesti v glasbeno izobraževanje in tako izkoristiti prednosti e-učenja.

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