

# The Use of Cloud Platform Technology to Help University Music Teachers Teaching Decision-Making Research

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**Abstract:** With the COVID-19 pandemic, more and more universities are turning to online teaching, and music teaching is no exception. Because music teaching pays attention to the particularness of teachers' demonstration and students' imitation, the change of teaching environment from offline teaching to online teaching has a greater impact on the music discipline, which has new requirements for teachers' decision-making level. Through literature and questionnaires, this study identified that the most significant factor affecting teachers' decision making after the teaching environment was changed to online teaching was teacher-student interaction and designed a model to improve the interactive teaching of teachers through cloud platform technology. It is found that the model can effectively improve the interaction between teachers and students, so that teachers can make good decisions more easily and easily, so as to improve students' music scores and achieve effective teaching.

**Keywords:** Cloud Platform Model; Music Online Teaching; Effective Teaching; Music Teacher Decision-making.

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## 1. Introduction

Teaching decision-making is a basic skill of teachers [1]. Classroom teaching decisions play an extremely important role in contemporary music education [2]. She believed that music teachers can guide students to become interested in music through teaching decisions. In the process of learning music, students can cultivate their comprehensive quality, exercise their thinking ability, and promote their all-round development. Therefore, improving the decision-making ability of music teachers is of great significance to the effective teaching of teachers and the academic performance of students.

With the epidemic of covid-19 in the world, teachers must move their teaching to the Internet [3]. Changes in the teaching environment are bound to affect faculty decision-making [4]. As the teaching of music discipline in universities is different from that of general disciplines, Music discipline has the particularity of one-to-one teaching and teachers' demonstration of music skills. so, the transfer of teaching environment from offline to online teaching has a greater impact on music teachers' decision-making [5]. Through literature and investigation, this study finds out the factors that affect university music teachers' decision making in network teaching, and designs a model combined with Cloud platform technology to help university music teachers easier and more convenient to make better decisions to teach effectively.

## 2. Literature Review

**Teacher decision making:** Teacher's teaching decision-making refers to a series of dynamic processes in which teachers determine the most effective teaching plan according to their own beliefs, knowledge, and practical wisdom to achieve teaching goals and complete teaching tasks through prediction, analysis, and reflection on teaching practice [6]. Teachers' teaching decision-making is the bridge and link

between teachers' thinking and practice, the expression of teachers' subjective will in the teaching process and plays a role in organizing and guiding teachers' behavior. The purpose of teachers' teaching decision-making is to improve the effectiveness of teaching, and the realization of this purpose is mainly reflected in the process of teachers' teaching decision-making [7].

**Online teaching:** Online teaching is a teaching model under the guidance of certain teaching theories and thoughts, using multimedia and network technology, through the teachers, students, media and other multilateral, multi-directional interaction and the collection, transmission, processing and sharing of multi-media teaching information, to achieve teaching objectives [8].

**Classroom environment:** Classroom environment refers to the sum of external conditions that affect classroom life [9]. Including material (such as classroom supplies, sunlight, ventilation, etc.), psychological (such as group goals, public opinion, emotional life, norms of behavior, interpersonal relations, class discipline, tradition, etc.), social (such as teacher quality, school management level, parents' cultural literacy, community cultural environment and social fashion, etc.). The classroom environment directly affects the teacher's decision making [10].

**Cloud platform:** Cloud platform can be understood as a provider that exists on the Internet and is able to extend and provide basic services, data, middleware, data services, and software to other users [11].

**Internet connection:** In online teaching, the quality of Internet connection is the most direct factor affecting students' learning quality and teachers' teaching effect [12]. The quality of the Internet connection also directly affects how teachers make decisions.

**Teaching tool:** Due to the particularity of college music teaching, many teaching tools are often needed to assist teaching (such as piano, zither, dulcimer, etc.). because to the reason of covid-19, students must stay in the school dormitory

to online learn and do not have enough tools (piano, zither, dulcimer, etc.) to study [13]. Due to the limitations of online teaching, inadequate preparation of teaching tools will directly affect teachers' effective decision-making [14].

