Teaching digital audio skills - status, example scenarios and agenda for embedding the Digital Audio Workstation (DAW) GarageBand in a Digital Humanities teaching-learning scenario

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Abstract

Working with a Digital Audio Workstation (DAW) allows people outside of the music industry to experiment with sound and music for individual purposes. In principle, this also results in the possibility of using such a technology for various educational and teaching purposes. This article discusses how this is possible for the field of Digital Humanities even without a musicological or practical background. For this purpose, the need for imparting digital skills to Humanities students is shown before existing application scenarios of DAWs in the educational context and with a specific reference to the Humanities are presented. Subsequently, learning and educational theory assumptions for the use of the application are shown. Among other things, they meet collaborative and cooperative criteria, promote digital skills in learners, contribute to the practical testing and implementation of knowledge and meet the criterion of overarching learning locations.
In addition, an approach to embedding the DAW GarageBand in a teaching scenario is presented, providing explanations and links for educators who want to try GarageBand in the context of a culture-related topic in a Digital Humanities course.
This article is therefore aimed at all those interested in the subject of digital audio productions and especially at teachers.

Keywords: Creative Teaching Methods, Curriculum Design and Lesson Planning, Digital Humanities Pedagogy, Digital Tools, and Applications

1. Introduction

The core of Humanities research and education is material and immaterial culture and cultural processes and, in addition to language and literature programs, cultural and ethnological studies, also includes the arts such as theatre, performance, film, television, fine arts, music and musicology (Butler, 2022). Besides to the analysis and research of texts, images, objects or practices, sound, music, and rhythm can therefore be regarded as essential components of culture and thus as objects of research in the Humanities.

Humanities disciplines that view, research, experience, curate or (further) develop culture through digital references, tools or applications and thus combine key findings from the Humanities with communication, computer science and information sciences can be referred to as Digital Humanities (Berry, 2019). A clear separation of the non-digital Humanities and the Digital Humanities is not easily possible. Mäkelä (2022) also takes this up and, with reference to the history of computer science, characterizes the Digital Humanities by requirements that go beyond the application capabilities of standard software.

Digital Audio Workstations (DAWs) are used in the professional music industry for composing, arranging, producing, mixing, and mastering of sound (Walzer, 2020). With freely usable or inexpensive licenses for DAWs, it becomes possible to use them outside the music industry and therefore in an educational setting.

For these reasons, the ability to operate, work with and collaborate via a DAW can be assigned as a possible topic in the Digital Humanities.

Why digital skills and their training are essential for students, and how a DAW is already used in educational contexts in general and in relation to Humanities subjects is shown below. This is followed by learning and educational theory considerations for the use of such a technology in the classroom. The possible implementations of this technology in a Humanities learning environment are presented and possible use cases are described. Also included is an exemplary plan for educators who want to try the DAW GarageBand in one of their Humanities courses. The materials presented can serve as a structuring aid for lecturers.

2. Digital skills for Humanities students

Digital skills are essential prerequisites for action in a future living and working environment and are listed in numerous frameworks and guidelines (Ananiadou & Claro, 2009; OECD, 2019; Partnership for Twenty-first Century Skills, 2009; Battelle for Kids, 2019; Carretero et al., 2017). They describe the knowledge, skills and abilities required to use information and communication technology and digital media appropriately (JISC, 2014). Possessing these skills makes it possible to act in the digitized living and working world of today and tomorrow and thus to participate holistically in economic and social life (Law et al., 2018). A look at the later working areas of students makes it clear that digital topics have become indispensable. This digital change is also reflected in the professional fields for graduates of Humanities subjects. Safe handling of digital technologies and methods is increasingly expected in archives, libraries, research institutions or museums and is considered important by students and teachers for their later professional future (Schulz, 2018, pp. 83-86; Brehmer et al., 2018; cf. Schulz & Kohle, 2021). In addition to these "classic" professional fields for Humanities graduates, companies also have a need for graduates with a Humanities background. They attribute special communication and cooperation skills to them (KonegenGrenier et al., 2019).

