SEEL
Criteria for Sounds in E-Learning

Sound in European E-Learning
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P1 University Paderborn – UPB Germany

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Jennifer Schneider

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SEEL – Criteria for Sounds in ELearning

"From the audiocassettes of the 1970s to digitally recorded music on an invisible Cloud, audio has come a long way as a teaching and learning aid and is an extremely valuable method for capturing and presenting information. Audio provides a quick, cost-effective alternative to text for connecting with your students and providing up-to-date content, interviews, discussions or lecture materials."[1]

The use of audios and sounds for teaching and all kinds of classroom activities become more and more popular, not even because of the growing internet use for teaching and learning, as well as the demand for individual learning opportunities and environments. Learners as well as teachers use, create and share Podcasts, videos and youtube- channels to learn new contents in a fast and easy way, to get a first overview of innovative topics or to inform specific target groups about contents and subjects they are actual interested in.

To say something about quality of sounds and audios for teaching and learning it is important to understand how people get influenced by music and sounds.

In the year 1985 Rösing distinguished between **"concentrated listener"** and **"not concentrated listener"**.[2] The not concentrated listener, is not direct influenced by music, sounds or all kinds of audios. This person hears the noises, but don´t perceive every specification of the sound. In a colloquial expression it can be seen as background noise and sound. One example for this listening situation can take place in a shopping mall, where soft music is playing in the background to serve a good mood for the customers while shopping. Studies shown, that this kind of soft music influence or shopping behaviour and increase the purchases.[3]

One year after this definition Behne describes eight terms how young adults experience music. He distinguishes between motor listening (5), what means listening and motorial

[1] Using audio and video for educational purposes (2014): Pdf version: http://www.deakin.edu.au/__data/assets/pdf_file/0003/179013/Modules_1-4_Using_audio_and_video_for_educational_purposes-2014-02-28.pdf

[2] Rösing, Helmut (1985): Grundzüge musikalischen Hörens und psychische Wirkungen funktioneller Musik. In: Kleinen, Günter/Klüppelholz, Werner/Lugert, Wulf D. (Hrsg.) (1985): 39-56.

[3] Behne, Klaus-E. (1986): Hörertypologien. Zur Psychologie des jugendlichen Musikgeschmacks. Regensburg: Bosse.

body moves like dancing, compensatory listening this kind of listening is accompanied by repression negative moods, vegetative listening goes with body´s responses like goose bumps, diffuse listening (3) means listing to something during other activities (example listening to the radio while driving car), emotional listening (2) goes with emotional music and sentimental listening means that the listener will be remembered to an emotional an in the past happened situation. The last two terms are associative listening (4) what means that the listener has pictorial ideas about the sound he or she is listening to and distance listening (1) what goes with analyzing the sound and audios the listener hears.4

This categorization was one anchor for Schramms study, 2005 regarding preferences in music genres and the eight terms of experience music.[5] The following table shows the correlation between the music general music genres and the terms by Behne (1986)[6]:

	1	2	3	4	5		
Musikgenre-Präferenz	**Distanzierendes Hören**	**Emotional-vegetatives Hören**	**Diffuses Hören**	**Assoziatives Hören**	**Motorisches Hören**	**korr. R^2**	**F-Wert**
Klassik/Neue Musik	.18*	.24**	-.26**			.20	15,21**
HipHop/Rap	-.28**		.19*		.23**	.18	13,24**
Pop/Soundtracks	-.32**		.19**	.24**		.15	11,19**
Jazz/Blues/Soul/R&B/Funk	.21**	.25**				.14	14,90**
House/Trance/Techno	-.22**		.23**			.10	10,28**
Folk/World Music		.32**				.10	16,99**
Rock/Alternative/Punk/ Heavy Metal			.16*			.02	4,24*
Beat-Musik der 60er	.16*					.02	4,08*

**: $p < .01$; *: $p < .05$; Beta-Gewichte; Rangfolge nach Varianzaufklärung

[4] Behne, Klaus-E. (1986): Hörertypologien. Zur Psychologie des jugendlichen Musikgeschmacks. Regensburg: Bosse
[5] Schramm, Holger (2005): Mood Management durch Musik. Die alltägliche Nutzung von Musik zur Regulierung von Stimmungen. Köln: Herbert von Halem Verlag.
[6] Behne, Klaus-E. (1986): Hörertypologien. Zur Psychologie des jugendlichen Musikgeschmacks. Regensburg: Bosse.

