THE APPLICATION OF MOOC FOR CAREERS GUIDANCE
OF YEAR 3 UNIVERSITY STUDENTS IN HEILONGJIANG PROVINCE, CHINA

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ABSTRACT

This mixed methods research aimed to compare Year-3-university students' learning achievement before and after the use of MOOC and examine their attitude towards the use of MOOC in a Careers Guidance course in Heilongjiang Province, China. The sample group consisted of 30 students enrolling in a Careers Guidance course in Academic Year 2021. Quantitative data and qualitative data were collected applying four lesson plans, pretest, posttest, questionnaire, and focus group interview. The quantitative data were analyzed using mean, standard deviation as well as Paired Sample T-Test. The qualitative data were analyzed using thematic analysis.

The results showed that after the use of MOOC, the students' posttest score ($\overline{X}$ = 52.20, SD = 13.21) was higher than the pretest score ($\overline{X}$ = 35.67, SD = 14.04), resulting in the significant mean difference of 16.53 points. The data from the questionnaire revealed that the average mean score of all items was rated at a high level ($\overline{X}$ = 3.44, SD = 0.74). The students' responses from the focus group interview suggested that the students had a positive attitude towards the use of MOOC in a Careers Guidance course. Therefore, the use of MOOC contributed to an alternative effective way of teaching and learning a Careers Guidance course in the university in China.

Keywords: MOOC, Careers Guidance courses, Students' learning achievement, Students' attitude

1. Introduction

1.1 Background and Rationale of the Study

At present, Chinese educational institutions have also invested in large-scale online open courses, and a large number of online education course projects have emerged. After the national high-quality courses and university online open courses, Chinese universities have also planned to launch their MOOC courses at Peking University, and in 2012, the Shanghai University Course Alliance realized the exchange of high-quality courses among Shanghai universities and students can obtain school-recognized certification. In 2012, the Shanghai University Course Consortium also realized the exchange of high-quality courses among Shanghai universities and could obtain credits recognized by the schools.

In May 2013, Tsinghua University and Peking University joined the edX learning platform at the same time, and in July, Shanghai Jiao Tong University and Fudan University signed a contract with Courser to join the MOOC platform. At the same time, Tsinghua University, Peking University, Fudan University, Zhejiang University, Tongji University, Dalian University of Technology, and Chongqing University jointly established a Chinese MOOC network, and five transportation universities, including Shanghai Jiao Tong University and Hsinchu Jiaotong University, jointly launched an online learning consortium as their open course learning platform and provided free learning opportunities to Chinese learners, and in September, the East-West University Course Consortium will be open to the public. MOOC is developing rapidly in China (Cai, Wang, & 2012).

A Massive Open Online Course (MOOC) is an online course for the general public that allows people to study online through the Internet.

The design and participation in MOOC is similar to that of college and university classes, but MOOCs do not generally require credits in the same way that students who pay for school do. Nonetheless, the rewards of learning may be evidenced through certificates.

The one used in my experiments is a live mooc, which has many features. Students are free to choose when and where they want to study, the courses are valid for anyone, students can repeat them, there are many resources for the courses, and students can watch courses by different teachers.

Students can watch it anytime and anywhere when they have a computer or cell phone. Because employment is usually ongoing, watching at any time

can be a good way for students to review knowledge, such as interview questions, what they need to do.

Through the teaching of the Careers Guidance courses, college students not only gain a basic understanding of the characteristics of career development, a clearer understanding of their own strengths, the characteristics of their major, and the social environment, but also gain an understanding of the current employment situation and policies and regulations.

Generally, in the school's Careers Guidance courses, students are required to master the ability of self-awareness, the ability of information gathering and planning their own career, the ability of job interviews, etc. Through the course, students will also improve various general skills, such as communication skills, problem-solving skills, self-management skills, and interpersonal skills (Chen and Ben 2017)

Traditional offline classroom Careers Guidance teaching often has had many problems, the most prominent of which is the difference between the classroom content and the actual objective environment. Of course, since the social environment is constantly changing and the teaching materials in schools cannot keep pace with the speed of social changes,

the problem of content lagging behind will occur. For example, it has become popular to use apps on phones for resume submission, while school textbooks still teach students to go to the job market for resume submission.

From this perspective, MOOC may be an excellent way to address the issue of offline career guidance classes. To begin with, MOOC will be enormous online classrooms with often updated course materials, allowing schools to select the most relevant course for current students to use as teaching material. This can assist students in comprehending the job climate and policies of different regions, which can serve as a reference for students interested in working in other locations. While MOOC may reduce communication between students and professors, career guidance courses demand more employment information and the most up-to-date and detailed employment information. MOOC can also be an excellent way to address this concern. Zhang (2017) say that standard online career counseling courses don't include any of these things.