Approaches and teaching scenarios that promote communication and cooperation and combine them with the training of digital skills can therefore increase the chances of Humanities graduates on the job market (Konegen-Grenier et al., 2019). Such a requirement profile for graduates in the field of (digital) Humanities can be trained if content and topics continuously

combine digital, methodological, subject-specific, and interdisciplinary topics and approaches. It becomes essential to teach students not only the domain-specific content, but also skills for information procurement and analysis, media competence and communication (Locke, 2017). This can be accomplished through projects and exercises that allow students to engage with new technologies, collaborate with peers, graduate students, or other fields, and produce something tangible that may be publicly viewable (Locke, 2017). Such a scenario can be the practice- and project-oriented work presented here with a DAW in the Humanities context.

3. DAWs in educational contexts

A DAW is a digital platform for recording, editing and publishing audio and can consist of (proprietary) software and hardware elements (Techopedia, 2022). Music or sound is either recorded directly into the program (e.g. with a microphone or an interface) or created directly in the software with program-internal functions or plugins (e.g. with samples, virtual instruments or loops from sound libraries). Sound can still be edited with virtual mixers and filters, and managed and shared with organizational tools (Techopedia, 2022). Some of the readers of this article may be familiar with the popular audio free software Audacity, which is used for editing audio and sound files (e.g. for podcasts) and is quite well known. But it does not meet the definition of a DAW in the narrower sense, because creating or transforming chords, keys, notes or playing and sampling virtual instruments, as well as accessing a sound library from which loops can be embedded, is not a function here, which is given.

To be specific: DAWs focus on the aspect of composing, arranging, mixing and mastering music with and in a digital infrastructure. They collect and record audio from different resources to finally output them in one unit or file format (Uyub, 2022).

In doing so, they digitize music production and make it accessible to non-professional musicians (Bell, 2018). With free-to-use or low-cost licenses for DAWs, it becomes possible to use them outside of the music industry, changing roles and responsibilities as well. Music production can thus be carried out anywhere and by anyone, which in turn also makes it attractive for educators and for the use in teaching contexts (Walzer, 2020).

Working with a DAW promotes creativity and individuality (Uyub, 2022), which creates a lot of room for their use, especially in project- and practice-oriented teaching contexts (see point 2.3). However, no widespread use of DAWs in education is currently evident (Uyub, 2022). And research on this is rather rare. Although the digitization of popular music production itself has been examined in many studies from a musicological point of view (Moorefield, 2005; Prior, 2009; Brøvig-Hanssen & Danielsen, 2016; Strachan, 2017; Reuters, 2021). Studies examining the use of a DAW in teaching usually refer to commercial (i.e., very expensive) software (e.g., Stickland et al., 2022, who analyze ProTools, Logic or Cubase, among others). Only a few refer to freeware or low-cost DAWs (e.g., Pendergast, 2021). There are also best practices, field reports or concepts for using a DAW in music lessons but not for use in a subject that is not primarily music related. A more in-depth and comprehensive analysis of the use of DAWs for amateur music production and their use for teaching and learning purposes has not yet been carried out.

3.1 DAWs as a part of school teaching-learning scenarios

Teaching concepts in which DAWs are part are often located in the field of music theory or music practice and use them to clarify, for example, signal flows, acoustic theory, or sound synthesis (Walzer, 2020). DAWs are also suitable for learning, practicing, and checking theoretical aspects of notation, chord theory or keys.

This results in the first area of application for DAWs in the school context of elementary, middle, or high school. Sabet (2020, 2018) conducts music projects with high school students and analyzes composing on the iPad with them. He points out the collaborative and cooperative aspects that come into play when students work together with a DAW. In this regard, he assumes that those processes can also strengthen cooperation in and with the group itself. Cuadrado et al. (2017) and Verrico and Reese (2016) also attribute a collaborative and team-building effect to working with the software when creating music in groups. Besides, using a DAW also blurs the boundaries in the field of musical practice, as DAWs can also function as musical instruments in themselves, allowing notes or chords of different instruments to be played directly on one device (Sabet, 2018).

In addition to trying out and testing, using the application also allows to share and present own projects. In particular, the option of providing projects or results on platforms for others and releasing them for discussion connects the teaching scenario to real-life and extracurricular places (Sabet (2018) names music platforms or social media). This also means the expansion of feedback processes as well as the extracurricular application and further use of content created by students. This, in turn, can create an atmosphere of self-efficacy among them.

