Using Multimedia Technology to Teach Modern Greek Language Online in China: Development, Implementation, and Evaluation

(Sally) Xiaoyin Huang [xiaoyinh@sfu.ca],
Hellenic Studies at Simon Fraser University

Costa Dedegikas [cdedegik@sfu.ca],
Hellenic Studies at Simon Fraser University

Jan Walls [jwalls@sfu.ca],
Professor Emeritus, Humanities Department,
Simon Fraser University [http://www.sfu.ca].

8888 University Drive, Burnaby, B. C, Canada.

Abstract

This article reviews the process of design, development, and implementation of the Modern Greek online courses (Chinese version) in Hellenic Studies at Simon Fraser University (SFU), in collaboration with Chinese university partners. The purpose of this study is (a) to explore the effectiveness of the course design, and (b) to reveal the challenges to popularizing these courses in more Chinese universities. The findings from our survey of students in Beijing Language and Culture University show that the multimedia technology combined with appropriate instructional design can create a good learning environment that leads to effective language learning. Meanwhile, challenges have been revealed during the implementation that calls for future study. Other future research issues on learning the Greek language in China are also discussed.

Keywords

Teaching and learning Greek language, online course, multimedia learning.

Introduction

In 2005, Hellenic Studies at Simon Fraser University (SFU) embarked on Project Odysseas: the development of a series of Modern Greek online courses for Chinese universities. We conducted an investigation on the learning needs, characteristics of the learners, Internet connectivity, and computer facilities available in China. The results from these studies showed that there was large demand for learning Greek language, and the majority of learners were in universities. At that time, there was only one university who provided an undergraduate program for Greek language, and they recruited no more than 20 students every few years. There are few Greek language teachers and little learning resources available. After a series of discussions and negotiations, three universities, Peking University (PKU), Nankai University (Nankai), and Beijing Language and Culture University (BLCU), became the first partners to deliver these courses to their undergraduate and graduate students. The partnership later extended to include more than 20 universities. Over one thousand students have registered in these courses since 2006. In 2006 and 2007, 90 students from PKU and BLCU received university credit from these courses.

As a preliminary study, this article reviews the process of design, development, and implementation of Project Odysseas. The study will focus on two questions: (a) With the large demand for Greek language leaning, do these courses provide an effective online learning environment as an alternative means to fulfil the shortage of Greek teachers in China? (b) As pilot research, what are the challenges to popularize those courses and extend them to other universities in the future?
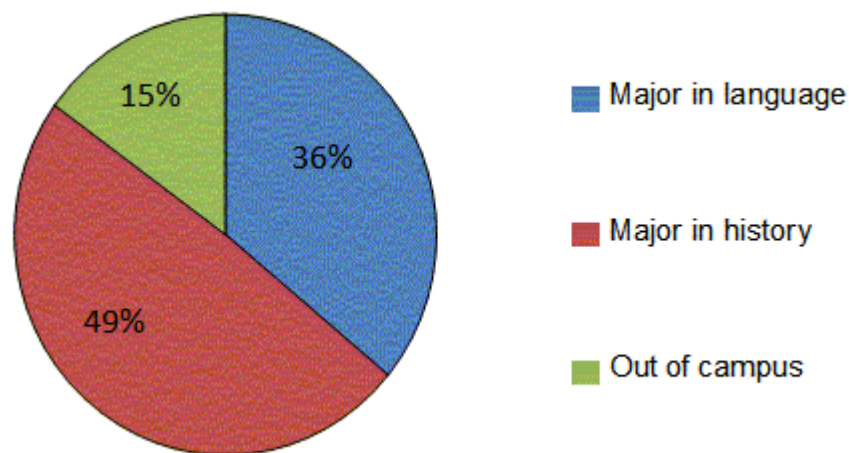
Demand for learning Greek in China

Figure 1. Student Distribution

Who is interested in Greek language learning in China? According to statistics from the past three years, learners are mainly from the following three areas (Figure 1):

(1)Students who major in languages: they want to learn Greek as a second or third language or as supplemental material for learning English since a large amount of vocabulary used in English comes from Greek. They believe that learning Greek will help them better comprehend the English language. The statistics from 2006 to 2009 shows that the proportion of this group of students among all Greek language learners is 36%. (2)Students who major in world history: they need to learn Greek language as a tool to deepen their understanding of their history courses as well as to conduct relevant research. The statistics from 2006 to 2009 shows that the proportion of this group is 49%. (3) Off-campus students, including Chinese immigrants living in Greece, employees from the Embassy of Greece in Beijing, and the Embassy of the People's Republic of China in the Hellenic Republic, business people, travel agents and employees, as well as people who are interested in Greek history and culture. The statistics from 2006 to 2009 show that the proportion of this group is 15%.

