Case study of acoustic education for Korean music majors

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1. Introduction

For music majors, sensitivity to sounds is particularly important for musical performance and music production. Music schools generally provide traditional sight-singing and solfège programs as part of their ear training curriculum. The main purpose of such training is to acquire the musical skills on note reading and pitch identification; as such, they generally form a part of Western classical music course curriculums. In recent years, music fields have become so diversified that increased sensitivity to sound is required for students majoring in various types of music. The current case study focused on the development and application of acoustic education including ear training curriculums for students majoring in popular music.

Dong-A University’s Department of Music in the College of Arts was established in 1966 as the first university level music degree program in Busan, South Korea, to educate students to be skilled and highly qualified musicians and music theorists. The Department of Music offers both a vocal music program and an applied music program. The applied music program mainly focuses on popular music. The curriculums include courses in Western classical music, Korean traditional music, and popular music. Students also learn various related subjects including information technology.

The authors have previously attempted a technical listening training program for music-major graduate students at Dong-A University as a type of special class [1]. In addition, after curriculum reform in the 2011 school year, the courses “Sound & Hearing Training I, II” for undergraduate students and “Technical Listening Training” for graduate students were established as new formal offerings as part of the systematic acoustic education program. These courses feature a combination of the sound education exercise developed by R. Murray Schafer, who advocated the concept of soundscape, and the technical listening training program developed by the Department of Acoustic Design, Faculty of Design, Kyushu University (formerly the Kyushu Institute of Design) [3], and a set of lectures on basic acoustics.

The current article reports on the results of the above-mentioned acoustic education program for Korean undergraduate and graduate students of the applied music program (students majoring in popular music) of Dong-A University during the 2011 school year, a year in which both of the special classes (“Sound & Hearing Training I, II” and “Technical Listening Training”) were executed as a united class. While undergraduate students participated in the class during their first and second semesters, graduate students participated only in the first semester. The data were obtained by both questionnaires and interviews administered to the students who took part in both of the abovementioned special classes.

2. Contents of acoustic education

2.1. Sound education

R. Murray Schafer, who advocated the concept of soundscape, has actively examined sound education throughout his career [2]. The methods he developed for sound education are very popular among music educators around the world. However, his methods have not become too widespread because the target of his sound education extends to all kinds of sounds, while traditional music education focuses more on music in the traditional sense. Recently, however, various new practices in sound education have been developed in Japan, representing the state of the art of music education. A recent special edition of the Japanese Journal of Music Education Practice devoted to sound education even introduced these activities [4].

As the first step of acoustic education for students majoring in music at Dong-A University, the authors assigned Shafer’s sound education exercises to allow students to better understand the importance of listening carefully to sounds. Most students are typically interested in the sounds produced by musical instruments and songs. The aim of this type of sound education, however, is to allow the students to acquire a wider world view with respect to all types of sounds, and to acquire the ability to consider the meanings and values of those sounds.

Schafer regards the environment’s continuously changing soundscape as a great piece of music. He claims that developing an interest in identifying sounds in the environment is more important than practicing musical instruments or reading music scores. Thus, to him, sound education is a kind to music education to develop richer auditory sensitivity through listening carefully to environmental sounds.

For part of the sound education portion of the course, we selected certain exercises from Schafer’s book [2]. These

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exercises included a variety of tasks, such as writing down all
the sounds you hear on a sheet, chasing a moving sound with
your finger while closing your eyes, listening carefully to
specific sounds such as footsteps, and then counting them, and
writing a sound diary.

2.2. Technical listing training (TLT)

As for the technical listing training (TLT) portion of
the coursework, the sound materials developed by Kyushu
University were adopted as the main sound materials, and we
added some additional sound materials that we created for
some additional training. The presentation of the training
sounds was controlled by original software. The sounds were
presented from a loudspeaker (JBL JRX100) via a power
amplifier (Crown XLS202) and a sound mixer (Yamaha
MG166CX). The students responded by filling out an answer
sheet.