1.2 Research Objectives

1. Improvements in Careers Guidance achievement through MOOC.

2. The Year 3 university students' have a positive attitude towards

the use of MOOC in a Careers Guidance course in Heilongjiang Province, China.

1.3 Research Questions

1. Would the Year 3 university students' learning achievement in Careers Guidance course in Heilongjiang Province, China be higher after the use of MOOC?

2. How would Year 3 university students' attitude towards the use of MOOC in a Careers Guidance course in Heilongjiang Province, China be like?

2. Literature Review

2.1 The development of careers guidance in China

In 1999, the Chinese government approved the Ministry of Education's Action Plan for the Revitalization of Education for the 21st Century, which established a system for the employment of university graduates. Because of the expansion of university education in terms of enrolment, the issue of employment of university students has become increasingly critical. There has been much discussion of the necessity and feasibility of Careers Guidance courses in order to serve the employment needs of college students and has enormously promoted the construction and development of Careers Guidance courses for colleges based on this study (Zhou, 2009).

2.2 Concept of Careers Guidance

Careers is a continuous process, and Careers Guidance has begun to be implemented throughout the university study of Careers. The implementation of the curriculum is gradually becoming full-fledged, mainly in the sense that the teaching of Careers Guidance courses begins to run through the entire university study process, combining the characteristics, problems, and individual differences of college students of different ages, and continuously carrying out targeted guidance. Additionally, it is beginning to penetrate into many other aspects of study through the teaching of various disciplines, student education activities, and university management (Ma 2009).

MOOC

In the traditional teaching process, the information is limited to the teacher's voice, the textbook, and the blackboard. The amount of information is small. While the MOOC can use the relevant content and principles in the form of text, animation, short films, and other graphic and realistic and vivid performances, students accept it to save time and effort. In addition, the discussion of problems in the classroom can also be made more reliable by inviting relevant experts to discuss them on the internet (Yao, Sun, Wu, Wang, &

Shang, 2011). Therefore, students can also learn more about employment and the information sources will be more abundant. In this experiment, a MOOC in the form of a live broadcast will be used, allowing students to study both during the live broadcast and to replay the classroom videos for re-study at any time after the class, and assignments for the course will be available online.

2.3 MOOC as a New Medium for Careers Guidance Courses

MOOC allow students to break through geographical and time constraints and participate in student-student and student-teacher communication as equals. Because it is online, it avoids the shyness of some introverted students. Because of the comprehensive coverage of the internet and a large number of participants, students can learn from the merits of others on a broader scale. This will be very helpful for students' employment because employment often means experience, and a lot of communication can help students grasp a lot of experience quickly (Zhou and Zhang 2018).

The introduction of MOOC has made it possible to teach in categories. College students have different job-seeking intentions; some want to take civil service exams, and others want to work for companies. Different types of units require different abilities from job seekers. With various practical constraints in Careers Guidance classes, traditional teaching methods can only be explained in the classroom, making it difficult to provide accurate and in-depth Guidance to students with different job search intentions (Fan 2017). Students are not interested in content other than their job search intention during the lecture, and class participation is low, which affects the overall atmosphere of classroom teaching. Using MOOC teaching can modularize the lecture content and explain in-depth online the requirements of different types of units for job applicants and the corresponding interview skills, achieving more targeted education (as cited in Zhao, 2018).

2.4 Standards of Careers Guidance in China

According to the Chinese National Standards Announcement No. 11 of 2017 issued by the Chinese National Standardization Administration, the published Specification for Careers Guidance Services for College Graduates (2017) outlines that graduates in their fourth year of college will demonstrate that they can:

Careers Planning

1. Understand the meaning of a Careers.

2. Mastering the characteristics of a Careers.

3. Develop your own Careers plan.

4. Develop a strategy for your own Careers development.

Self-awareness

1. Students recognize the professional personality of the self.

2. Students evaluate their own professional competencies.

3. Students determine their own position in life.

Occupational environment

1. Master the characteristics of your field of study.

2. Students master the characteristics of their intended Careers.

3. Students understand the relationship between their professional role and their life role.

4. Students take control of their current employment environment.

Pre-job search preparation

1. requires a Careers program.

2. Ask students to list the factors that affect their Careers.

3. create a resume of your own.

4. Develop a Careers plan for your next three years.

5. Students design a virtual interview among themselves and each experience as an examiner and interviewer, respectively.

2.5 MOOC Selecting Criteria
content

Certain teaching objectives and specific teaching requirements apply to each unit, topic, and project in the teaching process. To achieve different teaching objectives, we need to use different media to transmit teaching information, such as explaining the current employment environment. It is difficult to speak clearly with plain text or language, it is much better to use graphics or images, and it is clearer to show data with statistical charts (as cited in Wu & Tan & Song, 2017). So, when choosing MOOC course content, think about what students need, like their job direction, their job location, their job type, and so on. Then, choose MOOC courses that meet those needs in the best way possible.

