

# Challenges Confronted in Online Teaching for Oil Painting Conservation and Restoration Course

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**Abstract:** The study aimed to explore the challenges confronted in online teaching for oil painting conservation and restoration course. A qualitative method of data collection was employed and the semi-structured interviews were conducted. 21 samples were chosen from professionals as professors, deans and IT specialists. The data collected through semi-structured interview were recorded and transcribed verbatim by qualitative analysis software ATLAS.ti 9. The research findings reflected that ① the challenges encountered in online teaching Oil Painting Conservation and Restoration courses were mainly demonstrated in six aspects: the environment, the equipment, the software, the Internet, the students' aspect, and the teachers' aspect ; ② the two most acute and salient factors account for these challenges were "LESS INTERACTION" and "LESS PRACTICAL PRACTICE". The study illustrated these challenges profoundly and put forward suggestions for trouble-shooting to better take advantage of the online teaching device and module.

**Keywords:** Online Teaching, Oil Painting Conservation and Restoration, Equipment, Platform, Software, Interaction.

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## 1. Introduction

A Sino-Italian Conservation and Restoration for Cultural Heritages Research Center (SICRCHRC) was established in Luoyang, Henan, China in October 2019. By January 2021, five Chinese colleges, one Italian academy of fine arts, and one Italian university join it this SICRCHRC. Though Conservation and Restoration of Cultural Relics related academic departments have been established in these institutions, very few Chinese universities offer oil painting specific conservation and restoration courses. The main reason lies in the lacking of excellent teachers, and it takes quite a long time to cultivate excellent teachers in this program. Therefore, it is very important to address excellent teachers shortage issue (Yuan, 2019; Sun, 2019; Wu, 2019).

One of the tasks of the Sino-Italian Cultural Relics Conservation and Restoration Research Center is to share teaching courses, faculty staffs, and experimental equipment. However, due to the scarcity of oil painting teachers in individual universities and demanding teaching and research working load for these faculty staffs, they cannot leave their original universities or put aside their post and responsibilities for a long time. Therefore, it is necessary to establish an online course module through new technology and to design the core course of oil painting restoration into an online teaching mode (Sun, 2019). The objective of this study is to explore the challenges confronted in teaching online oil painting conservation and restoration course by analyzing the faculty members' perspectives and put forward suggestions for trouble-shooting to better take advantage of the online teaching device and module.

## 2. Literature Review

The faculty members problems with online teaching resulted in the identification of three inductive categories: instructional processes, community concerns and technical issues. The eight themes emerged from these three categories include the following: (1) complexity of the instruction, (2)

lack of planning and organization, (3) lack of effective communication, (4) needs for more time, (5) lack of institutional support, (6) changing roles, (7) difficulty of adoption to new technologies and (8) lacking of electronic means. It indicated that teaching online courses can be highly complex and it had different teaching patterns, which, in turn, impacted successful implementation of the college courses (Ocak, 2011). The teacher had to spend much time in preparing and sending preview materials but received little positive feedback for the before-class work (Yang et al., 2020). Some students expressed their frustration that exam frequency was too fast-paced and several students were also affected by unstable internet connection in online class (Lapitan et al., 2021). Despite the course attendance is required, the students may secretly switch to other apps or browse web-pages during online course teaching. These actions were not informed by the teachers (Yang et al., 2020).

## 3. Methodology

The objective of this study is to explore the challenges confronted in online teaching for oil painting conservation and restoration course. The qualitative research approach was employed in this study and 21 professors, deans and IT specialists were interviewed for the purpose of data collection. The interviews were recorded and transcribed verbatim. The data collected was analyzed using qualitative analysis software ATLAS.ti 9 to identify factors that lead to challenges in teaching online. The research question of this study is "what the challenges are confronted in online teaching for oil painting conservation and restoration course?"

The population of this study is all the 7 Chinese and Italian universities in SICRCHRC. As the population is not a large number, the researcher takes interviews in all the 7 universities which is the whole population. Interview is the most common instrument to collect data during the qualitative study, since researchers cannot observe everything (Patton, 2002). Merriam (2009) classified varied types of interviews by the way it is structured.