For the first step of the TLT, discrimination training for
pitch, loudness, and timbre was conducted during the first
semester so that students became accustomed to the overall
TLT training process. Subsequently, training in the identi-
fication of differences in the sound pressure levels of music
(−10 dB stepwise, −5 dB stepwise, −2 dB stepwise) and the
identification of pure tone frequencies (125 Hz, 250 Hz,
500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz) was conducted. During
the second semester, training in the identification of the
equalization frequencies of reproduced music in which a band
of sound was boosted +10 dB or +6 dB, and training of the
identification of differences in the mixing levels between
melody and accompaniment was conducted.

2.3. Lecture on basic acoustics

Concurrent with the progression of the TLT and sound
education coursework, lectures on basic acoustics were
provided. To ensure that these programs are effective, it is
important for students to understand the physical properties
of sounds and the concept of soundscape. The lectures provided
knowledge on such subjects as frequency (Hz), amplitude,
sound pressure level (dB), spectrum, and soundscape.

3. Questionnaire survey and student interviews

3.1. Questionnaire survey

A questionnaire survey regarding the two classes “Sound
& Hearing Training I, II” and “Technical Listening Training”
was conducted with the students.

To examine what students majoring in music think about
acoustic education, the students were asked to describe the
positive and negative aspects of the class, the practical use of
the class, and what they wanted to learn from the class in the
questionnaire survey. Furthermore, overall class evaluations
were conducted using five-step rating scales measuring
enjoyment, understanding, interest, participation, and satis-
faction.

Both the questionnaire survey and the class evaluations
were conducted anonymously, and the students were informed
that their answers would not affect their class grades. In
the last class of the first semester, the questionnaires were
distributed to the students following a description of the
instructions for filling them out. They were then collected
after one week. Five undergraduate and six graduate students
submitted their fully completed questionnaires, which reflect-
ed response rates of 62.5% and 50.0%, respectively. The
average number of years of music education among the
respondents was 10.1.

The results of the collected questionnaires are shown in
Table 1. The numbers shown in parentheses refer to the
number of students who provided a response to that particular
item. As shown in Table 1, many respondents noted the value
of the class. They showed positive responses with respect to
their experiences in carefully listening to ambient sounds
and reconsidering sounds from various perspectives. On the
contrary, they showed negative responses with respect to
the theoretical portion of the class because it was difficult
to understand.

The results of the student class evaluations are shown in
Fig. 1. For the five evaluation items, the highest possible
rating was 5. All of the mean evaluation values were higher
than the neutral value of 3. In particular, the mean values for
the undergraduate students were near 4.5 except for the item
related to understanding the class content. As for the graduate
students, their mean value of understanding was also the
lowest among all of the values. Overall, the results showed
that the students were interested and satisfied with the class
content, suggesting that the main objective of the class,
namely, acoustic education, was largely achieved. However,
it seems that further understanding of the class content on
the part of the students should be a goal of future classes.
For example, the current results indicated that lectures on
acoustics are not easy for music majors to understand, and
thus simpler ways of explaining such physical phenomena
should be considered.

3.2. Interviews on class content

A group interview regarding the overall class content
was conducted during the last class of the second semester.
One male and three female undergraduate students partici-
pated in the interview. After explaining that the purpose of
the interview was to receive feedback on the class content and
their answers were not affect their class grade, the students
provided their opinions on the class for approximately 90
minutes. As for the graduate students, proposals for class
exercises for future students were assigned.

A majority of the students stated that they had wanted to
take a course in technical listening training to better equip
them for identifying specific sounds as the auditory standards
of their primary instruments. They wanted to acquire an
increased sensitivity to sound by learning to control audio
equipment on their own after acquiring basic sound sensitivity
through training to identify enhanced frequency bands of the
sounds of solo instruments or vocals.

One student proposed a program to identify all of the
types of sounds from a single sound source as a possible
project in a sound education program. This suggestion was
prompted by the current curriculum's exercise in identifying
the representative sounds of a community. The students were
interested in studying the variety of sounds that can originate
from a single sound source.

