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Music technology and music education: A practice-based case study on dub reggae

Technology, sound and popular music education

Popular music genres heavily rely on music technology with the production shaping the music to a considerable degree compared to its composition (Tobias 2013a). Gear at an affordable price has enabled musicians to take great control of the product at all stages of recording, mixing and mastering since the late 1990s. With this development, the understanding of what counts as musical activities and how musicality must be defined has inevitably changed. Should music education correspond to real musical practices, educators "need to accept contemporary musical practices, such as being a DJ, record producer, or app developer as valid, and teach the associated skills" (Brown 2015: 5) like recording, programming and mixing. These creative skills extend instrumental or vocal performances and offer entirely new artistic means of expression.

Although music technology has increasingly become an area of research in music education, the tonal quality of popular music with its produced sound is still an under-researched issue. This survey thus aimed to explore the potential of music technology to facilitate the students' higher awareness and better understanding of produced sound, stylistic knowledge of dub reggae (Veal 2007) and practical competences of sound production. It was based on an educational unit on dub reggae with an action research approach.

Method

Following an 'action based' design, this study attempted to bridge the gap between research and practice (Kemmis & McTaggart 1992; Mettetal 2001). The lesson was carried out at a vocational college with one social and health class (SH) with 10 students (7 women, 3 men; average age 21 years) and one art and design class (AD) with 9 students (5 women, 4 men; average age 18.3 years). The SH students had knowledge in social psychology of music, reception research and music therapy, the AD students were acquainted with musical aesthetics of various phenomena of popular music. Neither of the students played an instrument nor were trained in using music technology.

The unit took place over a 3-week period (90 minutes / session), and it was evaluated together with the students. Two clusters of methods were used:

1. Participatory observation, written analysis and description of perception of each student and the music production results.
2. Qualitative and quantitative content analysis of written theme-centred interviews and students' written data of the lessons.

Lesson design

1. The students listen to 'Blunt Dub' (2007) by the dub reggae producer Mad Professor concentrating on the music's effect with its associations. They compare their impressions and reflect about any previous experience of such a musical style.
2. After comparing the results, the students listen to the song for a collective analysis focussing on tonal aspects. Should they not make the sound design an issue, the teacher redirects the focus. This phase provides an opportunity for analysing sound in relation to the underlying musical composition.

3. A complete arrangement of Lady Gaga's 'Beautiful, Dirty, Rich' (2008) with single instrument and vocal tracks plus effects with presets is made available to the students. In the digital audio workstation (DAW), every instrument or vocal track is routed to a separate track, which allows making recordings with effects while listening to the arrangement.
4. Producing a dub mix in its most basic form requires every single track to be processed in real time by: activating and bypassing different audio effects, room placement and muting, controlling the volume during the recording. More advanced approaches are to change effects settings in real time or to record several tracks simultaneously.
5. After re-recording all tracks with effects, the next task is the production of the final mix by setting the track levels and room positions in real time. The result is recorded live on a stereo track.
6. Each group presents its results, which are evaluated regarding creativity and authenticity.

Results

Participatory observation

The first listening experience revealed similar associations such as 'sun and beach' and 'relaxing'. A hypnotic effect leading to 'absentmindedness', 'reverie' or even 'apathy' was also recognized and explained by reverb and frequency alteration, albeit without mentioning the audio effects by name.

In the analysis, the students disregarded harmony, probably due to its low relevance for the perception of the song. Instead, they felt that the music had been constituted of a flow of sounds. They all correctly detected the reason for the music's unstable effect in both dub's constitutive principle of fragmentation and the virtual room design. Even though the students neither could explain any details nor name the audio effects, they highlighted them by describing reverb, delay, frequency filters, modulation effects and volume controls as meaningful stylistic characteristics. These statements indicate that single sound gestalts were differentiated in the overall sound.

Highly motivating for the students was the production of the remix by setting volumes and room placements of the tracks, thus achieving dub's typical fragmentation. Yet, due to the minimal application of both volume control and panning for fragmentation, the outcome did not meet all stylistic characteristics of the original dub track.

Content analysis of written interviews

The written questionnaire consisted of open theme-centred questions on dub reggae, the learning results and the role of the tonal quality for music (listening). The analysis of the written feedback (N = 19) shows that most students (84%, N = 16) considered dub reggae highly important for music education.

Content analysis of written interviews (continued)

The reasons for dub's educational value were widespread and comprised the everyday relevance, an exceptional ambient character, tonal aspects, the influence on electronic music and an interest in its cultural background. Fifty per cent (N = 8) stated that dub reggae is sensible for music education because of its modern appeal. Other 38% (N = 6) highlighted the musical diversity of dub reggae.