The semi-structured interview format was adopted in this study for its boundary and openness of its aim. Merriam (2009) and Creswell (2012) recommend semi-structured interview with open ended questions due to its less intervention of informants so that interviewees can express themselves freely without taking the researchers views into account, but still the interviewees' views are subject to certain specific scenarios. Thus, questions for the semi-structured interview should be logically, scientifically and flexibly designated.

As a vice-director of this research center, the researcher could obtain support from the member institutions of SICRCHRC in an available way. The researcher sent the data collection letter signed by dean of the Centre for Postgraduate Studies of IUKL and the interview plan to the heads of International Offices of 2 Italian member institutions and to the heads of Science Research Offices of 5 Chinese member institutions. Then the researcher acquired the contact information of deans, professors and IT specialists of the Conservation and Restoration School for Culture Heritages in their universities-----The researcher obtained three contacts consisting of one dean, one professor and one IT specialist from each member institution. Therefore, the researcher got twenty-one contacts as interviewees and made an appointment with each of them to do online interviews.

Fortunately, all of the interviewees spared time for the researcher to do interview and entitled the researcher the

permission the taping and the usage the interview contents. The researcher accomplished all the interviews from 30 June 2021 to 7 October 2021, this was the time period when the interviewees could take time to participate in the interview because there was a long vacation (summer vacation) in China and in Italy from the half of July to the initial of September 2021.

Data was analyzed using the ATLAS.ti 9 and the researcher coded 132 words and phrases as codes related to this question. Then, the researcher created a code group for these 132 codes in capital letters: CHALLENGES IN ONLINE TEACHING. The researcher analyzed all the codes in the code group CHALLENGES IN ONLINE TEACHING, and the researcher categorized these challenges and prefixed the codes according to the types of challenges in capital letters: ENVIRONMENT, EQUIPMENT, INTERNET PROBLEM, LESS INTERACTION, LESS PRACTICAL PRACTICE, SOFTWARE, STUDENTS PROBLEMS, TEACHERS PROBLEMS.

#### 4. Theory Underpinning This Study

Based on the learning theory of connectivism of Siemens (2006), Denzil (2013) constructed a Connectivist Framework (Figure 1) in his *Connectivism: Probing Prospects for a Technology-Centered Pedagogical Transition in Religious Studies*.

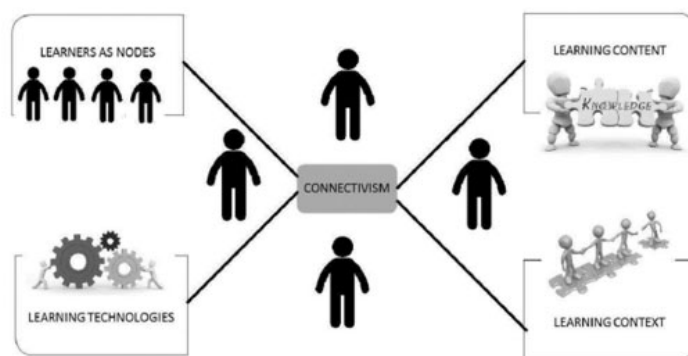


Figure 1. Connectivist Framework (Denzil, 2013)

In order to refocus on attention on pedagogy by putting forward a proposition for a technologically-centered pedagogical transition in religious studies, which is based on the core principles of connectivism, Denzil (2013) proposed a discussion of four critical theoretical constructs (cf. Figure 1), namely (1) learners as nodes; (2) learning content; (3) learning context; and (4) learning technologies. This connectivism theory framework is suitable for the requirements of the three principles of the theory of restoration: recognizability, reversibility, and minimal intervention.