Teachers' multimedia application ability: Online teaching requires teachers to be proficient in the application of multimedia software, which directly affects how teachers make decisions in teaching [15].

Teacher-student interaction: Students are the direct participants and direct feelings of teachers' teaching, and the differences of individual students directly affect how teachers make decisions [16]. Compared with offline teaching, online teaching will greatly change the way and degree of interaction between teachers and students [17]. Different from the teaching methods of general subjects, music teaching pays more attention to the interaction between students and teachers because of the teaching of performance skills. The degree of interaction between students and teachers directly affects how teachers make decisions [18].

### 3. Method

#### 3.1. Questionnaire Design

Step1: The biggest difference between online teaching and offline teaching of college music is the change of classroom environment. By combing the relevant literature, the author finds out four factors that affect the online teaching decisions of college music teachers, namely: Internet connection, Teaching tool, Teachers' multimedia application ability, Teacher-student interaction.

Step2: The questionnaire was designed based on the four factors. The questionnaire was divided into three parts. The first part was the basic information of the respondents (gender, age, etc.). The second part was four influencing factors, which were designed in the form of 5-point Likert scale. The third part is open questions: Why do you think this factor (the factor with the highest score in Part 2) most influenced your decision making?

#### 3.2. Data Collection

In September 2023, the questionnaire was distributed in the School of Music of B University in Jinan, Shandong Province. Because the research subject of this study is the factor affecting the online teaching decision of music teachers, the questionnaire was distributed to all music teachers at the School of Music of B University. Before the questionnaire was distributed, the school leaders, college leaders and teachers had agreed, and the questionnaire was filled anonymously.

The School of Music of B University is an art college established earlier in China. There are 150 faculty and staff members, including 15 professors, more than 30 associate professors, 35 master supervisors, 1,551 undergraduates, nearly 150 graduate students, and 3500 students receiving letter education.

Due to the epidemic, the questionnaires were distributed and collected online. 150 questionnaires were sent out and 150 were collected, with a recovery rate of 100%.

### 4. Data Analysis

Through the questionnaire analysis of 150 teachers, it is found that teachers think that the biggest factor affecting their decision-making in online teaching is the degree of interaction between teachers and students, which may be

caused by the particularity of music teaching (Table 1). Because the teaching of music skills in college is mainly one-to-one teaching between teachers and students, teachers need to demonstrate skills and students need to imitate learning, so teachers and students need a lot of interaction during teaching [19]. The Internet connection factor is the smallest factor affecting the decision making of music teachers in online teaching, which may be caused by the continuous improvement of China's infrastructure, the continuous expansion of network coverage and the continuous improvement of network stability [20].

Table 1. 5-point Likert scale for factors affecting music teachers' online teaching decisions.

	Internet connection	Teaching tool	Teachers' multimedia application ability	Teacher-student interaction
Grade	1.51	3.32	3.23	3.84

#### 4.1. Cloud Platform Model

Based on the analysis of the questionnaire, it is found that the most significant factor affecting music teachers' decision-making in online teaching is teacher-student interaction. Through the analysis of the open questions of the questionnaire, which took the interaction between teachers and students as the most significant factor, it was found that music teachers generally believed that due to covid-19, students had to live in the dormitory and have classes, so they could not preview and review their music skills in daily time, and they could not fully learn teachers' playing skills in online class, resulting in the slow teaching progress of teachers. Students' learning efficiency is low, and teachers' difficulty in making good decisions increases.

This study uses cloud platform technology to build a framework to solve these problems, to help teachers make good decisions better and easier (Figure 1).

1. Teachers put teaching content, playing skills and other resources into the school's cloud platform in advance, and students watch them before class, and can choose to ask questions anonymously or not anonymously. Teachers can prepare in advance after receiving questions on the platform, and explain them in the online teaching, which can reduce the difficulty of teachers' decision-making in online teaching. It makes it easier for teachers to make good decisions.