Age and student interest

The MOOC course chosen because of its pedagogical purpose must be interesting to the students. The age of

the students is about 19 to 22 years old. So the course content needs to be engaging enough, and more importantly, it needs to have very clear steps to follow and be practical. Since the Careers Guidance course is for graduating college students, the course content must have detailed instructions to assist students in learning how to get a job and plan for their future. Students will only be interested in the course if it is necessary for them.

Classroom time control

It is best to limit a MOOC to 50 minutes in order to maintain students' attention and enthusiasm. As a course on Careers Guidance, it is much more important that students practice than just watch the MOOC video. This is why the course needs to point out steps that students can take to practice and get more involved in the practice of work more.

Identifying the employment needs of students

The employment needs of each student are inconsistent, so in determining the employment needs of students, much depends on the needs of each individual student and the objective conditions of the current area of employment. Therefore, when selecting a MOOC for teaching, it is important to choose the appropriate topic based on the needs of the students.

2.6 Cognitive Theory of Multimedia Learning

The cognitive theory of multimedia learning was proposed by Richard E. Mayer, a contemporary American educational psychologist and cognitive psychologist, in his book Multimedia Learning and proved to be correct and scientific through numerous psychological experiments. Richard believed that multimedia information designed with the way people think in mind is more likely to produce meaningful learning than multimedia information that is not designed with the way people think in mind. Richard argues that multimedia messages designed in accordance with the way people work are more likely to produce meaningful learning than multimedia messages that are not designed in accordance with the way people work (Liu, Zhao, Chai, & Xu, 2007). Simply put, multimedia instruction has a richer delivery medium than traditional instruction and therefore has a more positive impact on the process of learning. The main means of teaching in this study using MOOC is part of multimedia teaching and learning.

2.7 Conceptual Framework of the Study

In this study, there are two variables; Independent variable and dependent variables. MOOC teaching video

was the independent variable. Students' learning achievement in Careers Guidance Courses and Students' attitudes toward using MOOC for Careers Guidance Courses were the dependent variables
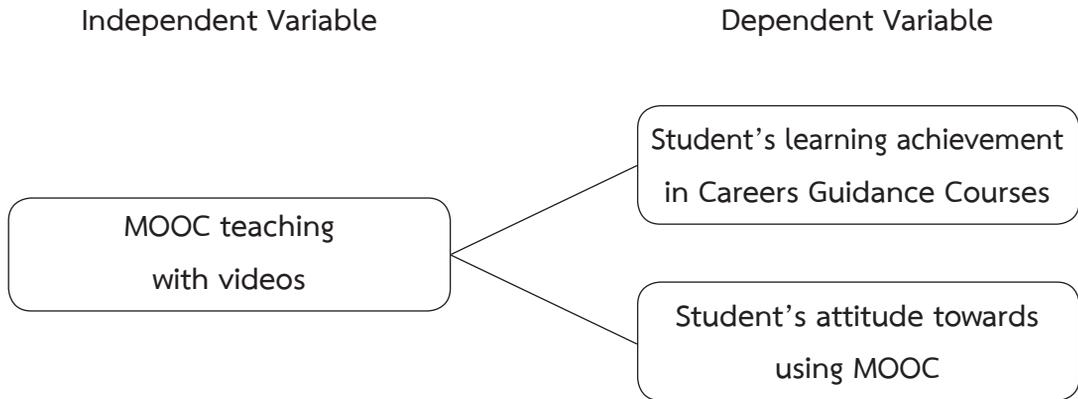
Independent Variable