For the purposes in the school context, some concepts for teachers have emerged in recent years. They can be divided into concepts from a technological perspective (e.g., Apple, 2022a) and from a didactic perspective, ideally, they combine both (Pendergast, 2021). Ed Tech sums up the use in teaching scenarios, for example for the elementary school environment, in: the possibility to establish interdisciplinary topics, the implementation of group work scenarios, creating a space for processing and transformation data and specifically the creation of virtual books, videos, or music on a specific topic. Furthermore, it could be used to compose music for presentations, to create podcasts or interviews, music, or background music for different purposes, but also to deal with topics such as copyright or to illustrate the implications of certain facts in mathematics or physics (e.g., sound waves) (Edtech, n.d.).

The acceptance of a DAW as part of an educational setting by learners depends on the group of learners themselves. It is important to note that there may be inherent differences within the group. For example, Armstrong surveyed college students aged 15 to 18 and found that young men were more comfortable using a DAW than women (2008). Pupils who continue to use the music production techniques taught within the framework of school educational concepts, also privately, are predominantly male (e.g., Bamberger, 1977; Hickey, 1997; Stauffer, 2001). Bell (2015, p.140) therefore concludes that, in addition to the technical aspects of operation, teachers must also sensitize their students to the creative and design process that underlies working with a DAW. This is the only way to get a feeling for the actual possibilities of using these technologies for individual purposes.

3.2 DAWs as a content in higher education and Digital Humanities teaching

DAWs are also used in higher education. Walzer (2020) analyzes the use of DAWs for students in the field of professional sound and music design and points out the creative potential of these for the students. Vratulis and Morton (2011) analyze something similar for prospective music teachers and attribute great potential to the application. Uyub (2022) conducts a field study with brass students and assigns the technology a high potential for the creative process of mixing and mastering one's music recordings. With the technology, however, the effort involved in producing music could also be made clearer to the students, which in turn could lead to an awareness of working with partners in the later everyday life of professional musicians. In addition, DAWs also offer the opportunity to professionalize virtual music lessons, as they convey music and sound in a higher quality than is possible with video conferencing systems (Uyub, 2022). It is obvious that students who are interested in sound and music and understand notes, chords, harmonies, rhythms, or instruments can work with a technology or a tool from this field.

Apart from that, concepts for implementing DAWs in a teaching-learning setting for students with an explicitly non-musical practical or theoretical background are not very common. But as the development of digital teaching and learning resources in general has increased in recent years (e.g., European Commission, 2021) and has also differentiated in the Humanities (e.g., Digital Pedagogy in the Humanities, 2020, Niebling et al., 2022; Sahle, 2013), working with the digital tool of the DAW is also relevant for areas that do not primarily have a music background.

Barber (2016), for example, implements the application in a workshop for the area of Digital Humanities. The participants are first introduced to sound processing (of existing audio resources) and its usability in the Humanities context, before the processing and compilation of audio material is tried out in a project context and then discussed. What is missing here, however, is the link to an approach where learners not only browse audio databases and continue working with the files they contain, but also learn to create, edit, and rework sound and music themselves and for specific purposes. Studies examining the use of the technology of a DAW in a Digital Humanities, not genuinely musicological, context are lacking.

3.3 Learning theoretical assumptions that DAWs and their embedding in teaching can fulfill

From the point of view of learning theory, the basic concept of using digital, interactive technology for learning purposes is based on constructivist approaches. Learning and learning outcomes are to be understood within these as the result of interactionist individual actions (Kerres 2018, 158) - i.e., actions taking place in an interaction that are individually given meaning. Learning is strongly oriented towards the individual and drives the individual learning process forward. In such constructivist settings, teachers take over the motivation for self-directed learning and the strengthening of the self-image of the learners (e.g., Meyer & Meyer, 2013).