As shown in Fig. 2, one graduate student proposed an
exercise to find the easiest sound to identify among a group
of various sounds, such as the sounds of a bottle, a paper box,
a bunch of keys, and a plastic bag, and them to assign order
4. Conclusions

This article reported on the results of an acoustic education class conducted with undergraduate and graduate students majoring in popular music in South Korea. The class activities consisted of sound education exercises based on the work of R. Murray Schafer, technical listening training based on the work of Kyushu University, and lectures on basic acoustics. A questionnaire survey showed that the students were generally interested in and satisfied with the class. The student opinions and proposals obtained through interviews and questionnaires were reflected in refinements made to the educational content and class materials for the classes planned for subsequent school year. Indeed, based on the class evaluations obtained from students of the university after the first semester of the 2012 school year, the class had been evaluated highly, as one of the excellent rank class. The combination of systematic knowledge on acoustics and listening experience of sounds might be effective for holistic understanding of sound used in music, because the students could learn about sound from manifold points of view.

Acknowledgment

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Table 1 Results of the class questionnaire (multiple answers allowed).

<table>
<thead>
<tr>
<th>Q1 Positive aspects of the class</th>
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<tbody>
<tr>
<td>I was able to experience intensive and careful listening to environmental sounds, such as natural sounds, household sounds, automobile sounds, and machinery noise, despite not listening to such sounds carefully in daily life (5).</td>
</tr>
<tr>
<td>I was able to think about sounds more deeply (4).</td>
</tr>
<tr>
<td>I was able to learn about sounds through both theory and practice (3).</td>
</tr>
<tr>
<td>While I am familiar with musical symbols, I was able to understand the concepts of dB and Hz and also confirm them through actual hearing exercises with my own ears (3).</td>
</tr>
<tr>
<td>I was able to improve my ability to listen to sounds through various types of training (2).</td>
</tr>
<tr>
<td>I was able to better analyze sounds in daily life by writing a sound diary (1).</td>
</tr>
</tbody>
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<tr>
<th>Q2 Negative aspects of the class</th>
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</thead>
<tbody>
<tr>
<td>The class met on Saturdays (2).</td>
</tr>
<tr>
<td>I was not able to fully understand the process of calculating the physical properties of sounds (2).</td>
</tr>
<tr>
<td>There were many difficult content areas to understand, but I made efforts to learn them (2).</td>
</tr>
<tr>
<td>The class time was a little long (1).</td>
</tr>
<tr>
<td>The training was effective, but it tested my limits of concentration (1).</td>
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<th>Q3 Benefits of the class</th>
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<tr>
<td>I was able to understand the concept of “decibel,” and I think I can now apply it practically in my work (1).</td>
</tr>
<tr>
<td>I was able to understand my weak areas with respect to the discrimination and identification of sounds (1).</td>
</tr>
<tr>
<td>I have learned to listen more carefully to environmental sounds that we normally tend to ignore in our daily lives (1).</td>
</tr>
<tr>
<td>I feel that this class should be a requirement for music majors (1).</td>
</tr>
<tr>
<td>The scientific theories of consonance and dissonance are useful (1).</td>
</tr>
<tr>
<td>I was able to greatly broaden my understanding and consideration of sounds (1).</td>
</tr>
<tr>
<td>I was able to improve my sensitivity to sounds somewhat (1).</td>
</tr>
<tr>
<td>Because the number of class meetings was small, I was not able to really internalize the beneficial aspects of the class (1).</td>
</tr>
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<th>Q4 Plans following the conclusion of the class</th>
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<tbody>
<tr>
<td>Experience the differences in the sounds produced by various electronic instruments controlled by electric resistors and reproduction environments (1).</td>
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<tr>
<td>Training in the mixing of music balances (1).</td>
</tr>
<tr>
<td>Knowledge of music mixing to create music similar to what is imagined (1).</td>
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<tr>
<td>Further learning about frequency (1).</td>
</tr>
<tr>
<td>Improving the ability to discriminate one’s weak points with respect to technical listening (1).</td>
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<tr>
<td>Having opportunities for sound meditation (1).</td>
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<tr>
<td>Participate in discussions of the effect of mood on sound perception (1).</td>
</tr>
<tr>
<td>Making new sounds through the sound performance of all class participants (1).</td>
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Fig. 1 Results of class evaluations on the acoustic education aspect of the class.

Fig. 2 Proposal for new sound education class exercise.

to them in terms of the easiness with which they could be identified.
References