Why is there such a big demand of learning Greek language in China? According to our investigation, many universities plan to offer such language courses, but there are few qualified instructors and learning resources available to support teaching and learning, so only limited Greek language courses are provided in a couple of universities. Greek language teachers are mainly from the following areas:

- Chinese scholars who studied in Greek universities;

- Former Chinese diplomats who worked in Greece and Greek diplomats who are currently working in China;

- Graduate students who have studied a short time in Greek universities; and

- Greek instructors sent by the Greek government to China.

Since some teachers are not professional Greek language instructors, the courses they teach often focus on specific topics, such as Greek antiquities, culture, or tourism, rather than a complete language system. In addition, very limited class time and the non-native learning environment provides students with few opportunities to practice what they learn. Although in the past few years the Greek government has sent some teachers to Chinese universities, such as Peking University and Nankai University, there is still not enough classroom time to meet the needs of Greek language education. There is an urgent demand for stable professional Greek courses in Chinese universities. To this end, we started the development of the Greek online courses (in Chinese).

Instructional design of Greek online courses (Chinese version)

The development of the Modern Greek Language online courses (Chinese version) started in 2005 by translating and compiling its English version into Chinese. The English version was created by Hellenic Studies at Simon Fraser University (SFU) using an online course management system called *Intelligent Language Tutor*, which was developed by the Media Group of Hellenic Studies. It already had been delivered to SFU students for two years by that time. There are four levels in this course, from Greek alphabet to the basic dialogues, and to higher level articles. The course design not only covers the standard modules of language learning, such as text, vocabulary, and grammar, but also emphasizes the acquisition of language competence by applying multimedia learning theories and approaches, such as the cognitive load theory, multimedia learning theories, and communicative language teaching approaches. Through the combination of technologies with these learning theories and approaches, we expected to provide a reliable

and effective online learning environment to the Chinese students.

Text section includes a variety of dialogues from the modern life of Greek people, such as travel, shopping, film, soccer, dining, and house renting. Galloway (1993) indicates that "Students' motivation to learn comes from their desire to communicate in meaningful ways about meaningful topics". Since students may encounter such situations in the future, they may be more motivated to learn these dialogues for future communication with local Greek people. Multimedia technologies are used to present the situational dialogues, such as texts, images, animations and videos. Mayer's study (2001) indicates that students learn better from words and pictures than from words alone. Audio pronunciation is linked to each sentence of the dialogue. Students can self-practice the pronunciation again and again without the stress of speaking publicly. According to Masciantonio's fifteen hints for learning Greek (1985), oral reading is vital for students' listening and speaking. We believe that such a multimedia learning environment can stimulate students' interests, and leads to better acquisition of communicative competence.

However, multimedia instructional messages should be presented so as to adapt to learners' cognitive capacity. Cowan (2005) indicates that human working memory has a limited capacity to hold information. If new information is too much to comprehend for a learner, she/he will be overwhelmed. Since the beginner has no prior knowledge of the Greek language, it is often difficult for him/her to understand the meaning of the text, even simple sentences and short paragraphs. To reduce the cognitive load, two types of assistance are provided in the first level of the course: sentence translation and word-by-word annotation. Sentence translation can be shown/hidden by clicking the control button. This is designed to help students quickly comprehend the text (show translation), while gradually adapting to the natural target language environment (hide translation). The word-by-word translation (mouse over a word to show the translation) can be used when students have difficulty to understanding specific words. It is expected that such *student-controlled help* or *on demand assistance* can help beginners better manage their cognitive load, and better acquire the new language (Plass and Jones, 2005). However, if this kind of help is to be provided continually, students may not make an effort to explore the meaning of the words and sentences themselves. Therefore, as-learning progresses, this type of assistance is gradually faded out in levels 2 and 3. Eventually, level 4 provides untranslated text because the students are experienced and assumed to have the competence to learning in a pure target language environment.