The implementation of a DAW in an innovative, pedagogical learning arrangement (such as the flipped classroom concept or project-based learning) also strengthens the cooperation and

collaboration of the learners (Holdhus et al., 2022). In education-related competency frameworks (Battelle for Kids, 2019; Ferrari, 2013), these digital, communicative, interactive, and collaborative skills are laid down as essential and necessary characteristics for living, learning, and working in the world of tomorrow. They are necessary skills on the labor market of future humanists (Konegen-Grenier et al., 2019; Vinzi, 2019). Whether they work in an institution or organization, in a company or as a freelancer, students need such skills which can be conveyed within learning settings that actively engage to produce something that has intersections with the later tasks.

The design of a learning setting that is practice- or project-related, i.e., working in teams, with a work assignment or the presentation of relevant group results, can continue to show a high degree of parallelism with the later working environment of students (OECD, 2019). These teaching and learning settings therefore enable students to gain experience in future-relevant areas of responsibility and to acquire the necessary skills for the job market during their studies.

In addition, embedding a DAW in the teaching context can address the concept of inquirybased learning. When students learn to discover sound and music or to connect it concretely with a Humanities topic, this shows a similarity to the process of research. Similarities lie in the processing of a question and the implementation of an own action strategy to achieve adequate results. There is a potential for DAWs in these settings, to be used to encourage experimentation and stimulate design-based ideas (Boon, 2021).

Finally, working with the application also fulfills the principle of the overarching place of learning. They are facilities that are related to leisure time, where students usually only represent one user group among many, but which can still be didacticized (Freericks, 2011,

p.13). These criteria also fit working with a DAW in combination with a culture-related theme. To be more precise, the use of a DAW also has the status of such an overarching place of learning, not in real but in virtual space.

4. Implementing a DAW in a Humanities course with a culture-related theme - using GarageBand as an example

It is obvious that the use of DAWs is particularly possible in areas with a connection to music, sound, and art. As mentioned at the beginning, these are also main areas of the Humanities. But how can a DAW be used if you don't come directly from the field of music theory or practice? How can the suggestions from point 3.3 be implemented specifically for the area of Digital Humanities? This is to be illustrated below.

For this purpose, the focus is on the DAW GarageBand. Many of the DAWs on the market are purchase software (e.g., Ableton, Logic, Cubase) or require registration (e.g., Bandlab). For educational use, this can be a hindering factor. Apple's GarageBand software is (mostly) pre-installed as freeware in Apple devices and runs on the iPad, iPhone, or Mac as well as on the devices. Since Steve Jobs aimed to democratize music making with GarageBand (Wang, 2019), access to individual music production can be taken for granted, at least for Apple users. The advantage of GarageBand lies precisely in its intuitive usability, which also enables non-

professional musicians or music theorists to use the program to learn how to produce and edit sound or music.

There is a fundamental difference in the usability of GarageBand for MacOS and iOS (e.g., The GarageBand Guide, 2013). The iPad is perhaps best suited for production with students. While the MacOS version has more sophisticated controls and features (Siemon, 2022) that allow the user to experiment and edit many things in the individual audio files and the entire audio track, the advantage of the iPad lies in its portability and thus the possibility to play different instruments via automated chords on one surface. In places they look and play like the original instrument (Smart Piano, Smart Guitar, Smart Strings, Smart Bass). The auto-play function for chord progressions, one of the most important functions for non-professional musicians, is only possible via the iPad.

4.1 Sample topics where a DAW can be used in a Digital Humanities context

As shown at the outset, the core of Humanities courses deals with culture in tangible and intangible forms, which can include, for example, textual, documentary, object-related, visual, auditory, and spatial aspects (Gardiner & Musto, 2015). The curricula of Digital Humanities are therefore diverse depending on the place of study and differentiated in their orientation (e.g., focus on objects, images, artifacts, sound, or space (Gardiner & Mutso, 2015)). A relevant theme in some curricula and domains (e.g., Early-Spadony, 2017) is the production of content and its differentiation into multiple media formats (Brandon, 2017). When different digital media channels are combined with the telling of content or a story, it is called digital storytelling. Because storytelling is essential to the human experience (Stories for all, 2022), digital storytelling represents an innovative topic for teaching modules in Digital Humanities (Benmayor, 2008; e.g., NYU, 2022).