Dependent Variable

MOOC teaching
with videos

Student's learning achievement
in Careers Guidance Courses

Student's attitude towards
using MOOC

Figure 1 Independent Variable and Dependent Variables

Sample Group

Pre-test

MOOC Teaching with Videos

Pre-test

Questionnaire
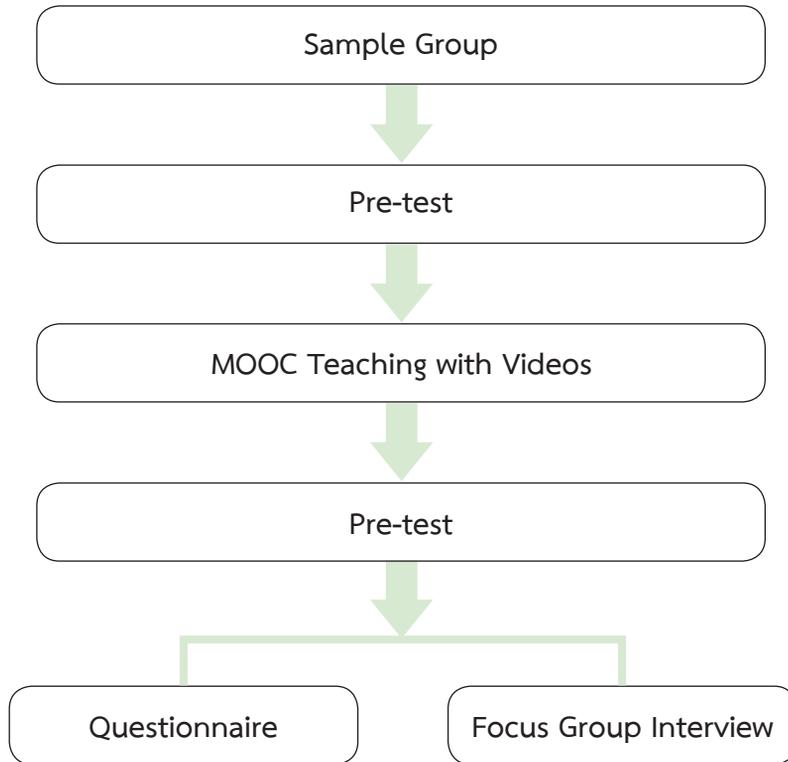
Focus Group Interview

Figure2 Illustration of Research Design

3. Research Methodology

3.1 Research Instruments

This experiment will use the China University MOOC website (icourse163.org), which has been developed by the Chinese government and is free for any school, institution, or individual to use for learning purposes. I will be using this site for teaching.

In this thesis, the study was conducted by collecting quantitative and qualitative data. Quantitative data include pretest and posttest, questionnaire. Qualitative data included focus group interviews. The data were analyzed in three different methods, all of which are in line with the two study objectives.

3.1.1 Lesson Plans

The researchers developed four 100-minute lesson plans for one month (1 lesson plan = 2 sessions). A sample group of 30 students was instructed twice per week over eight sessions. Lesson themes were determined by the educational level of the sample group and the course materials. Before delivering the lectures to the sample group, the researcher received approval from the professors of the relevant disciplines.

3.1.2 Achievement Test

For the pretest and the posttest, students required 60 points out of a possible 100 points to pass the course. In addition to 40 multiple-choice questions (each worth two points; a total of 80 points), there were also 4 short answer questions (5 points per question; a total of 20 points).

3.1.3 Questionnaire

A questionnaire consisting of 15 statements, rated on a five-point Likert scale, was administered to examine the students' attitude towards the use of MOOC for careers guidance. Each statement was rated on a Likert scale from 1 to 5. The statements were classified into three broad categories: interest, course outcomes, and the effectiveness of MOOC to improve the quality of learning.

3.1.4 Focus Group Interview

Researcher developed six questions to assess how students were using MOOC in the career guidance classes. In this focus group interview, questions were divided into three broad areas: student interest and motivation, attitudes towards using MOOC for education, and the quality of the course.

3.2 Validity and Reliability

The validity of the research tool was verified by three experts, a professor from Rangsit University in Thailand, and two experienced Chinese English teachers. The index of item objective congruence (IOC) was calculated by using a statistical formula.

All instruments in this study were validated and rated by the experts as higher than 0.67, which indicates that the items were effective for the study. The IOC lesson plans were rated as +1. The learning achievement test questions were rated as 0.985. The questionnaire was rated as 0.978. The focus group interviews were rated as +1.

To check the reliability of the achievement test, the researchers had 30 students take a pilot test with the same questions as the achievement test in the study. The Kuder-Richardson formula (KR-20) was used to check the reliability coefficient of the learning outcome test. The KR-20 coefficient obtained was 0.77, which is greater than 0.70. Therefore, the test item was reliable.

3.3 Participants

The target population of this study consisted of 90 Year3 students from three classes in the University in Heilongjiang Province, China. They ranged in age from 19 to 22 years old with mixed genders and Careers Guidance achievement. The researcher used a clustered random sampling method to select one class (N = 30 students) from a population of three mixed-ability classrooms of Year 3 university students. The sample included the students with mixed genders and abilities in Careers Guidance achievement.

3.4 Data Collection Procedures

3.4.1 Experiments and methods of data collection

The pretest, posttest and questionnaire will be conducted offline and all students will take the exams in the classroom. The exam papers and questionnaire will be personally marked by the teacher after they have been collected.

3.4.2 Approval and Ethics Consideration

Based on ethical considerations, the researcher submitted the letter of approval to the Ministry of Education (MoE) for authorization to conduct the study in the academic year 2022. After receiving an official letter of approval, the researcher was assigned to the District Education Officer (DEO). The researcher obtained the letter from the district education officer and requested approval from Heihe University, Heilongjiang Province.