Grammar is the most difficult section, according to the survey of Chinese students. They are often confused by the complex case, gender, and variety of declensions and conjugations because there are no such grammatical phenomena in the Chinese language. To help students learn these complex grammatical rules, many examples are provided to demonstrate their usage, followed by a series of non-risk exercises, which provide opportunities to practice applying the rules. According to the communicative language teaching approach, if we provide contexts for using the grammar and for connecting the processing of the language to producing it, grammar will become a way to express meaning, to interact, and to communicate (Lee & Vanpatten 2003).

Vocabulary is a challenging component in learning the Greek language. One word may have many kinds of declensions or conjugations. The same word often expresses different meanings in different contexts. A variety of prefixes and suffixes combining with the word stems produces many new meanings. There are also many stories behind some compound words. To help students better understand these words and accurately apply them in their communication, the following instructional strategies are used in vocabulary learning: (1) Organizing new words by category, such as "Nouns Masculine", "Nouns Feminine", "Nouns Neuter", "Verbs", "Adjectives", and so on; (2) Providing commentaries, examples, and expressions relevant to the vocabulary; (3) Linking audio to help with pronunciation; (4) Providing exercises which focus on the usage of these new words. Below is an example:

🔊

η φιλοξενία: friendly. The word is a compound of two stems:

φιλώ/I love + ξένος/stranger, visitor.

Greeks, indeed, are very hospitable, friendly and welcoming to guests.
Their ancestors had named Zeus the father of the 12 gods, and they believed
that Zeus was the protector of strangers.

The communicative language teaching approach advocates learning vocabulary through comprehensible and meaning-bearing learning input, followed by specific input-oriented activities (Lee & Vanpatten, 2003). After students have learned the new words, we provide multimedia exercises for them to practice what they have learned, and encourage them to use the isolated words to create phrases, sentences and paragraphs, finally to amalgamate these words into their language system.

Culture: Social context is important for language learning. Our learning environment can't duplicate the vast cultural context that native speakers live and work in on day-to-day basis (Lee & Vanpatten, 2003). In these online courses, a lot of real pictures and animations are used to provide social and cultural situations in Greece (Table 1). This background knowledge is expected to enhance students' understanding of the text content, as well as provide real information for their future use.

Table 1. Text and social content

Dialogue	Cultural
Visiting National Gallery	**Introduction of museums in Greece**
Renting a house	Rental message and rental agreement.
A concert	Greek music
......	......

Exercise is an important means of applying new language to practice. Like most of distance education courses, traditional types of online exercises are still used in the Greek courses, such as multiple choice, drag-and-drop, fill-in-blanks, and short answer questions. In addition, there is an innovative practice (the two-way audio recording exercise) where students record their pronunciations/presentations which will be saved into their database. The instructors can login to the administration page, listen to the pronunciation/presentation, then send the feedback to students by both audio and text. In this way, students are able to communicate with their instructors and improve their pronunciation.

Feedback plays an important role in online learning. It not only tells students the correct/incorrect answer, but also provides comments and suggestions to guide students' self-improvement. It can increase students' knowledge, skills, and understanding (Shute, 2008). To this end, we provide a large amount of immediate feedback in each unit exercise. It includes three types: yes/no response, specific explanation of the answer, and the suggestions for further understanding. For example:

Question 1: Fill in the blank with the right form of preposition.

Η Σοφία σπουδάζει οικονομικά _____ πανεπιστήμιο
        στο   στην   στη   στις

Feedback:

στο : Right! *πανεπιστήμιο*is a neuter singular word therefore the preposition should be used in the same form.

στην: this preposition should be used in front of a noun which is feminine singular and starts with a vowel. Please review the grammar section of unit 3 and 4.

στη : this preposition should be used in front of a noun which is feminine singular and starts with a consonant. Did you notice what Τζόν said in the dialogue? It is "Όχι, δενδουλεύω. Σπουδάζω ελληνικά στο πανεπιστήμιο. "

στις : this preposition should be used in front of a noun which is feminine plural. Please review the grammar section of unit 3 and 4.

A study by Koedinger & Aleven (2007, p. 250) showed that immediate yes/no feedback can keep students focused on successful learning experiences, and the feedback with explanatory content supports performance and learning better. The results from our survey of BLCU students also support this conclusion (Table 3).

