Development of Online Music Education Supporting Autonomous Learning

Lei Tian*

Heilongjiang University of Technology, China, 158100

*Corresponding author e-mail: nai1vnz@163.com

Abstract. Through the investigation and study on the autonomous learning of music major students in the network environment, the characteristics of generality and individuality of music major students in autonomous learning under the network environment are analyzed in this paper, and some problems are identified. After research, solutions to these problems are proposed to guide students of music majors to use scientific and advanced online learning styles to learn music theory knowledge and skills, make up for the insufficiency of traditional teaching methods and achieve the purpose of promoting and improving learning efficiency.

Keywords: Online Music, Network Environment, Autonomous Learning

1. Introduction

Cultivating the ability of students in music majors to learn autonomously in an online environment, and mastering the scientific, reasonable, and advanced autonomous learning styles and teaching methods is conducive to improving the abilities of the students, laying a solid foundation for their studies and future work [1]. As “education should aim at training students’ independent thinking and self-management ability, and provide students with the skills and abilities needed for independent learning in the future”, autonomous learning is not only necessary but also essential. The so-called autonomous learning means that students are inspired by the teacher during the teaching process. With the guidance and help of the students, through their own exploration of the problem, they can participate in the process of solving the problem and gain knowledge independently to address the problems and learn how to solve them [2]. In autonomous learning, “students are taken as the main body of learning, through their independent analysis, exploration, practice, questioning, creation and other methods to achieve personal learning goals and learning processes and processes”. With the popularity of the Internet, the development of autonomous learning based on the network environment is developing rapidly [3] under the network...
environment. Autonomous learning allows students to identify and solve problems with a strong desire and urgency on the premise of fully leveraging the advantages of the network. Through the inquiry methods, they can participate in the learning of various courses independently, so as to achieve problem solving and mastery. The corresponding subject knowledge and the purpose of multiple abilities [4]. Autonomous learning is more suitable for conducting in a network environment because the network has massive resources required for research, which can help students establish a group collaboration mechanism, and allow teachers to implement asynchronous guidance [5].

The fundamental goal of higher education is to cultivate talents with innovative abilities required by the country. “One of the basic laws that modern higher education must follow is to cultivate students' autonomous learning ability, which is suitable for all disciplines of higher education.” Music is one of the most ancient and influential art forms of mankind. As an essential form and carrier of human culture, the music contains rich cultural and historical connotations, with a unique artistic charm. The rich cultural heritage of music has offered extensive possibilities for the learning autonomy of students. After years of practice and exploration, music education has accumulated some successful experiences in curriculum setting and teaching, but due to the influence of traditional teaching modes, the teaching mode and teaching methods of music education in China still follow the traditional teaching approach, which is limited mainly to what the teacher teaches and what the students learn. The role of teachers in teaching is overemphasized, hence the cultivation of students' autonomous learning ability is neglected. Students of the music major also have a special dual identity of current students and future teachers. Their learning styles, learning attitude, knowledge structure, skills structure directly affect the educated from generation to generation. In the network environment today, autonomous learning for music majors will completely overcome the limitations of traditional music education and traditional learning in space, time, age of education, teaching environment, etc., thereby meeting the needs of society to the greatest extent. The network environment provides students with autonomous learning with various learning signals with rich pictures, texts, sounds, and videos, which are conducive to training the creative thinking and divergent thinking of students; establishing the connection between new and old knowledge; helping students of music majors master scientific, reasonable, advanced learning and teaching methods, laying a solid foundation for their study and future work.