Participants were also informed of study objectives prior to implementing the strategy. Additionally, study participants must sign consent documents to protect their legal and moral rights. As study participants were under 18, their parents countersigned the consent forms.

4. Results

The following discussion intends to present the findings in detail according to research objectives.
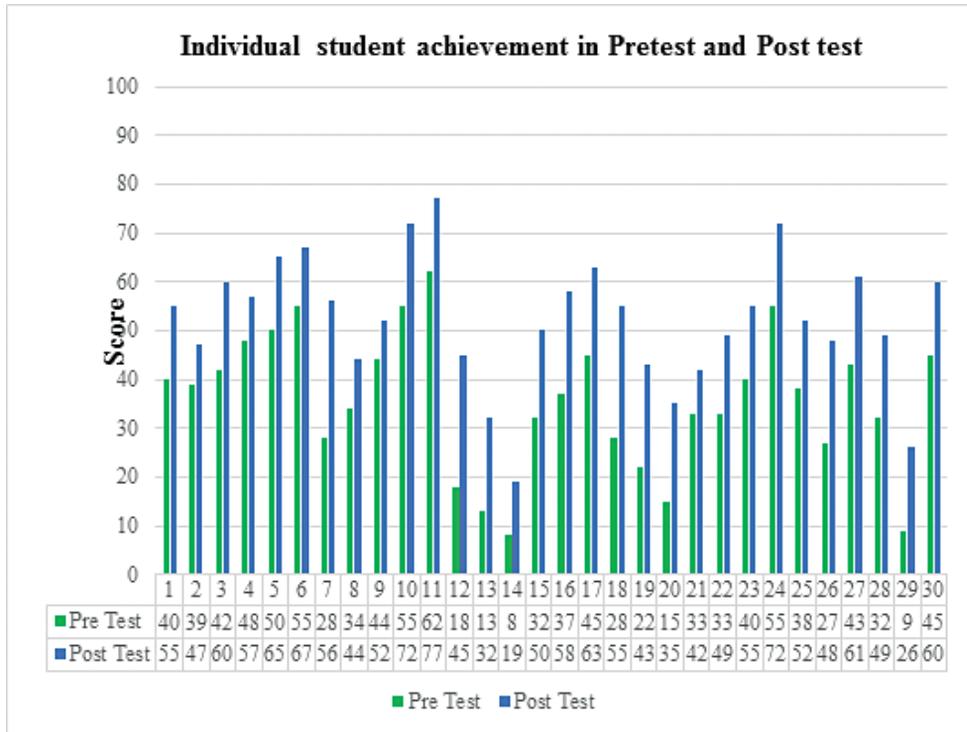
4.1 Learning Achievement

The results of the study showed that using a MOOC to teach a Careers guidance course improved students' learning performance. The results of this study were also promising in that 18 of the 30 students scored 50 or above out of 100 on the posttest. The mean score on the pos-test ($\overline{X}$ = 52.20) was 16.53 points higher than the pretest ($\overline{X}$ = 35.67). In addition, a significant score difference was achieved by student number 8. This student scored 28 points in the pretest and 56 points in the posttest, an improvement of 28 points. Thus, the improvement in student performance indicated that the use of the MOOC had a positive impact on student performance in the Careers Guidance course. Thus, all of the above findings were reliable answers to the first research question.

4.2 Questionnaire

A five-point Likert scale was used to collect quantitative data on students' attitude towards the use of MOOC in Careers Guidance classes, where 1 represented strongly disagree and 5 represented strongly agree. The questionnaire contained 15 items divided into three parts: Part A: Achievement-related items, Part B: Course-related items, and Part C: MOOC-related items. The questionnaire was given to all 30 participants. In the analysis of the survey results, descriptive statistics (mean and standard deviation) was used. In the mean score interpretation, 4.21-5.00 was in the highest level, 3.41-4.20 was the high, 2.61-3.40 was the moderate, 1.81-2.60 was the low, and 1.00-1.80 was the lowest, respectively.

Individual student achievement in Pretest and Post test

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Pre Test	40	39	42	48	50	55	28	34	44	55	62	18	13	8	32	37	45	28	22	15	33	33	40	55	38	27	43	32	9	45
Post Test	55	47	60	57	65	67	56	44	52	72	77	45	32	19	50	58	63	55	43	35	42	49	55	72	52	48	61	49	26	60

As shown in Table 1, the mean scores and standard deviations reflected students' responses of Part A, Achievement-related items. The highest mean score 3.60 was rated for Item 3, "Has your career planning level improved?" which fell within the range of a five-point Likert scale indicating a "High" level. While the mean scores of Items 2 and 5 were relatively low, the interpretation of the mean scores showed that students rated Part A of the questionnaire, Achievement-related, as High (Mean = 3.43).