Student evaluation. Bloom et al. (1971) indicate that the purpose of evaluation is not only to show students learning outcomes (summative evaluation), but also to help students improve their learning during the knowledge formation stages (formative evaluation). To achieve these two goals, we designed a combinative evaluation plan to assess students' communicative language competence (Table 2).

Table 2. Online Evaluation Criteria and Method

Evaluation	Percentage	Notes
Unit exercises	10%	• Students get 10% marks when they complete all exercises. Computer evaluates automatically.
Review exam-1	15%	• Take Review exam-1 online after completing ¼ of the course.
		• Take Mid-term exam online after completing 1/2 of the course.
Mid-term exam	20%	• Take Review exam-2 online after completing 3/4 of the course.

Review exam-2	15%	• Take Final exam online after completion of all course content. • Computer evaluates automatically, students get report right after submitting the exam.
Final exam	40%	• The orally recorded exercises are evaluated by human tutors to ensure accuracy.

The mandatory exercises after each unit are used to test students' understanding of what they have learned in this particular unit. They will get 10% of their total marks upon completion of all of the unit exercises. According to Bloom et al. (1971), every effort students make will lead to the improvement of their learning. We also provide an immediate report after review/mid-term exams. This guides students to focus on some particular learning necessity, and helps them move toward mastery of the language. At the end of the course, a final exam is given as the summative evaluation of the whole course.

Student Performance Tracking function enables each student to view his/her progress in the class, including the percentage of exercises completed, the correct/incorrect record of each question, marks for exercises and exams, as well as a performance graph which explicitly shows the student's progress. The average/lowest/highest marks of class performance are also provided to let individuals compare their performance with the overall performance of the class. It is expected that this function can motivate students to apply themselves in coursework.

The instructors are able to see exactly how each individual is performing at all times, without grade books or piles of paper. Since the class lists, student contact information, tables of class and student performance, and scheduling information are all online, the teaching of the course becomes a less stressful and more rewarding experience.

The online forum creates an online community for students and instructor to interact with each other. They can ask and respond to questions, discuss course content, and share learning experiences. The forum not only enables students to learn from each other, but also reduces the sense of isolation on the part of individual learners and increases collaboration in an online learning environment.

Methodology

This study focuses on case study methodology. A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context. (Yin 2003). Regarding our project, we believe that this methodology is appropriate for our research for the following reasons. First, this study requires us to track students' learning process, and to collect useful data to explore the effectiveness of the course design and implementation. The case study approach then can provide us an empirical means to investigate the effectiveness of online learning within the context of Greek language education in China. Second, the case study is descriptive research where researchers collect and analyze detailed information about a particular participant or a small group, drawing conclusions only about that participant or group and only in that specific context. Researchers' emphasis is then placed on the exploration and description ("Case Study: Introduction and Definition," n.d.). Our project matches this feature well: we need to focus on the investigation of a group of students with no Greek language leaning background, and use questionnaires to gather descriptive information to help draw conclusions. Finally, we believe that the conclusion from this single case study can be generalized because the information collected from BLCU students can well represent the current situation of most Greek language learners in other Chinese universities. According to Flyvbjerg (2004), researchers often use information-oriented sampling to maximize the utility of information from single cases, and these single cases often reveal more information because they activate more actors and more basic mechanisms in the situation studied.

A combination of qualitative and quantitative method is used for data collection. Online questionnaires consisting of close-ended questions and one open-ended question are used to collect qualitative and quantitative data. Students' scores on exercises and exams are also collected to indicate the effectiveness of the course design. As Ercikan & Roth (2006) have claimed, all phenomena simultaneously have both qualitative and quantitative dimensions that cannot be simply separated, therefore an integrative approach that does not differentiate qualitative and quantitative aspects will be more helpful for researchers to make choices regarding data source, data construction, and analysis methods that best fit their research questions.

Our expectation is that multimedia and Internet technology combined with appropriate instructional design can create a good online learning environment that leads to effective learning. Meanwhile we hope to discover the challenges in popularizing these courses in other Chinese universities, and this will become the goal of our future research.

Method

Participants

BLCU first used this online course as one of the ie credit courses in 2006. In the spring semester of 2006

and 2007, 77 undergraduate students participated in the 12-week, self-paced online Greek course offered through Hellenic Studies at Simon Fraser University. Data from 74 students was collected. Three students gave up on the final exam because they didn't complete all of the course units.