2. Support the development of online music education for autonomous learning

2.1 The change of teacher's role in students' autonomous learning

Autonomous learning does not mean self-study, but students actively and effectively learn under the guidance of a teacher, so the role of the teacher is also irreplaceable in the autonomous learning process of music majors. In the music teaching process, traditional learning It is usually centered on teachers, classrooms, and books. Teachers are the main body of the classroom. Teachers and students communicate face-to-face with fixed teaching content and evaluation standards. The core of education is also knowledge-based. What students teach and what teachers teach In the process, it does not reflect the interaction between teachers and students. In the teaching under the network environment, to better guide music students to learn autonomously, first of all, teachers must change their roles and change from teaching fish to teaching fish. Transformation: The teaching process should be based on students. Students in autonomous learning are the makers of their own learning goals, the selectors and implementers of their learning strategies, and the evaluators of their own learning. This type of student-
based learning model is in the learning process can the student's initiative and enthusiasm be fully utilized so that the student's learning becomes creative and meaningful. Learning. The role played by the teacher in this process is a guide for students' autonomous learning. Teachers let students learn to explore ways to solve problems by themselves in various ways. Students are active builders of meaning, not passive external stimuli. Recipients: Teachers are the helpers, organizers, and facilitators of students' meaning construction, not the inculcators of knowledge. For example, when introducing the relevant content of the famous musician Nie Er, the teacher can ask a series of questions while teaching the knowledge: What are other musical works of Nie Er? What else do you know about him? Who are the national musicians of the same period? These questions can allow students to find answers online and share them with their classmates. The relevant knowledge of the course or the major can integrate all the courses related to the entire subject category, historical subject data, cutting-edge information, etc., awaken students' awareness of autonomous learning and active participation so that students can be selective, active, motivated, and creative. It has provided options, rich and easily accessible disciplines, standardized online learning resources combined with subject information, information literacy, academic literacy, etc. These resource forms must have both text, song scores, audio, video, animation, and proper ways to obtain the above resources from the Internet.

2.2. Students should master the correct method for autonomous learning

1) Establish self-learning subject status and learn to learn independently

Through investigation and research on the autonomous learning of music major students in the network environment, it is found that the learning ideas of some students in music majors are still based on the teaching method of taking teachers as the main body and passively receiving knowledge, and they have not been able to play their main role in learning. How to carry out autonomous learning under the network environment? It requires learners to establish the subject status of self-learning. Students are the subjects of cognition and inquiry, and they are the conscious people who learn and grow on their own. Students must choose the learning content and adjust independently. Learning strategies, self-planning, and management of online learning time, self-judgment, and evaluation of learning results. In the online environment today, music majors need to learn to monitor themselves through self-directed learning. It is necessary for students to change the “teaching-based” learning model, establish their subjective status in learning, and learn autonomously.

2) Establish a correct network view and use network resources proactively to learn music theories

The autonomous learning of music major students in the network environment has different characteristics from other learning. It has the characteristics of rich resources and no time and space restrictions, and it can better highlight the subject status of students in autonomous learning. Undoubtedly, this learning style will greatly improve the innovation capabilities and divergent thinking of students, to improve their learning initiative, creativity, and enthusiasm. However, such a relaxed autonomous learning environment also has certain disadvantages. During the learning process, students are easily exposed to some novelties on the Internet. According to investigations, during the autonomous learning process of music majors, many students cannot control themselves. Some learners did not choose the appropriate information resources when they study in an online environment and learn whatever they find online, no matter it is worth learning or not. Some students may stop learning when
they are attracted to online games during the learning process. Some students use QQ to chat with friends while learning and even give up learning when they have a good time chatting. Some students want to learn, but they have no idea what to learn when they face massive resources on the Internet. This requires the learners to establish a correct view of the network, use modern information technology, and try to be the masters of information technology tools instead of their slaves. Students should strengthen self-management in the learning process. Self-managed learning includes self-observation, self-knowledge, self-selection, self-construction, self-regulation, self-evaluation self-motivation, and self-learning. When carrying out self-learning, students should strengthen the awareness of online learning and cultivate the ability to collect and process information. Otherwise, they can deviate from the learning direction because of the freedom of learning, resulting in low learning efficiency.

In the network environment, independent learning of music also requires the collection of some outstanding music websites, such as the National Basic Education Resources Network, Hong Xiao Music Education Workstation, Classical Composer Archives, Children's Music Network, and CNKI. These websites have a lot of theoretical knowledge and practical methods that students need to learn. Only when the students collect more excellent music websites can they easily find the answers to the questions on related websites when they encounter problems. Through the effective use of network resources and autonomously combine the information required, the new and old knowledge are linked so that the knowledge that they have mastered can become richer and richer, which is conducive to memory, and continually improves students' musical theory literacy.

