

Teachers' Beliefs and Actions on affective responses during music listening activities in higher education in China

Yan Su ^{1, a}, Yan Xiao ^{2, b}

¹ School of Art, Zhejiang International Studies University, Hangzhou 310023, China

² School of Art and Media, Beijing Normal University, Beijing 100875, China.

^a yanhz16@163.com, ^b xiaoyan@bnu.edu.cn

Abstract. Music listening is very important in all stages of music learning. Affective response and cognition take place simultaneously during the music-listening process. However, there is a paucity of research on how university music teachers deal with the issues of involving the affective responses of students in listening. This study employed a questionnaire survey to investigate the current situation of teaching beliefs and actions of music academics towards affective responses while listening to music in China. The views of 160 music university teachers recruited from 15 different universities have been surveyed. The questionnaire was designed based on the concept of music teaching and learning with an acceptable reliability of $K=0.58$. The survey data identified the potential correlation between the teacher's beliefs and their actions ($r=0.67$). Moreover, the possible correlation between several predictors associated with the teachers (gender, educational degree, teaching experience and the type of university, and so on) also have been investigated. The results of this study revealed that around 90% of respondents agreed that affective responses can be enhanced music cognition during the teaching process. The relationship between teachers' beliefs and actions is found to be positive but not linear related. In addition, it was found that the teacher's knowledge of effective pedagogical responses during music listening has the potential to broaden the scope of their teaching.

Keywords: music education; listening; affective response; belief; action.

1. Introduction

Although programs provided by conservatories or music schools intend to enable musicians to work intelligently and creatively towards their areas of interest, the teachers are also committed to helping students reach a high level of musical and intellectual development, the affective or aesthetic responses usually are not emphasized by teachers during their teaching [1]. Additionally, there has been little research focusing on the linkages between teachers' belief and action that conforms to the affective response domain for music majors in higher education contexts. The meaning of "affective responses" in Chinese music refers to the Confucian theory of "qing" (emotional, affective, feeling, sentiment) [2]. Since the Chinese philosophy is based on empiricism and the traditional values of "the unity of emotion and setting," the traditional model of music listening focuses on the "selfless emotion" or "emotion without self" which underlies the special emotion and setting in traditional Chinese culture [3, 4].

Up to now, little research has explored the relationship between the teacher's belief and action on music listening from a Chinese perspective, though the function and properties of music listening have begun to form the focus of experimental research conducted in the laboratory. Therefore, in recent years, most Chinese teachers are especially prone to emphasize "imagination" which reflects a belief that the more listeners' imagination is focused, the more affective responses are attained. This study aims to investigate and explore the current teacher's beliefs and actions on affective responses during music listening activities in higher education in China. In this study, a questionnaire survey was implemented to investigate the beliefs and actions of university teachers in China.

2. Theory of Affective Response

Since musical behavior can be divided into cognitive, performance, creation, and listening behaviors. Moreover, music is an aural experience, and listening behavior plays a central role in the process of music appreciation. Aural awareness is generally developed by improving listening skills. The listener's ears receive auditory stimuli, and then the inner neurological apparatus forwards this information to the brain as impulses, connecting to neural pathways, seeking to establish mental connections [5-7]. Regions of the brain related to the aural nervous deliver autonomic responses, which reveal cognitive processing and physical and emotional responses [8]. The mechanisms of the human body that are involved in listening to music are controlled by functions of the brain, including evaluative conditioning, brainstem reflexes, imagery, contagion, memory, and musical expectancy [9]. The complex interactions of the regions of the brain during the process of listening to music, result in both physical and affective responses to musical exposure, as well as influencing cognitive thinking and emotional and psychomotor responses in both personal and general contexts [10]. The entire listening process is associated with thinking and feeling. Brain regions are rapidly activated to generate cognitive thinking and provide instructions for the body, resulting in physical activity. Listening responses relate to whole-brain movements, while also involving intuitive physiological responses that can engage the listener in physical activity.