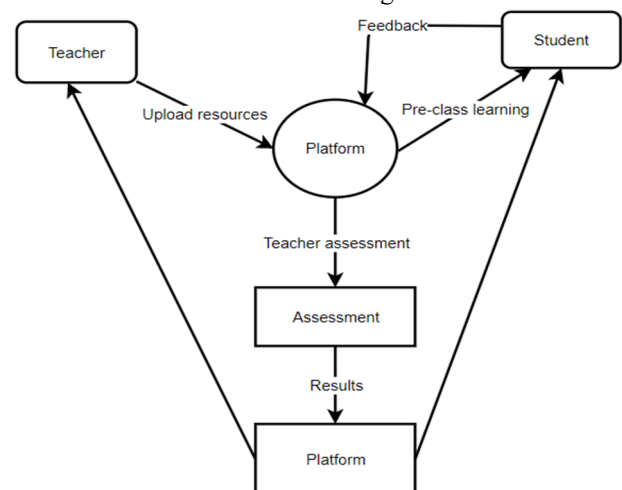


Figure 1. Cloud platform model

2. Students can also watch teaching videos through the

platform to review their learned performance skills and interact with teachers through the platform at any time, thus increasing the degree of interaction between teachers and students.

## 4.2. Experimental Design

To verify the effectiveness of the cloud platform, this study was conducted in the School of Music of University B from October 2022 to January 2023. Teachers make decisions for effective teaching, and students' scores directly reflect whether teaching is effective or not (Kane,2008). Therefore, the experiment selected 20 students who were taught by the same music teacher and recorded their latest examination scores. According to the scores, they were equally divided into the control group (10 people) and the experimental group (10 people). The control group did not use cloud platform to assist teaching, and the experimental group used cloud platform to assist teaching. The final test will be held in January 2023, and the results of the two tests will be compared to verify the effectiveness of the cloud platform.

Table 2. Test Result

No	Control group		Experimental group	
	First result	Second result	First result	Second result
1	75	75	75	80
2	78	80	77	81
3	82	80	79	83
4	83	85	84	87
5	85	87	86	90
6	87	86	88	89
7	88	85	89	93
8	89	85	91	94
9	92	90	92	94
10	93	93	92	95
<b>Mean of score change</b>	-0.6		3.3	

Through the analysis of the results (Table 2) of the two exams, it can be found that music is different from other subjects. In the process of music teaching, teachers need to constantly demonstrate and guide students, and students need to constantly practice improving their own scores [21]. Due to online teaching, students in the control group lack of interaction with teachers and self-practice, leading to a decline in music test scores, while students in the experimental group, with the help of cloud platform, can fully interact with teachers and have enough performance videos as reference, and generally improve their test scores, which indicates that cloud platform can make it easier for teachers to make favorable decisions in online teaching. Improve the teaching effect.

## 5. Discussion

Regarding the first research question, what are the factors that affect the decision making of university music teachers after the teaching environment is changed to online teaching? The author found that the highest ranked factor is teacher-student interaction, which may be due to the particularity of music discipline, and music teaching requires constant interaction between teachers and students (Biasutti, 2022). The least influential factor was Internet connectivity. This

may be due to the continuous development of Internet technology in China, and the Internet connection has become more and more stable [22].

As for the second question, the cloud platform technology is used to establish a model to help teachers make better decisions in online teaching, to achieve effective teaching. Experiments show that the cloud platform technology can help music teachers make better decisions in online teaching. This is consistent with the researcher's view that science and technology can help education progress [23].

As for the second question, the cloud platform technology is used to establish a model to help teachers make better decisions in online teaching, so as to achieve effective teaching. Experiments show that the cloud platform technology can help music teachers make better decisions in online teaching. This is consistent with his view that science and technology can help education progress.

## 6. Conclusion

This study found that after college music teaching had to shift from offline to online teaching due to the COVID-19 pandemic, with the changes in classroom teaching environment, the factors influencing music teachers' decision making are also changing the most significant factor affecting music teachers' decision-making was teacher-student interaction. This study also designs a model through cloud platform technology to improve the interaction between teachers and students in music teaching, to help teachers make good decisions more easily and conveniently and achieve effective teaching.

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