First, the focus is learners as nodes. According to Denzil (2013), learners adopt the connectivist approach as single nodes and the individual learner emerges as a point of information containing personal knowledge, which is shaped by their own experiences, ideas, feelings, opinions, etc. Thus, the individual learner maintains his unique identity. Siemens (2005) presented that the aim of each learner is to expand their personal knowledge by connecting to other nodes (i.e. other people, data, ideas, etc.). This process of "connecting" is a kind of learning process, which describes the social,

interconnected and community-based characteristics of learning in contemporary times (Denzil, 2013). The ultimate goal is to establish multiple connections, which then culminate with a "network". Thus, learning within the connectivist approach can be seen as intensely social, where knowledge is generated in contact with others in the community through mutual exchange, contribution and sharing of ideas. Shared motives and common interests become the critical factors in maintaining and expanding these networks (Denzil, 2013).

In terms of oil painting conservation and restoration studies, connectivism gives strong guarantees for the recognizability of the repaired part of the oil painting. In connectivism, learners can share the artworks before, during and after the restoration work and are able to network with other nodes (learners and other sources of information) both locally and globally. These interactions can be further enhanced by learners expanding their networks to include learners of different countries, in order to obtain suggestions and evaluation from other learners and experts. This process of interaction helps learners to expand their knowledge from all

the nodes of network, which they may not get in their classroom context. Connectivism, thus offers a pedagogical shift to a space beyond the traditional lecture hall (Denzil, 2013).

Second, the focus is the learning content. Traditional teaching and learning approaches are typically based on pre-selected teaching materials, whereas, students nowadays could get access to diverse learning materials or devices, in the forms of Open Educational Resources (OERs), online journals, wikis, and Google search engines, etc., and the students now are shaping their own knowledge, developing and sharing ideas (Denzil, 2013). This leads to knowledge being produced and consumed refreshingly, which is essentially a core principle of the connectivist approach. Thus, this posits a refocus on designing of learning content, which moves the conservation and restoration for culture heritages educator from the position of custodian of knowledge, to a guide in the construction of “connected” knowledge. This will accelerate the updating of restoration methods and materials; it makes reversibility of the restoration procedure to be achieved much easier.

Third, learning context is considered as the “set of circumstances that are relevant when someone who needs to learn something”, which consists of the learning activities, situations of learning and teaching, theoretical learning, concept learning, skill learning, practice learning, learning through real situations, etc. (cf. Figueiredo 2005, as cited in Denzil, 2013). Two of the emerging trends in designing learning contexts are “collaborative learning” and “simulation” (Denzil, 2013). The simulation of the restoration procedure and result with the assistance of software and computer has been employed by professional restoration institutions. The simulation of the restoration can also be repeated many times without limitation and doesn’t change the original artworks, which is required by the principle of restoration theory: reversibility and minimal intervention.

Finally, the focus is learning technologies, which influence the knowledge and skills acquisition. These technologies are the most important elements in the expanding and shifting of spaces and structures for a new learning approach. (cf. Selwyn 2011, as cited in Denzil, 2013).

The web-based technology “Cloud Computing” offers learners and educators an opportunity to collaborate online with affordable cost. The mobile devices using “Mobile Technology”, such as cell phones, smartphones, android tablets, etc. are less expensive than most laptops and require less infrastructure to support them (Denzil, 2013).

With these technologies, the learners can follow up the lessons of excellent restoration professors in everywhere of

the world and all the restoration procedures can be documented on “Cloud” on the internet. The three principles of the restoration theory are easier to respect in a digital age under the guidance of connectivism pedagogic theory.