Table 1 Mean and Standard Deviation (SD): Part A- Achievement-related (N = 30)

No.	Part A- Achievement-related	Mean	SD	Interpretation
1	Has your employment level increased?	3.40	.770	Moderate
2	Has your interview level improved?	3.37	.718	Moderate
3	Has your career planning level improved?	3.60	.724	High
4	Has your workplace communication level improved?	3.43	.817	High
5	Did you have an optimistic mindset about the employment situation before that?	3.37	.850	Moderate
	Average	3.43	.776	High

Below is Table 2, which shows the mean and the standard deviation of the student's scores for Part B: Course-related items. Based on the data, Item 8, "Would you recommend this course to a classmate, a friend, or an underclassman?" was rated with the highest mean score of 3.57; Item 10, "How did you like the pattern of different teachers teaching different chapters?" was rated the lowest mean score of 3.33. The average mean score of this part was 3.47 which still fell within the "High" range. Therefore, this was evident that the students had positive attitude towards the use of MOOC on their achievement on the Careers and Guidance course.

Table 2 Mean and Standard Deviation (SD): Part B-Course-related (N = 30)

No.	Part B - Course-related	Mean	SD	Interpretation
6	Your overall evaluation of the class.	3.47	.681	High
7	Did the class serve as a career guide for you?	3.47	.776	High
8	Would you recommend this course to a classmate, friend, or underclassman?	3.57	.626	High
9	Did you find the lesson on employment planning in this course useful?	3.53	.730	High
10	Did you like the pattern of different teachers teaching different chapters?	3.33	.547	Moderate
	Average	3.47	.672	High

Table 3 below illustrated the mean scores and standard deviations of Part C, students' attitudes towards MOOC-related items. The majority of students affirmed that the MOOC was helpful in improving their careers guidance course grades. The mean score of 3.43 was at the "High" level. Item 11, "Did you like multimedia teaching?" was rated with the highest mean score of 3.53 whereas Item 15, "Did you find the instructor of this course helpful in communicating with you in the MOOC system after class?" was rated with the lowest mean score of 3.23. However, the overall mean score in his part was still in a "High" level. Hence, it can be claimed that the students had positive attitude towards the use of MOOC in the Careers and Guidance course.

Table 3 Mean and Standard Deviation (SD): Part C-MOOC-related (N = 30)

No.	Part C-MOOC-related	Mean	SD	Interpretation
11	Did you like multimedia teaching?	3.53	.819	High
12	Did you think the MOOC has had a positive impact on your learning?	3.43	.774	High
13	Did you think the MOOC will increase the time you spend communicating with your teachers?	3.47	.776	High
14	Did you think the MOOC will increase your self-practice time?	3.50	.731	High
15	Did you find the instructor of this course helpful in communicating with you in the MOOC system after class?	3.23	.679	Moderate
	Average	3.43	.756	High
	Overall Mean & SD for all 15 items	3.44	0.735	High

By examining each part mentioned above, Part B: Course-related items was rated with the highest score with a mean of 3.47 (SD = 0.672), while Part A and C were similarly rated the lower mean scores of 3.43 and standard deviations of 0.776 and 0.756, respectively. Nevertheless, considering the overall mean score of 3.44, it was concluded that the students in a sample group had positive attitude towards the use of MOOC in their Careers and Guidance course.

4.3 Focus Group Interview

Based on students' responses, an overall positive attitude towards MOOC in Careers Guidance classes emerged. A majority of the participants said that the course was engaging and contained a lot of practical career knowledge. The free class time and the ability to watch the course repeatedly allowed some students to practice for interviews and review the course whenever they wanted. They also mentioned that the video tutorials in the

course helped them remember the course more. Several participants also mentioned that the MOOC platform had a great deal of materials for this course, which enriched their learning. Overall, the course was more engaging than a traditional course. All of the data presented above were taken from the students' responses as follows.

Interest and Motivation

"The explanation of employment policies in the course was very helpful to me, and the electronic version of the manual is also available to me on my cell phone at any time." (Student 2, Group 1).

"I liked the lecture on employment planning in the course, which gave me a lot of inspiration to design my own career path." (Student 3, Group 2).

"I tried to interview my classmates as an interviewer in the mock interview and it made me understand more about interviewing."(Student 4, Group 3).

Attitudes toward using MOOC education

The majority of students indicated that MOOC were better than the traditional instruction. While students perceived that the traditional classroom of Careers Guidance courses provided insufficient practice time, which led them to believe that traditional classes were more theoretical; MOOC gave them more

time to practice; teachers could deploy practice assignments remotely such as mock interviews; and the students had access to a richer set of course resources. These were supported by the students' responses below.