How to classify these websites, for example, given an input feature vector \( v = [v_1, v_2, \cdots, v_V]^T \) of length \( V \), where \( v \in \mathbb{R}^V \) and the corresponding K class vector \( y = [y_1, y_2, \cdots, y_K]^T \), where \( y = [y_1, y_2, \cdots, y_K]^T \) is \( y \in \{1, -1\}^K \), with a linear kernel to address the original optimization of the normal vector w of supervector, as shown in equation (1):

\[
\min_{w,b,\xi} \frac{1}{2} w^T w + c \sum_{i=1}^{V} \xi_i - \frac{n!}{r!(n-r)!}.
\]

(1)

Where \( c > 0 \) is the regularization constant and the acceptable tolerance is defined using the relaxation variable \( \xi \), as shown in equation (2):

\[
y_i \left( w^T \psi_r (v_i) + b \right) \geq 1 - \xi_i, \xi_i \geq 0, i=1 \cdots V\]

(2)

Classification of music websites according to formulas (1) and (2), and autonomous learning based on their own interests and specialties.

3) Make full use of network resources for learning and continuously improve professional music skills.
In the study of professional technical courses, the traditional teaching method is slightly behind. For example, in vocal music learning, it is mainly based on teachers 'face-to-face teaching. This teaching method allows teachers to identify problems directly and solve the problems of students in learning. It helps to consolidate students' singing skills. However, after all, students have limited time to study with their teachers. How can they learn the most in limited class time?

There is a wealth of vocal learning resources on the Internet, including a series of theoretical knowledge, such as the method of practicing breaths and vocalization methods. There are also many excellent teaching videos on the Internet. Students can choose the appropriate videos for their own situation or under the guidance of the teacher to watch and learn. While watching excellent vocal performance videos, we can listen carefully to the vocal methods of others, or learn their performance methods, and connect what we have learned with what we have seen with our own learning. In an excellent vocal performance, it examines not only the singer's singing skills but also the singer's creative methods, style analysis, understanding and grasp of vocal works. It is an effective use of singing techniques and reasonable use of performance methods. It is about the singer's comprehensive skills. When a singer performs a song, people should first understand its author, creative background, the meaning of lyrics, etc. There is a large amount of such information on the Internet, and learners can search for the purpose of the works by searching on the Internet, which can help understand the mastery of performers on the works.

There are also many excellent vocal teaching websites on the Internet, such as vocal teaching websites, royal vocal teaching networks, vocal teaching and learning networks, etc. Students can not only listen to excellent vocal works, learn vocal teaching methods on these websites, but also upload their singing shows to share and exchange learning experiences with more learners so that they continue to improve. Figures 1 and 2 show the schematic diagram of learning based on network micro-learning.

**Figure 1.** Schematic design of a new music teaching model based on micro-lectures
Figure 2. The implementation plan of a new music teaching model based on micro-lectures

As the Internet has a wealth of information resources, various interconnected materials can bring more challenges to learners than the traditional classroom model. Hence, learners should not cut corners when they conduct autonomous studies in the network environment. They should accurately identify their actual level and study base. This requires learners to set specific study goals and develop detailed plans that suit themselves, learn to analyze the availability of online information, reject the dross and take the essence of the massive data on the network, strictly control themselves and keep working towards their goals. In the process of autonomous learning, learners need to pinpoint their learning goals and make learning plans. Students intending to take the postgraduate exam can use the rich online resources and pay more attention to the information related to the major of interest, no matter it is music aesthetics, western music history, music education, theoretical composition, or other related majors. After they set their goals, they can find a lot of learning resources on the Internet.

3. Conclusions

For students of music majors, autonomous learning is different from the traditional learning model, highlighting the main status of students' learning. Learners can use network technology and abundant online information resources under different online learning environments to select the learning contents and methods freely; develop learning plans and set learning goals; arrange learning time and place independently to achieve the learning effect of knowledge acquisition and innovation. It has broken away from the limitations of traditional music teaching models in time, space, and teaching content. This learning style is conducive to enhancing students' learning interest and awakening their consciousness of autonomous learning; improving the autonomy and innovation capability of students in music majors. The promotion and application of this learning style will lay a solid foundation for cultivating innovative music teachers with excellent overall quality.
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