This format is used to adequately combine visual or audiovisual images and multimedia components in order to actively involve the recipient of a story. For teaching scenarios that incorporate storytelling, multimedia narratives can be produced with students using digital resources in learning environments (Thomas, 2012). Knowledge, creativity, cooperation, critical and creative theorizing can be enabled thereby (Benmayor, 2008).

Clarke et al. (2012) show in a literary studies course that the feedback from students and teachers who have used digital storytelling is positive. They therefore classify digital storytelling as a relevant topic within the framework of Humanities courses. The implementation primarily requires professional and technical support for students and teachers, which is linked to an adequate provision of resources. They relate to the usability of digital media and tools for creating and editing the respective content and parts of the own story. Clark et al. (2012) summarize that critical intellectual engagement and thinking can be stimulated by such a setting. The example below shows how sound and a DAW can be focused in a digital storytelling teaching scenario. The teaching scenario can be practice-oriented: After the theoretical introduction to storytelling and the discussion of some current examples, the learners can create their own story on a topic.

Figure 1: Digital storytelling

Topic	**A digital storytelling course for cultural objects, images, texts, or practices**	
	Sound and music provide the background for the components of an immersive digital story. They are essential to creating and delivering such an experience. Within this theme, students can start by exploring some of the existing examples of digital storytelling that relate to a cultural theme and use music.	
	Examples where music plays a special role in the digital story	
	Storytelling online is popular with famous cultural institutions. This is evident, for example, from the work of the artist Rembrandt's The Night Watch on the part of the Rijksmuseum in Amsterdam. Here, students can rate the music and sound components in relation to the overall story. To do this, visit the Rijksmuseum (see link in the reference list).	Even objects or topics that actually come from an economic sector can be combined with a cultural dimension through digital storytelling. Another example from Renault can be analyzed concerning the use of sound in digital history (see link in the reference list).
Further steps	Start with a storyboard for an individual digital story	
	After that, the students can start designing their own virtual story on a topic. To do this, an initial storyboard can be created that includes the aspects and plots of the story and the use of the various media to support them. Sound should be part of the design right from the start. In the examples above, sound is an essential component within the overall composition of the story.	
Source: own presentation		

A second use case for using a DAW on a Digital Humanities topic ties in with the creatively based setting of storytelling, but focuses even more on the aspect of immersion.

The digitization of exhibitions, exhibits or guided tours are increasingly common fields of activity for students of Digital Humanities (e.g., Romano, 2022). Hutson and Olsen (2022) demonstrate the positive correlation between the use of immersive technology used to create virtual exhibitions and increased enthusiasm and engagement in the learning process, in art history courses. When teaching the techniques and methods for creating these virtual exhibitions, it is particularly important to provide examples or templates that can inspire the students' own design. Hutson and Olsen (2022) go on to show that the use of these topics in Humanities teaching contexts is rated positively by teachers and students and can have some very beneficial outcomes.

What could a possible teaching setting on this topic look like?

In this context, after getting to know existing examples of virtual exhibitions (e.g., Google Arts & Culture), the students can design their own concept for a virtual exhibition with a special reference to digitally generated sound.

Figure 2: Exhibition experiences with sound

Topic	**Create an exhibition experience**
	First, virtual exhibitions or exhibits can be explored. Google Arts & Culture can be used for this, for example, but also the Europeana collection or the websites of individual cultural institutions directly (like Roman Forum in an own 3D browser (Digitales Forum Romanum (n.d.), see link in reference list).
Further task	Design a plan for a virtual exhibition incorporating digitally generated sound.
	The students can use existing free sound files from platforms or create their own sounds that they think fit into the exhibition they have designed. In addition to the processing time for the creation of the sound, time can also be allowed for group discussions and presentations to visualize processing strategies.
Source: own presentation	

Many other use cases for sound are possible in the Humanities field. This can also include creating musical content for social media platforms or designing educational resources for cultural organizations.