Material for evaluation

The evaluation material consisted of two parts: students' performance from exercises and exams, and an online survey questionnaire. Students' performance was automatically recorded by the course system during the process of learning. The questionnaire included 24 closed-ended questions with three-level Likert scale: Agree, Agree somewhat, and Disagree. They were used to collect students' attitude toward the course instructional design. An open-ended question was included at the end of the questionnaire, which provided participants with the opportunity to expand upon their responses. For the purpose of this research, the closed-ended questions were written in both English and Chinese, and students were allowed to respond to the open-ended question in both languages.

Procedure

There are 12 units in total in this course. A study guide was sent to all students by email at the beginning of the semester. Instead of buying textbooks, all texts and vocabularies can be downloaded from the course website, while other learning materials are used online only. Students were asked to start learning from unit one. Only when they completed all exercises of this unit, were students allowed to enter the next unit. This policy is used to ensure that students have enough practice on what they have learned in the online self learning environment. The review exam-1 was automatically enabled when unit 4 was completed. The exam lasted for two hours. As soon as they click the submission button, students can get an immediate report. The same process is used in the mid-term exam, review exam-2, and the final exam after completing units 6, unit 9, and unit 12, respectively. The detailed evaluation criteria are described in Table 2.

Participants were asked to respond to an online questionnaire right after the completion of the final exam. Table-3 illustrates part of the total number of questions. All data were collected and organized into excel files and bar charts by the researchers for later analysis.

Results

The result of the questionnaire was collected from the online survey tool created by the project team. The result relevant to the course design is showed in Table 3. (The other questions about hardware and technical support etc. are out of the scope of this article).

Table 3. Survey Result (2006-2007)

Survey questions	Agree	Agree somewhat	Disagree
This online course provided a good learning environment	40%	55%	5%
The text dialogue provided practical, real-life content	52%	38%	10%
The grammar provided practical knowledge which is helpful for the comprehension of the text.	38%	50%	12%
The Culture section stimulated my interests.	47.5%	50%	2.5%
The explanation and pronunciation in vocabulary are clear and functional	29%	38%	33%
The homework exercises helped me understand the text & grammar, and helped me comprehend the vocabulary.	62%	33%	5%
The homework exercises feedback was clear and helpful for improving my learning	47.5%	40.5%	2%
The audio in text and vocabulary improved my abilities of listening and speaking	29%	50%	21%
The online forum was helpful for discussing questions and communicating with instructors and classmates	54.5%	40.5%	5%
I hope to have a printed textbook	94%	6%	0%
	Easy	**Moderate**	**Difficult**

I feel the homework exercises were	7%	50%	43%
	3-5	**6-9**	**10+**
On average, I spent the following hours for one unit	62%	31%	7%
	Lighter	**Reasonable**	**Heavier**
Compared to the regular courses in BLCU, the workload of this course was	5%	26%	69%
	Yes		**No**
I would recommend this course to my friends	76%		24%

Students' performance was automatically calculated and saved into their database. It is showed in Figure 2.