Central to the processes of the brain, thinking is as important as feeling. Both cognitive and affective responses take place simultaneously while listening to music. Human beings' emotional, cognitive, affective, and physical responses can take place simultaneously, interacting with each other, prompted by the musical structures perceived by the listener. It is important for educators and researchers to emphasize the skills of active listening when responding to listening activities, as such skills are essential for both performing and composing, and also address the importance of aural training in the field of music education. Human behavior can be divided into three basic categories: thinking, feeling, and doing. Music educators and a considerable number of psychologists usually link cognitive, affective, and psychomotor behaviors to the above categories, respectively [11]. Affective behaviors include the dimension of feeling, which is aroused by a stimulus working on the organism of perception, with affective responses reflecting both psychological structure and observable behavior [12]. A longstanding assumption concerning the affective response when listening to music is that this response is closely related to musical emotional and feeling [13-15]. Affective experiences are attributed directly to musical stimuli, which means there is a direct interaction between a series of musical stimuli and what individual is being heard [16]. When focusing on the affective response, it is necessary to discuss emotion. Musical emotion is included in the composition, rather than placing the external space, which integrates with melody, rhythm, modality, timbre, and other expressions. Therefore, the more the soul's pure feeling of itself is implicated in a particular experience, the more its emotions are intensified.

In 1996, Gregory and Varney found that European and Asian listeners respond completely differently to Asian and Western music, concluding that the backgrounds of the listeners determine their affective responses to the music [17]. In China, when musical emotion is discussed, it is generally associated with the setting, which reflects the "wholeness" of nature, and takes as its goal natural emotional expressionism. Listening to music needs to experience sound that is not produced by instruments, which implies a certain implicit attitude. Therefore, emotion in Chinese music is correlated closely with an aesthetic interest in the combination of emotion with the setting. Listening to music plays a vital role in musical appreciation, history, and theory, including instrumental or choral classes, in which teachers can employ videos, and material from the Internet, to play relevant music to students. During their classes, teachers emphasize the imaginative component present in the music to concerns that correspond most closely with Chinese culture. Certainly, the majority of teachers agree that imagination can assist listeners to engage with music.

Teachers in possession of professional classical and conservatoire educational backgrounds have little interest in introducing materials other than classical music, including those with the potential to be more popular with their students. Recent research has demonstrated that the relationship between professional musicians' biographies and their chosen musical genre affects their choice of music [18]. It is therefore essential to explore the relationship between teacher's beliefs and their actions in class, as accompanied by their affective responses to understanding musical involvement during formal music listening. However, a question remains concerning the issue of whether the tastes of music majors interconnect with their professional pursuits. Conversely, if their responses to music were stimulated by their interests and preferences this would then contribute to students' acquisition of music, rather than decreasing their intrinsic motivation. Educators and researchers need to emphasize the skills of active listening during the listening response, as these are essential for both performing and composing, and address the importance of the aural in the field of musical education. In addition, it is necessary to address the interaction between human and musical experiences that should apply to the teaching of music listening and pedagogy.

In summary, affective responses are regarded as an important aspect of music listening. Indeed, affective responses are considered a crucial component of a teacher's pedagogy. However, there is a paucity of research on how university music teachers deal with the issues of involving students' affective responses in listening.

3. Investigation Methodology

As the teacher's belief and action in a specific socio-cultural setting may influence the students' responses, we need to investigate the teacher's pedagogy including their perceptions and awareness towards the basic concept of music teaching, specific teaching strategies. This study employed a questionnaire survey to investigate the current situation of teaching beliefs and actions of music academics toward affective responses while listening to music in China. Three kinds of statistical methods were employed in this study: 1) descriptive statistics comprise the mean and standard deviation including the range between the highest and the lowest scores and the interquartile range, 2) the Pearson correlation coefficient was used to measure the degree of the linear relationship between two variables (teacher's belief and action), and 3) the multiple linear regression which was used to analyze four independent variables (teacher's gender, degrees, teaching experience and university-type) on whether it can predict the two dependent variables (teacher's belief and action). The SPSS 19.0 version was used in analysing the data.

3.1 Participants

The participants in this study consisted of 160 university-level music teachers, from five music conservatories and ten music departments of universities in Beijing, Shanghai, Guangzhou, and other four provinces in China. A total of 104 participants were female; 53 of the participants were male, and three participants did not indicate their gender (age: $M = 25.95$, $SD = 3.31$). All of the participants taught the courses including music history, composition, instrumental, voice, and music education), and they were instructed to fill out the questionnaire individually.