4.2 Teaching the DAW GarageBand in a Humanities context based on the flipped classroom model

A key factor for students to start working with a DAW in a context such as the above or a similar one is first learning how to use the software itself. This requires prior communication of technical applicability and functionality. Since this is primarily about acquiring knowledge about an application, this initially takes on a more declarative character (ten Berge & van Hezewijk, 1999). The program is demonstrated in its basic features and students follow it. In principle, such a demonstration also enables the use of asynchronous formats, which can be implemented, for example, through video tutorials (e.g., Münster et al., 2021). Learning materials such as presentations or virtual worksheets can provide further information. In addition, descriptive knowledge acquisition is more about learning how to use declarative knowledge (ten Berge & van Hezewijk, 1999), so it is more application- and situation oriented. Here, students try out the program themselves and test their own approaches. The flipped classroom model mentioned above can also be used to link the two phases. For Humanities teaching, this method, especially in seminar contexts, offers an extended approach to learning and trying out subject-specific and cross-disciplinary skills (Hantla. 2018).

Flipped Classroom consists of three phases: before a scheduled meeting (off the classroom), during a scheduled meeting (in the classroom), and after a scheduled meeting (off the classroom) (DiMella, 2020). These phases can be extended and repeated at will.

In a first phase, the classic session is replaced by learning components that are completed outside the seminar room and in which the students receive and work on asynchronously usable materials. In the case of imparting knowledge about a DAW, these materials are primarily used to understand the program and get to know its functions. In this phase, teachers can provide

specially produced or existing video tutorials or screencasts that explain the program interface and its functions. Furthermore, example projects or theoretical handouts can be made available. In the second phase, a synchronous meeting of the learning group is initiated, either virtually or in person, where what has been learned is discussed and evaluated.

Continuing content or tasks can also be set, which will be further processed in a subsequent phase. Finally, the knowledge gained is reflected in another phase and applied, for example, to own projects (DiMella, 2020). As Papadakis et al. (2019) show, the process of one's own creation follows the end of the previous phases.

Below is a scheme for structuring a scenario using the DAW GarageBand and related to a Humanities topic. Lecturers can use this as a structuring aid or resource pool. The structure does not claim to be complete, but rather serves as a suggestion for the implementation of the technology described in a specific teaching setting using the flipped classroom model. The three phases mentioned above are extended in the following figure by one pass of the first two phases.

Figure 3: Exemplary structure of a learning session with GarageBand

Topic of the learning session: Designing sound for a historical event			
Session	Phase	Possible format	Possible content
Intro - Introduction to the topic	Phase: before a scheduled meeting	Draft information material, interactive pdfs, videos or provide existing video resources.	- Give some examples of historical events with different soundtracks (e.g., storming of the Bastille, with theatrical orchestral sound vs. up-tempo pop sound). - Show examples where the audio made a big impact (e.g., War of the Worlds, the original version is available on YouTube). - Start with a little sound quiz to get students involved. https://bigsoundbank.com/museumofsounds/

Technical introduction - General overview a nd functions			- Link to existing platforms where sound files can be downloaded and further processed (e.g., https://mixkit.co/free-sound-effects/). Also distinguish between free or stock files and platforms that require you to have an account to download files. - View downloading and importing these files into GarageBand. Show how to edit a downloaded file and create a new one from it (focus on editing, cutting, exporting). - Dive deeper into the program: Have your students watch the introductory guide to basic GarageBand features. To do this, you can refer to the following channels, where tutorials can be viewed, depending on the end device. For a video-based overview: https://www.youtube.com/c/TheGaragebandGuide/feature d For written descriptions: https://www.makeuseof.com/tag/download-guide-togarageband/ or: https://guides.library.ucsc.edu/DS/Resources/IntroToGarageBand The Apple website can also serve as a learning resource. Here the currently installed version can be selected (go to Resources –> User Manual): https://support.apple.com/garageband The most important introductory topics are: the overview of the menu, the idea of working with projects (in contrast
			to ready-exported mp3 tracks) and: - **recording or creating melodies/sounds from an instrument/smart instrument/voice,** - **Working with existing sounds from the library (samples and loops),** - **Edit the recorded/created sound file.**
Discussion round	Phase: a scheduled meeting	Schedule a synchronous meeting (virtual or in classroom)	Discussion/ questions