## 5. Conceptual Framework

The three principles mentioned in The Theory of Restoration (Brandi, 2005) for culture heritages restoration should be respected are recognizability, reversibility and minimal intervention (He, 2019; Wu, 2019; Zhan, 2019; Sun, 2019). The connectivism framework includes four critical theoretical constructs (cf. Figure 1): learners as nodes, learning content, learning context, and learning technologies (Chetty, 2013). When this framework is used to analyze the teaching model of oil painting restoration, as the figure 2 conceptual framework shows, the learners as nodes are not only the students but also the professors and deans of restoration schools; the learning content is all the materials and methods of oil painting restoration; the learning context is a set of circumstances that are relevant when someone needs to learn oil painting restoration, i.e., theoretical learning in the classroom, practice learning in laboratories, simulation learning on internet “cloud”; learning technologies are the infrastructures, hardware, and software updated continually, i.e., simulation software, 5 G information technologies, online teaching platform, multi-media long-distance teaching system with high definition camera. The students, professors, and deans of restoration school are the nodes of the oil painting restoration network. They don’t play a single role in the network; they are both learners and teachers at the same time; they are shareholders of the restoration knowledge. They share their restoration knowledge in different learning contexts: in classrooms, in laboratories, and in simulation classrooms on the internet “cloud”. With the recording of internet “cloud” and synchronized observations on distance using a high-definition camera to the restoration procedure, the restoration work become more reversible and the repaired parts of oil paintings become more recognizable; the teaching and learning activities are not limited by the geography space, they can be shared locally and globally. The simulation software is used to simulate the restoration procedure and the restoration results; it can decrease mistakes in oil paintings restoration and the damages to the original artworks; this helps the minimal invention to oil paintings. The oil painting materials and methods update continually along with the development of technologies. The reversibility and minimal intervention principles of restoration need the constantly updated technologies; the recognizability needs the online platform and internet “cloud” to store all the documents and procedures of oil painting restoration.

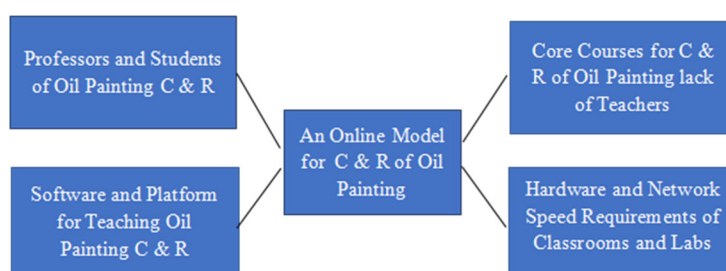


Figure 2. Conceptual Framework

The different subjects to study have different characteristics,

therefore, an online teaching model should be designed and

tested with the guide of connectivism theory for different types of Oil Painting Conservation and Restoration Courses.

## 6. Findings and Discussions

According to the theoretical framework and conceptual framework, the researcher categorized and summarized the different types of challenges as (1) learners as nodes: students problems and teachers problems; (2) learning content: less practical practice; (3) learning context: less interaction, equipment and environment; and (4) learning technologies: software and internet problems.

### 6.1. Challenges from Learners as Nodes

The learners as nodes are not only the students but also the professors and deans of restoration schools. The researcher named two types of codes: STUDENTS' PROBLEMS and TEACHERS' PROBLEMS.

First, data on students' problems in online teaching highlighted that the students don't listen carefully in class, play with mobile phones, cannot express their idea, chat with computer under the pretext of taking notes, don't do the preparation before class and don't interact with the teacher. Some of the findings concurred with Yang et al. (2020) and Ocak (2011). The above findings are supported by responses from the following interviewees: Interviewee 4 said: "Some students don't take academic study seriously. They always use the excuse that the environment is not suitable for opening mics to skip a class without any response." Interviewee 20 complained, "Students do not listen carefully in class, absent-minded, play with mobile phones". Interviewee 17 explained, "Students' attention is not as focused as the class in front of them, and online teaching is more a test of students' self-control." Interviewee 21 emphasized, "The quality of classroom interaction is reduced, especially for students who are distracted and unfocused in class." Interviewee 5 had the same idea of "If students have poor self-control, their learning effect may be affected." Interviewee 19 mentioned, "The enthusiasm of some students to answer the question is not high."