Many students reported about the lesson that they had begun to listen to dub reggae more sophisticatedly, and that they would have gained extended perceptual representations, leading to a better comprehension of sound characteristics. As an interesting new experience, qualities like the effect of a staged virtual room designed by audio effects were also described. Sixty-three per cent (N = 12) approved of having gained an extended awareness of produced sound. Six of them ascribed it to the newly acquired knowledge about music production like the use of effects, mixing and room placement: "This lesson has extended my understanding of sound. Now I know how the overall sound is composed of different parts. When I listen to a song now, I listen to it more carefully" (SH, f, 27). Other students stressed the daily relevance of their acquired knowledge: "In your everyday life you get confronted with technologically produced sound all the time. I learned how these are created and what cultural significance they obtain" (SH, f, 20). From the twelve students five stated to pay more attention to popular music's tonal qualities in the future due to both their newly advanced perceptual skills and greater awareness of production details. These competences would have come along with the more intensive listening experiences.

Regarding the music technology, 89 per cent (N = 17) wished to work in the lessons with DAWs frequently to record original material and to improve their (re)mixing skills. Dealing with mixing tasks led to recognizing that it is an effort to produce electronic music and that it demands musical skills just as playing an instrument does, only in a different manner.

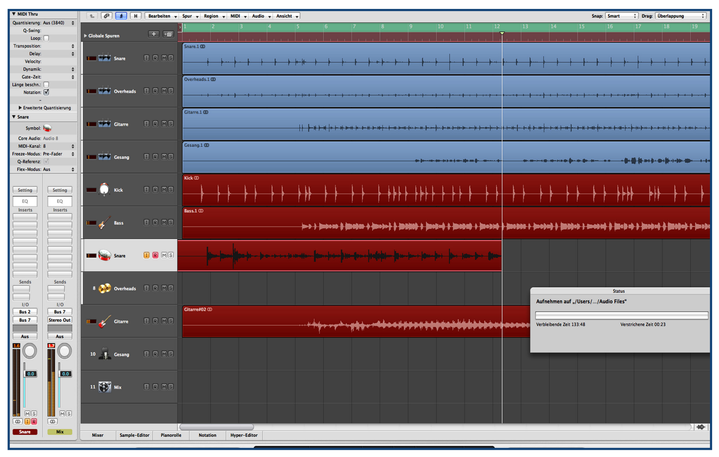
Discussion

Listening skills and awareness of produced sound

The findings indicate that the production tasks have facilitated an increased awareness and understanding of produced sound. The initial analyses of the dub example demonstrate that the students were capable of identifying details of sound like an emphasis on bass, a flow of sounds and the lack of any standardised form. Introducing conventional production effects (reverb, delay, flanger, chorus) and the sound box model (Moore 2001) combined with analyses and active production tasks added to the students' understanding of sound. The results comply with both Brown's (2015) claim of music technology amplifying musical skills such as listening, analysis and knowledge and Savage's (2005: 171f) study where he concluded "that new technologies facilitate and enable a closer analysis of, and engagement with, the micro-phenomena of sound".

Propositional and procedural knowledge of music technology and the dub style

The lesson on dub reggae has been the first encounter with sequencer software for most participants. Introducing students to DAWs through dub reggae is a worthwhile approach as the findings indicate. Notwithstanding its specific aesthetics, the students are rather free to explore and to improvise with effects, volume levels and panorama settings without being confined by strictly defined stylistic regulations (Savage 2005). Since the dub remix has no need for formal aspects, it supports the focus on dynamics and flow of sounds, which in turn is expedient for facilitating an extended understanding of sound as a creative means. Another very positive aspect of teaching dub reggae is its suitability to convey an informed understanding of production techniques without needing much explanation. Knowledge about the style has been gained equally by noticing similarities between dub reggae and modern genres, by experiencing remixing practices and by slipping into the roles of Jamaican dub reggae producers.



Motivation, acquaintance knowledge and heterogeneity

During all phases of the lesson, most students were remarkably motivated. Working with music production technology proved to be attractive and so the dub reggae style was highly interesting to them. Combining listening tasks, analysis and production raised their willingness to engage with the original dub reggae culture and its appropriation in Europe. Even theoretical work met their interest, which was exceptional. Another goal of the lesson design was to facilitate a participatory culture (Tobias 2013b) that included every student regardless of formal training (Gall & Breeze 2007). The outcome suggests that this aim was reached as the tasks were carried out at different levels.

Conclusion

This study demonstrates the high potential of music technology for the music classroom, not merely reduced to a method but as a content in its own right. Music technology is suitable for imparting manifold educational aims as for instance developing detailed listening skills, discovering differences between musical styles, understanding and imitating musical ideas, and gaining insight into less familiar musical cultures. The one starting point for working with technologically produced sound in the classroom will always be an awareness of (popular) music's tonal variety and quality. Yet, for the purposeful application within music lessons, it must be supported by theoretical knowledge and, above all, by combining theory, listening skills and previous personal experiences through practical tasks.

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