"The MOOC approach clearly makes me more motivated to take the class than a traditional classroom." (Student 1, Group 1)

"I usually enjoy watching TED, and the MOOC teaching makes me feel like I'm watching TED, with knowledge and fun at the same time." (Student 4, Group 2)
"More learning content, more practice time, I like the MOOC teaching style." (Student 2, Group 3)

Quality of the course

The students overwhelmingly agreed that using the MOOC was helpful. Through the use of this technology, the students believed that the course could go beyond the traditional classroom medium and utilize a variety of teaching methods such as videos, cases, etc. A digital version of the manual should also be provided to the students at the end of the class, so they would learn from any location at any time. The excerpts below supported this theme.
"After studying with the MOOC, I have a clear understanding of the interview process in general and the materials I need to prepare." (Student 4, Group 1)

"The course is significantly more engaging than the traditional classroom lectures, so my memory is deeper and I don't easily forget the content in the classroom." (Student 5, Group 2)

"I often watch the video of the teaching for a while before going to bed, and over time, the knowledge is deeply engraved in my brain." (Student 1, Group 3)

Consequently, the analysis above showed that students found MOOC beneficial to study the Careers Guidance Course. Most students who shared their overall impressions indicated that MOOC greatly improved their learning efficiency and made them more interested in learning. All of the data presented here remarkably addressed research objective 2.

5. CONCLUSION, DISCUSSION AND RECOMMENDATIONS

5.1 Conclusion

The two research objectives were stated for this study:

1. Improvements in Careers Guidance achievement through MOOC.

2. The Year 3 university students' have a positive attitude towards the use of MOOC in a Careers Guidance course in Heilongjiang Province, China.

This research was conducted using both quantitative and qualitative methods in Heihe University students in Heilongjiang Province, China by applying pretest, posttest, questionnaire and focused group interview. The following conclusions were drawn after analyzing the data collected through a mixed mode.

5.1.1 The Result of Pretest and Posttest Data Analysis

The first objective of the study was to improve learning achievement in a Careers Guidance course after the use of MOOC by Year 3 university students in Heilongjiang Province, China. Next, the result of the pretest and posttest were analyzed using paired sample t-test to compare the difference between the sample group's learning achievements. With MOOC, students were free to select when and where they wished to study. The courses were available for anyone anytime; they were repeatable; there were a lot of resources available for learning; and students were able to watch courses created by various teachers anytime.

In addition, the students were able to access the content at any time and from anywhere using a computer or any mobile device. Considering employment was typically ongoing, watching at any time helped provide students with an opportunity to review knowledge such as interview questions and what they needed

to do in a career. For this reason, students' progress as they worked on their career was evident. Below is additional detail of the conclusion regarding the findings of the study.

The Paired Sample T-test statistics analysis of achievement scores revealed a higher mean score in the posttest ($\overline{X}$ = 52.20, SD = 14.04) than that of the pretest ($\overline{X}$ = 35.67, SD = 13.21) with the mean difference of 16.53. The higher mean of the posttest indicated a positive impact of MOOC in improving students' learning achievement in a Careers Guidance.

1) The highest and the lowest scores out of 30 in the pretest were 62 points and 8 points, respectively. While the highest and the lowest scores in the posttest were 77 points and 19 points, respectively. Through these difference in scores of the pretest and of the posttest, it suggested that the highest score of the posttest was higher than the pretest score by 15 points. The lowest score of the posttest was also higher than the lowest score of the pretest by 11 points.

2) The majority of participants, 18 out of 30 participants from the sample group scored more than 50 out of 100 points in the posttest. Whereas in the pretest only 5 students scored 50 and above out of 100 points.

3) All the 30 students scored higher on the posttest than on the pretest. The improvement scores ranged from 8 to 28 points.

4) Based on the above quantitative data analyses, it was evident that the students' test scores improved on the posttest. In addition, the results clearly demonstrated that the use of a MOOC significantly improved the performance of third-year university students in Careers Guidance course in Heilongjiang Province, China.

5.1.2 The Result of Focus Group Interview Analysis

The second objective of the study was to examine University students' attitudes towards the use of MOOC in a Careers Guidance class in Heilongjiang Province, China. Focus groups interview sessions were conducted with three groups of students, each consisting of five students, to collect the required qualitative data.

The sample group consisted of only 15 students, who voluntarily participated in interviews. A thematic analysis was performed on the interview data after recording, transcription, interpretation, and analysis. Students' attitude towards using MOOC to improve their performance in Career Guidance

courses were positive according to the study.

1) All students claimed that they enjoyed using the MOOC for their career guidance courses. This was evident from their responses collected through questionnaires and focus group interviews.

2) Most of the students believed that the MOOC could facilitate learning because it could provide the latest employment policies. They also believed that repeated viewing of MOOC courses facilitated them to review relevant knowledge at any time, especially policies and techniques for employment. In addition, some of them said that videos as a format could deepen their impressions and make part of their knowledge remembered more firmly.