3.2 Questionnaire

The questionnaire featured 50 items (forced-choice, quantitative ratings, and open-ended responses), and was developed to investigate the current teacher's beliefs and actions on affective responses during music listening. Most of the questions were designed from the current literature aimed at the teacher's beliefs during their teaching and actions, which permit me to demonstrate the relationship between their belief and action in current pedagogy. The questionnaire was comprised of five parts which included demographic information for the participants (Questions 1 to 7); learning environment (Questions 8-11); teacher's belief (Questions 12-17 and Questions 40-50), including their perceptions toward the basic concept of music teaching, the essential concept of

music and education, the awareness and experience during music listening, the kinds of listening responses (cognition, affection and psychomotor), their understanding of imagination, and the teacher's perspectives on music majors' motivation; teacher's actions (Questions 18-39) involving teaching vocabularies (professional, experiential and behavioral), teaching styles, processes, and assessments; and open-ended responses to collect general comments and concerns with the actual implementation about the nurturing of affective responses, as well as the teacher's perceptions on the affective experience during music listening. Apart from the section on demographic information, all the others were indicated by different statements requesting the respondents to rate on a 7-point semantic differential scale with 1 = strongly disagree and 7 = strongly agree.

3.3 Hypothesis

The study was designed to test two null hypotheses. The first is that there is no correlation between teachers' beliefs and actions, as well as the importance of imagination emphasized by teachers relative to their actions during music listening. The second null hypothesis is that four of the proposed variables (teacher's gender, teaching experiences, educational background, and university type) cannot predict teachers' beliefs and actions.

3.4 Pilot study

A version of the survey questionnaire was pilot-tested with 30 music teachers who were different from the 160 participants in the main study, I invited these teachers through sending emails and they volunteered to participate in this pilot study. They completed the questionnaire individually to help identify any problems in terms of items or wording. Further, they helped to suggest additional responses that the questionnaire should address. After analyzing the pilot study, many amendments were made, the reliability was assessed with a Cronbach Alpha of .58 which indicates an acceptable internal reliability.

4. Results

Participants' responses were analyzed by the SPSS version 19.0. Open-ended responses were transcribed as text and then counted for their frequency of occurrence in categories. Based on the collected 160 questionnaires, a Cronbach alpha of 0.67 was received which indicates an acceptable reliability of internal consistency among all the items of the questionnaire. There are 35 items relating to the teacher's belief and action. Meanwhile, the reliability of the belief was 0.58 and action was 0.91, which indicates a high degree of internal consistency among the items on the scale.

4.1 The relationship between the teacher's belief and action

Thirty-five items on the questionnaire gathered data on teachers' belief of affective responses in music listening, specifically examining the current situation for their listening pedagogy and carrying out what kinds of strategies and points are emphasized while listening. A correlation between the teacher's belief and action indicated a significant positive relationship $r = 0.67$, $p < 0.001$. Based on Cohen's guidelines, the correlation of 0.67 corresponds to a large effect size in practice, suggesting a fairly strong positive relationship between teacher's beliefs on their perceptions toward the basic concept of music teaching, the essential concept of music, and education, the awareness and experience during music listening, and what they do in their action.

A total of 17 items related to teachers' beliefs has been included in this study, the internal consistency of the 17-item in belief scale indicates a high degree of internal consistency among all items on the scale, with the mean of the belief items ranging between 3.72 to 6.51. Although music cognition ($M=3.72$) is highly emphasized by teachers, they do not insist that the purpose of listening is for examination. However, imagination ($M=6.51$) shows a high score in the teacher's belief that conforms to the literature that imagination is emphasized more during affective responses in music listening. The internal consistency of the 18-item in-action scale with the coefficient alpha 0.913,

which indicates a high degree of internal consistency among all items on the scale, the means of the belief items ranging between 4.79 to 6.55. Additionally, the majority of teachers believe affective responses to be related to music listening with affection, and imagination is emphasized most in music aesthetics. It is found that imagination in teacher's belief and action reveals a high correlation, $r=0.61$, $p<0.001$, as well as the highest score ($M=6.51$) in belief and with the highest score ($M=6.55$) in action, respectively. Based on Cohen's guidelines, the correlation of 0.61 corresponds to a large effect size in practice, imagination demonstrating a positive relationship between teacher's belief and action, Table 1 demonstrates a summary of this data.