Figure 2. Student performance (2006-2007)
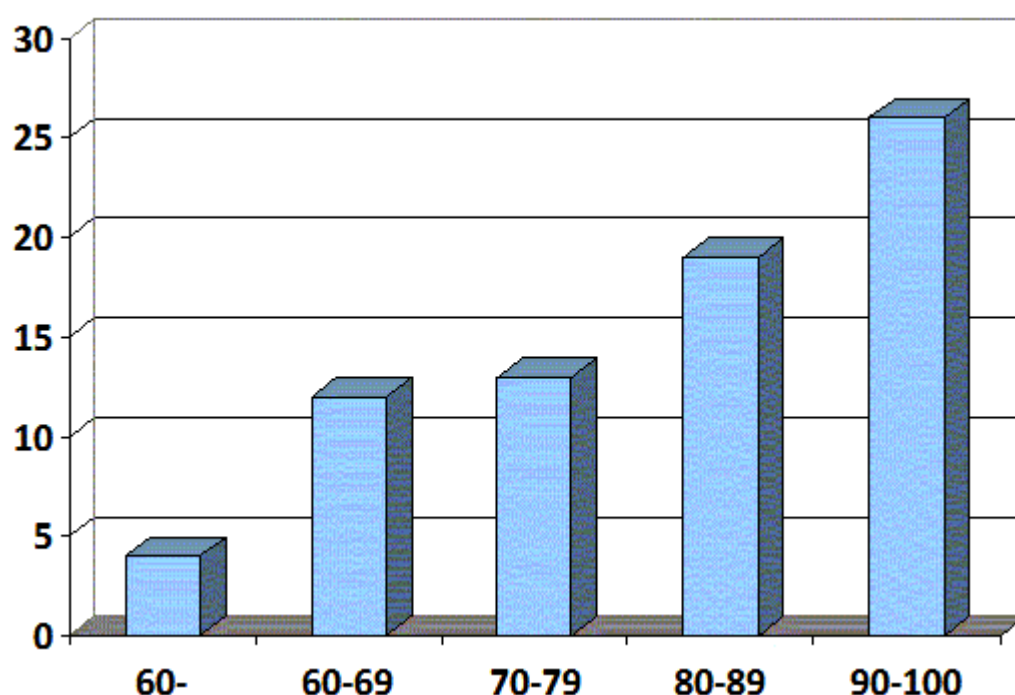
Interpretation of Results

The results show that the majority of students are fully or partly satisfied with the online learning environment (95%). They also benefit from the online simulated real-life situational dialogues and meaningful grammar (90%, 88%). The evaluation of the culture section strongly indicates the importance of social context (97.5%). The online discussion, exercises and other activities are also functional in forming students' communicative competence (95%, 88% and 95%). Comments from the open-ended question also reflect students' satisfaction of this course: "I like this course very much*", "I am glad to have this opportunity to learn Greek language and culture", "As an online course, it is a successful one*". Overall, the results suggests that students very much appreciate the online learning environment. The multimedia and Internet technology is appropriate, and the instructional design is effective. In addition, 76% of the participants would like to recommend this course to their friends, which would indicate an optimistic future of extending those courses to more universities in China.

However, we can also see from the results many challenges to popularizing those courses in other universities. First, 33% of the participants think that the explanations and pronunciation of vocabulary are not very clear and functional. Comments from the open-ended question show that students feel the pronunciation was too fast to hear clearly as beginners: "The pronunciation is too fast. I hope you can slow it down* ", "I hope a human tutor can teach us the pronunciation, especially the difficult letters ρ and γ*".Secondly, 43% of the participants encountered difficulty in homework exercises, and 38% spent more than 6 hours to learn each unit, in contrast with the instructor's expectation of 3-5 hours. Comments from the open-ended question also indicate that students expect a human teacher and face-to-face tutorial: "The course load is too heavy*", "I hope we can have a human teacher and a textbook*", " I hope to learn by video

conference", "We Chinese students are used to the classroom teaching style[*]". The reason for this situation could be that the traditional face-to-face class is still the main style of teaching in China, and the habit of relying on lectures has been formed during the students' early education. Similarly, traditional textbook-based learning also increases the difficulty of online learning through the use of e-[1] learning materials. Finally, a notable issue is that both students and online tutors feel that the online workload is heavier than that in classroom. According to Plass & Jones (2005), this may happen in the initial phase of online education due to the beginners' lack of prior knowledge. How to effectively reduce students' cognitive load becomes a research question for the future.

Changes Made Following the Evaluation

Following the data analysis, solutions are discussed, presented, and implemented. (See example in Table 4). To provide a better online learning environment, the technical team has been updated the whole course system in 2010.

Table 4. Problems and Solutions

Problem	Solution
No textbook available	Textbook is in the process of being printed
Pronunciation is too fast	Re-record to slightly slow down the speed
Difficulty in exercises, overtime learning, and heavy study load.	Provide tutorial class through online conference, or if possible, to give face to face tutorial.
...	...

As Greek is a minor language in China, students are facing more challenges to learning Greek language than other foreign languages, such as English. There is lack of teachers, learning materials, and practice environments. As a pilot study, Project Odysseas is trying to draw more attention from educators and administrators to this situation, and to promote multiple styles of teaching and learning Greek language in China. The study is continuing. We believe that with more and more new technologies being incorporated into education, online learning environments will continually improve, and online teaching and learning will become more effective and efficient.

[*] The students' comments are translated from Chinese.

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