Secondly, the researcher discusses the problems from teachers' aspect in online course teaching. Online teaching does meet with certain difficulties, such as the teachers cannot capture students' reactions in a timely manner, cannot supervise learning situation of the class and spend much time (Yang et al., 2020) on the equipment regulation, preparation of courseware and other tedious problems. The responses from the interview supports these findings: The Interviewee 3 said "First of all, for teaching restoration practice, there will be equipment regulation, preparation of courseware and other tedious problems that will increase the workload of teachers."

Interviewee 17 explained, "By the manner of online teaching the teachers cannot interact with the students face-to-face or capture students' reactions in time. For example, when teaching new knowledge, if it is offline, the teacher could arrange the teaching process based on students' reactions in time. However, it cannot be achieved by online teaching due to the network delay and some other reasons." The interviewee 10 confirmed this opinion "Teachers may not see the students' timely feedback on the course explanation, because the teachers who are going to teach online will ask questions in a rotating order, so this accounts for the problems on the teachers' part."

### 6.2. Learning Content

Regarding the learning content, the challenges focused on less practical practice. This finding was rarely mentioned by previous researchers, because in Academy of Fine Arts, there are more practical classes, and then if it is online, there is no way to fully do the hands-on operation. Interviewee 3 said, "I think it is necessary to do more exercises, the teachers do less restoration practice, and the students do more restoration practice." Interviewee 9 confirmed "The study in Academy of Fine Arts is hands-on, and there are more practical classes, and then if it is online, there is no way to fully do the hands-on operation."

### 6.3. Learning Context

The challenges on learning context include three aspects: less interaction, equipment and environment. First, less interaction has the same meaning of lack of effective communication (Ocak, 2011). The disadvantage of online teaching is that there is less face-to-face interaction between teachers and students. The quality of classroom interaction is reduced, especially for students who are distracted and unfocused in class. Secondly, the main problem with the equipment is that the computer's image is not clear, and the computer's voice is not clear. Interviewee 21 said "The computer suddenly has a problem and cannot be used, and the phenomenon of stuttering and inaudible voice appears." Thirdly, the surrounding environment is too noisy, not suitable for opening mikes, lack of learning atmosphere and sometimes there are echoes. Interviewee 5 explained "Due to the lack of learning atmosphere at home, students are easily influenced by the surrounding environment and cannot keep in good condition for a long time." "The dormitory is too noisy, so they have to close the microphone, so they cannot interact with the teacher." Interviewee 19 said another problem. "The online teaching is susceptible to the interference of ambient sound, and the performance indicators of home microphones and cameras are mediocre, affecting the picture quality and sound."

### 6.4. Learning Technology

The challenges on learning technology are summarized in two categories: internet-connection problem and software problems, and both are difficulty of adoption to new technologies (Ocak, 2011)

The first learning technology problem is internet-connection problem. The interviewee 19 claimed: "If the student cannot get access to the internet and cannot attend the online lessons, he/she will have to restart the live broadcast. It's a waste of time. The satisfying online teaching result cannot be achieved due to network failure and other reasons. The interviewee 6 confronted with the same issue: "the network-connection is a big problem. If you are in Italy, the Italian network sometimes may not be stable." "Sometimes the synchronous online video is blocked because of poor internet speed." the interviewee 20 mentioned.

Another learning technology problem is the software problem. "On the current teaching platform, the main problem is that the images are compressed and the images resolution are not high enough." The interviewee 19 said, "The problems of online teaching platform are: platforms are not unified, and some platforms failed. There are so many assignments and tests that it is not convenient to submit them. The above problems will have different impacts on the learning effect."

## 7. Conclusion and Recommendation

From the above data analysis, the researcher found that the challenges encountered in the online model for teaching Oil Painting Conservation and Restoration are mainly demonstrated in 6 aspects: the environment, the equipment, the software, the internet, the students' aspects, teachers' aspects. Under the six challenges aspects, the most concentrated two contents are "less interaction" and "less practical practice". To design a good online model for teaching painting restoration, these two key challenges must be addressed well. The researcher suggested that future research can focus on how to conduct interaction and practical practice in the online teaching process and design the guidelines for teaching online oil painting conservation and restoration to teachers and students.

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