Many studies shown, that learning and working with music has a great and successful impact of learning and the learning environment.[7] The most powerful impact has the noise and soft background music during learn sessions, hard and aggressive music can influence the learn behavior and decrease our concentration and ability to learn.[8] In relation to the results of the qualitative survey in the German school for visual impaired students it should be considered that not every learner has the same ability to learn. Moreover, the teacher or the content provider has to take under consideration that not every learner has the same way to learn and the teacher has to take into account the different learning styles to focus successful learning results. The Australian University Deakin published the guideline "Using audio and video for educational purpose" in the year 2014. They describes the benefits of using audio and video in teaching in the following subitems:"

- "provides diverse teaching techniques for learning
- gives the teacher a voice –this can reduce the feeling of isolation for cloud based students, but also helps located students feel connected
- can be used to simplify and explain complex problems
- can allow students to access the learning materials as often as required
- allows students to learn at their own pace, with instant playback, rewind and pause
- reduces frequently asked questions from students
- can be reused."[9]

But what distinguishes a good (high quality) audio for teaching from a bad (low quality) audio for teaching?

For authentic contents and a high quality the sounds and audios has to become an independently part of the lesson and an integrative part of the teacher material. The teacher has to distinguish and decide how he or she wants to integrate the sounds in his

[7] E.g.: Drewes, Ralf/Schemion, Gabriele: Lernen bei Musik: Hilfe oder Störung? Eine experimentalpsychologische Analyse einer pädagogisch-psychologischen Kontroverse. In: Jahrbuch Musikpsychologie, 8. 1992. 46-66. Savan, Anne: The effect of background music on learning. In: Psychology of Music, 27. 1999. 138-146

[8] Ibid. And Holger Schramm (2008): Rezeption und Wirkung von Musik in den Medien, p.144 in Stefan Weinacht, Helmu Scherer (2008): Wissenschaftliche Perspektiven auf Musik und Medien, VS Verlag für Sozialwissenschaften.

[9] Using audio and video for educational purposes (2014): Pdf- version: http://www.deakin.edu.au/__data/assets/pdf_file/0003/179013/Modules_1-4_Using_audio_and_video_for_educational_purposes-2014-02-28.pdf

classroom activity. Therefore the taecher has to discuss the benefit of the deployed audios and the reason of its integration. This can be for example:

- Audios as background sound
- Audios as signals
- Audios to underline feelings and moods of the situations or persons
- Audios to describe emotions
- Audios with text and contents like radio dramas, speeches or news reports
- Audios with noises
- Audios with jingles
- Audios for etc.

For all kinds of this audio elements and types are in a good or high quality, if the sound is clear recorded, free of errors and complete. Specific noise can be included to create authentic background noises. Examples for this background noises can be traffic noises like cars, bike drivers or leaves and wind, or office sounds like telephone ringing, sounds of tipping on the keyboard, etc.

Professional sound provider and producer describes high quality with the labelling in kilobits per second in short kBits/s. Music and audios in high quality has to reach the following kBits:[10]

BITRATE IN KBITS/S	AUDIO QUALITY
256 TO 320 KBITS/S	High music and audio quality • Music with a wide sound spectrum
192 KBITS/S	Almost good audio and sound quality
128 KBITS/S	Almost low audio and sound quality • Sound quality is comparable with radio sound
LESS THAN 128 KBITS/S	Low audio and sound quality

[10] http://www.koepenick.net/mp3.htm

In summary teachers with the aim to design audios for their classes and courses have to take under consideration that the quality of the produced sounds have to stick to a minimum level of quality to reach the needs for a successful lesson. Moreover, he or she has to thing about how to integrate the created sound into his lessons. All this questions can be pictured in the following process:

What a teacher should take under consideration if he like to create and use sounds in his learning scenario?

(1) The teacher has to set the goal and ideas of using the sounds:
   a. What benefits will be reached by using this sounds in my lesson?
   b. Helps this sound to learn faster, better, successfully etc.?
   c. How is the constellation of the learners? Is the classroom atmosphere concentrated or more excited and nervous?
   d. Etc.

(2) What are typical and authentic sounds for the given topic of the lesson?
   a. Where can be this sounds recorded?
   b. What can be background sounds in the learning situation?
   c. How can the learner be integrated in using this sounds? Are they useable for group discussions, role plays or any interactive way?

(3) What is the expected time/ time period for the classes?
   a. Who is the target group?
   b. How many lessen secessions will be create? One hour or a unit of many classes?
   c. Maybe the classes can be create like a project for the semester or course?

(4) What are necessary technical issues to record this sounds and audios?
   a. What kind of technical equipment is necessary for recording?
   b. Can I stick to basic rules of high quality audios, like reach a high kBits/s?

This queries should be seen as a first draw of ideas of what is important and what has to be under consideration if teachers and learners use and create sound for their learning scenario.

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