3) Some students also thought that the video assignments at the end of the class were good for them to practice the interview process so that they could better learn a lot of knowledge that needed to be practiced.

4) Students were motivated by their high scores on the post-test and expressed a strong desire to watch more MOOC in the future. in addition, some students wanted other teachers to use MOOC as well, as they made learning lively and interesting.

5.2 Discussion

As mentioned above, the study had two main findings. The first finding was that the use of MOOC improved learning achievement in a Careers Guidance course by Year 3 university students in Heilongjiang Province, China. The second finding was concerning the students' positive attitude towards the use of MOOC in a Careers Guidance course. The following discussion intended to present the findings in detail and explain how they answered the research questions proposed in this study.

5.2.1 Students' Careers Guidance Achievement

The results of the study showed that using a MOOC to teach a Careers Guidance course improved students' learning performance. The results of this study were also promising in that 18 of the 30 students scored 50 and above out of 100 on the posttest,. The mean score on the pos-test ($\overline{X}$ = 52.20) was 16.53 points higher than the pretest ($\overline{X}$ = 35.67). In addition, a significant score difference was achieved by student number 8. This student scored 28 points in the pretest and 56 points in the posttest, an improvement of 28 points. Thus, the improvement in student performance indicated that the use of the MOOC had a positive impact on student performance in the Careers

Guidance course. Thus, all of the above findings were reliable answers to the first research question.

5.2.2 Students' Attitude

To collect quantitative data to examine the students' attitude towards using MOOC in Careers Guidance classes, a five-point Likert scale questionnaire was administered. The questionnaire was distributed to all 30 participants. The survey results were analyzed using descriptive statistics (mean and standard deviation). The mean scores were ranked as the highest at 4.21-5.00, high at 3.41-4.20, moderate at 2.61-3.40, low at 1.81-2.60, and lowest at 1.00-1.80. The discussion of the results from the questionnaire can be stated below.

1) The majority of questionnaire items were rated "High" and "Moderate" with 77% of the former and 33% of the latter. None of the items were rated as strongly disagree.

2) The results of the descriptive statistical analysis of the questionnaire indicated that students had positive attitude towards using MOOC in their career guidance classes. Most importantly, none of the items was rated as "strongly disagree", which was strong evidence of positive student attitude of using MOOC in the course.

3) Most students also agreed that regular use of the MOOC would give them a better grasp of career policies and employment skills.

The results of the study also indicated that 78% of the students found that MOOC was very suitable for the courses and they had an enjoyable experience with them. In addition, Zhang (2014) indicated that MOOC with multiple teaching styles in the classroom would be more engaging for students and observed that students could still achieve better retention after the class. Another study by Deng (2015) on the use of MOOC as a teaching method to teach students in a career guidance course showed that more than 80% of students agreed that this method was beneficial to the performance of the course. According to Xu (2016), MOOC learners must have enough practice process to master this course, and using MOOC can be a good way to increase students' practice time. In addition, the interview results showed that students found the real videos on MOOC more convincing and impressive, allowing them to learn the whole course more easily.

5.3 Recommendations

Based on the findings and conclusions made from the study, the following recommendations are proposed:

5.3.1 Recommendations for Implementation

1) The use of MOOC has been found to enhance the Careers Guidance performance of the students in their third year of college. Consequently, MOOC may be utilized for the teaching of this course in other institutions as well.

2) It is recommended that other Careers Guidance instructors use MOOC as an alternative learning method to teach Careers Guidance courses.

3) MOOC can also be used in other fields since they provide numerous materials, along with the potential to analyze whether they have a similar effect on student learning. In addition, they can also be used as a complement to traditional classroom instruction.

5.3.2 Recommendations for Future Research

The following recommendations are for any interested researchers to take into account before doing any similar studies in the future.

1) This study was limited to only 30 students at Heihe University in Heilongjiang Province, China. Therefore, a similar study may be conducted in a larger sample in a different region of China, which would be useful for replication and help to validate and ensure the reliability of the conclusions drawn in this study.

2) This study was limited by the time and was conducted over a period of one month. Therefore, further studies over a longer period of time are recommended in order to obtain more reliable and significant results.

3) Further similar studies could be conducted by including different schools located in different geographical locations in the country.

4) Similar studies can also be conducted by using MOOC for other subjects.

5) For the purpose of comparative study, this study can be repeated to examine the efficacy of MOOC in different schools in different regions.

All details regarding the data and the findings of the study have been presented. Before concluding this section, we noted that MOOC have had a positive impact on the students' performance in and satisfaction towards Careers Guidance courses. Teachers and students in China and around the world may find MOOC to be an alternative and innovative method of teaching and learning this course. In addition, MOOC have the potential to be promoted for more effective Careers Guidance teaching and learning, as well as other related fields of research.

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