Table 1. Correlation between teachers' belief and action in imagination

		Belief (Imagination)	Action (Imagination)
Belief (Imagination)	Pearson Correlation	1.158	0.611**
	Sig. (2-tailed)		0.000
	N	160	160
Action (Imagination)	Pearson Correlation	0.611**	1
	Sig. (2-tailed)	0.000	
	N	160	160

4.2 The predictor: gender, degree, experience, and university-type

It is hypothesized that the four variables of gender, types of degree obtained, experience, and university types of teachers could not predict and influence the teacher's beliefs and actions. Multiple linear regression was used in this statistical analysis. The results of a multiple linear regression which was not conducted predicting teacher's beliefs, as well as the regression were not found to be significant, $F(6, 138) = 0.74$, $p > 0.05$, $R^2 = 0.03$, with the following variables as the predictor: gender, educational degree, teaching experience and the type of university. At the same time, a multiple linear regression that was not conducted predicting teachers' actions, as well as the regression was not found to be significant, $F(4, 141) = 1.03$, $p > 0.05$, $R^2 = 0.03$, with the above four variables. As a result, the null hypothesis holding that the four independent variables were to predict the two dependent variables should be rejected. The results presented that there is no linear relationship between the dependent variables and the independent variables. Therefore, the analysis of nonlinear regression should be used to deal with nonlinear relationships. Figures 1(a) and Figure 1(b) demonstrate a summary of this data. From the two figures of the scattering matrix, we can find that there is no clear relationship between aesthetic belief (action) and gender, degree, teaching experience, and university type respectively.

According to the findings from the study, firstly, a correlation between teacher's belief and action indicated a significant positive relationship; secondly, imagination was emphasized most in teacher's belief and action; and the four proposed variables (teacher's gender, teaching experiences, education background, and university type) do not predict teacher's belief and action.

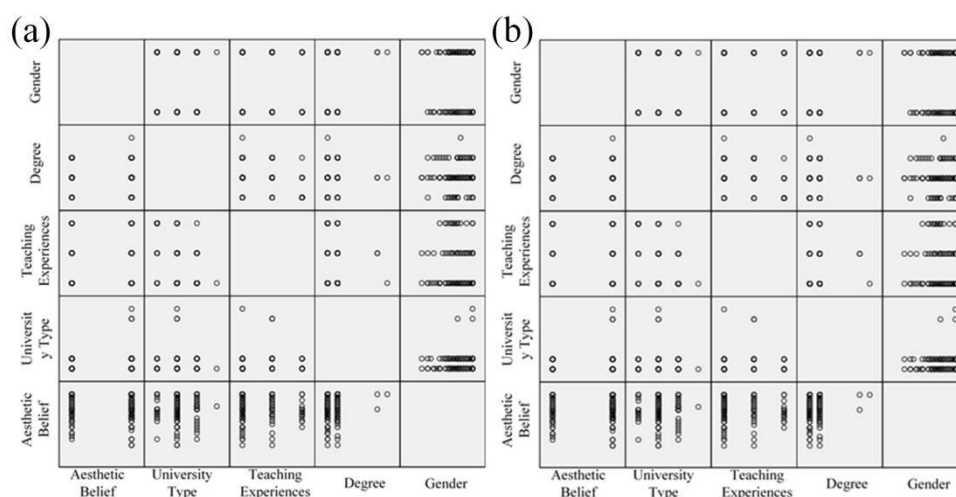


Fig. 1 The scattering matrix of (a) belief and (b) action, to describe the relationship between gender, degree, teaching experience, university type and teacher's belief.

5. Discussion and conclusion

This study aims to investigate the current situation of teaching beliefs and actions of music academics toward affective responses while involving students in music listening in China. A questionnaire survey was implemented to investigate the belief and actions of university teachers in China. From the literature on Chinese culture and music education in higher education, it is found that teachers' beliefs and actions are highly connected with the affective domain. Findings show that the potential correlation exists between the teacher's beliefs and their actions, while imagination serves as an important element in teaching strategies. However, it was found that the factors of a teacher's gender, degree, teaching experience, and university type cannot influence or predict a teacher's beliefs and actions. As a finding from the open-ended questions in the questionnaire, three major issues were identified and considered critical to informing the beliefs and actions of teachers when teaching music in higher education classes in China. The first issue relates to the traditional teaching approaches, the second concerns teacher's beliefs and experiences about learning music, and the last issue is the interaction between teachers and students. The findings imply that a balance between cognitive and affective responses during music listening might be necessary. The listening process not only generates aesthetic experiences, but also involves active responses to sounds, requiring a pedagogy that not only focuses on identifying the elements of music, but also paying attention to the feelings, emotions, and mood. In other words, cognitive-affective responses may enable students to immerse themselves in music learning. For example, the teacher is encouraged to have more interaction and discussion with the students and care about their musical interests. By introducing unique programs into the classroom, whilst simultaneously improving teaching strategies instead of maintaining the teacher-centered model, institutions will provide more teaching materials and in-service opportunities for teachers. Moreover, the national policy must be adapted so that the performance of teachers in higher education is better supervised. Recently, a national evaluation report recommended considering teaching performance in the teacher assessment system in higher education. The aim is to create a high standard of ideological and cultural development and to ensure that the high educational quality in higher education is well-disciplined.