Musical practice - Practicing with loops, samples, sound effects, midis, ...	Phase: before a scheduled meeting	Draft further information material, interactive pdfs, videos or provide existing video resources.	Theme loops from the library in GarageBand. The introduction can also be useful for this: https://www.loopazon.com/blog/an-introduction-toloops?sl=hy Working with MIDI formats is explained here: https://cecm.indiana.edu/361/midi.html (Free MIDI files can be downloaded here https://bitmidi.com/). They can be edited in the piano roll. Also see: Marrington (2020). Show how to create own sound effects or background noises. How to: https://www.youtube.com/watch?v=NDroW22J5fE&list=PLFgFzJh6N3SWAqqe21NmyULZC7kiPt8Ge&index=91
Time to try and practice an example use case			Students should now create their own song about XY or edit an existing sound file and create something of your own out of it. Discuss: What went well and what didn't? From this, derive individual guidelines for working with the program.
Discussion round	Phase: a scheduled meeting/ evaluation	Schedule a synchronous meeting (virtual or in classroom).	Discuss in the group: What experiences were made? What went well, what didn`t? How do students feel about what sounds good and what doesn't? Why? Why not? From this, derive individual guidelines for working with the program.
Set the final task to be worked on - Designing sound for a historical event			Design a background sound or melody for event XY. This sound should either support the mood or be contrary to it. Do this in groups of 2-3 students. The reasons for the design of the sound and the event itself should be explained in a final presentation
Working phase (plan 2-3 weeks) - Finalizing the soundfile and the story behind it	Phase: own project	Offer formats (virtual or in person) for questions	
Presentation and discussion - Concluding presentation of the piece of music with background information	Phase: final meeting/ presentation/ evaluation	Virtual or in person	Final group presentation. After the presentation, the work process itself can also be discussed.

Source: own representation

There are a number of other models that combine declarative and descriptive knowledge acquisition as well as theoretical and practice-oriented approaches, but the flipped classroom model is the most implemented model in higher education (DiMella, 2020).

In addition to aspects of implementation, considerations regarding the accessibility and inclusion of the participating students are also necessary. For example, there may be students who already have experience using similar digital tools, who can play an instrument, or who already have a lot of experience in the general organization of projects or the presentation of project results. The different, individual abilities in group constellations when working on the topic should be considered.

DAWs can be used to create spaces for collaboration, learning digital skills or being creative. They not only make demands on interpersonal cooperation, but also on the technical framework and infrastructure. They affect the bandwidth and computing power (Stickland et al., 2018) and thus also place certain demands on the end devices of the students (e.g. storage capacities when expanding the application with plugins or the use of libraries (Reuter, 2021)), which in turn can represent a cost factor.

Furthermore, GarageBand can be used as freeware on Apple devices. Still, it is therefore necessary to own or buy an Apple MacOS or iOS device. As mentioned, there are differences between using the program on a Mac, iPad, or iPhone. To use all the features of this program, it would be optimal to have access to all devices (e.g., Siemon, 2022). Students who cannot afford these devices are therefore excluded from using them. Although there are options and ways to gain access to these devices, such as computer pools, media libraries or crossplatform rental devices or special educational discounts (Apple, 2022b), this can involve considerable effort. In addition, access to this infrastructure does not mean that it can be used immediately. Familiarizing yourself with the operating system can sometimes be timeconsuming, especially if you have previously used a different operating system (Windows or Linux).

5. Conclusion

The idea of using a DAW, or specifically the DAW GarageBand, for Humanities education is based on collaborative, hands-on, and creative teaching approaches. Even if some aspects need to be considered during implementation, the use of technology in connection with a culture-related topic can offer the space to test individual and experimental solution strategies for tasks (Boon, 2021).

This article has shown the need for Humanities students to develop digital skills and how this can be addressed by teachers in an exemplary manner. Therefore, it presented music and sound as a digital form of expression for cultural topics and existing practices when embedding a DAW to convey these topics. Due to the lack of guidelines for the implementation of the technology in a Digital Humanities teaching context, exemplary scenarios, and a schedule for embedding the DAW GarageBand in one's own teaching scenarios were derived.

Even if the factor of the time budget for the preparation, supervision and evaluation of such learning settings may be large - the effort can be worthwhile, because it shows a high degree of comparability with creative and digital tasks in the field of work of future humanists. The author would like to encourage teachers who feel addressed by this article to try out the technology and exchange experiences.

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