In conclusion, the pedagogy in higher education in China faces a challenge concerning music listening. Although cognitive-affective responses and relationships between teachers and students are emphasized, a better approach to resolving the current difficulties would be to address holistic

personal development, including cognitive development, social skills, and other aspects of learning. Moreover, the value associated with different aspects of education requires urgent attention.

6. Acknowledgment

The authors are thankful for the financial support from the Zhejiang International Studies University's key project (NO. 090500112016) and, the first-class curriculum construction project from the Department of Education of Zhejiang Province (NO. 080830302022).

References

- [1] S. Nieminen, E. Istok, E. Brattico et al. The development of aesthetic responses to music and their underlying neural and psychological mechanisms. *Cortex*, 2011, 47(9): 1138-46.
- [2] X. Wang, Y. Wei, L. Heng et al. A cross-cultural analysis of the influence of timbre on affect perception in western classical music and chinese music traditions. *Front Psychol*, 2021, 12(1): 732865.
- [3] T. Kuan. Understanding emotion in chinese culture: Thinking through psychology. *Ethos*, 2017, 45(1): E1-E3.
- [4] L. Crust, P. J. Clough, C. Robertson. Influence of music and distraction on visual search performance of participants with high and low affect intensity. *Percept Mot Skills*, 2004, 98(3): 888-96.
- [5] C. M. Vanden Bosch der Nederlanden, M. F. Joannisse, J. A. Grahm. Music as a scaffold for listening to speech: Better neural phase-locking to song than speech. *Neuroimage*, 2020, 214(116767).
- [6] M. Reybrouck, P. Vuust, E. Brattico. Neural Correlates of Music Listening: Does the Music Matter? *Brain Sci*, 2021, 11(12):
- [7] A. Gupta, B. Bhushan, L. Behera. Neural response to sad autobiographical recall and sad music listening post recall reveals distinct brain activation in alpha and gamma bands. *PLoS One*, 2023, 18(1): e0279814.
- [8] V. Menon, D. J. Levitin. The rewards of music listening: response and physiological connectivity of the mesolimbic system. *Neuroimage*, 2005, 28(1): 175-84.
- [9] P. N. Juslin, D. Västfjäll. Emotional responses to music: the need to consider underlying mechanisms. *Behav Brain Sci*, 2008, 31(5): 559-75; discussion 575-621.
- [10] R. E. Beaty, C. J. Burgin, E. C. Nusbaum et al. Music to the inner ears: exploring individual differences in musical imagery. *Conscious Cogn*, 2013, 22(4): 1163-73.
- [11] P. N. Juslin, P. Laukka. Expression, Perception, and Induction of Musical Emotions: A Review and a Questionnaire Study of Everyday Listening. *Journal of New Music Research*, 2004, 33(3): 217-238.
- [12] M. Baltazar, S. Saarikallio. Toward a better understanding and conceptualization of affect self-regulation through music: A critical, integrative literature review. *Psychology of Music*, 2016, 44(6): 1500-1521.
- [13] O. Grewe, F. Nagel, R. Kopiez et al. Emotions over time: synchronicity and development of subjective, physiological, and facial affective reactions to music. *Emotion*, 2007, 7(4): 774-88.
- [14] M. Vincenzi, E. Borella, E. Sella et al. Music listening, emotion, and cognition in older adults. *Brain Sci*, 2022, 12(11):
- [15] A. Battcock, M. Schutz. Emotion and expertise: how listeners with formal music training use cues to perceive emotion. *Psychol Res*, 2022, 86(1): 66-86.
- [16] V. N. Salimpoor, M. Benovoy, G. Longo et al. The rewarding aspects of music listening are related to degree of emotional arousal. *PLoS One*, 2009, 4(10): e7487.
- [17] A. H. Gregory, N. Varney. Cross-cultural comparisons in the affective response to music. *Psychology of Music*, 1996, 24(1): 47-52.
- [18] A. Creech, I. Papageorgi, C. Duffy et al. From music student to professional: the process of transition. *British Journal of Music Education*, 2008, 25(3): 315-331.