Explore Home-Web-Campus 3-D Teaching Model—Evidence from Experiments on Mosoteach

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Abstract. University teachers begin to employ information technology into teaching activities. This paper tries to study the effects of information technology adoption on effectiveness of performance and learning output of students. The author bravely introduces experiments which is typically used in the study of economics in teaching research. The author chose sophomore in International Economic & Trade School from Jilin University of Finance and Economics as experimental targets. One group is put into the traditional teacher-oriented classroom; the other is in technology-enhanced teaching environment, as test group and control group respectively. Data has been collected via the platform of Mosoteach app. from 3 aspects: attendance, performance and learning output. Simultaneously, questionnaire, interview and deep interview have been adopted to enrich and supplement the experiment. The experimental results show positive correlation between information technology adoption and Learning output. This paper provides home-web-campus 3-d teaching model to extend teaching activities outside classroom, makes smart teaching effective and contributes to the creation of “Golden Class”.

Introduction

The Chinese government has been striving to further improve its business education system by adopting elements from countries around the world by seeking to create a blend of Eastern and Western education systems. Our Chinese students are hard-working, persistent, and deep thinkers while western education system creates independent thinkers and good communicators who are open to ask questions.

But with the fast growing development of internet and smartphone, students are addicted to smartphone, they always have them in class, some educators start to think about how to use smartphone in classroom teaching. Although cellphone technology is being used in business classrooms there has been no proper scientific study to test improvement in learning outcomes, especially in problem solving ability.

Methodology

This paper has firstly introduced experiments which are popular in the study of economics into the research of teaching reform in methods and models. Experimental economics is the application of experimental methods to study economic questions. Data collected in experiments are used to estimate effect size, test the validity of economic theories, and illuminate market mechanisms.

This paper also circulate questionnaire to the target students to collect information and data. Based on these data, interview will be conducted at the same time, and then deep interview will be followed on more interesting and more challenging parts.

Experiments design

School of International Economic and Trade from Jilin University of Finance and Economics is our experiment target, the author has obtained the permission and support from colleague to run tests on students with test group doing lessons of International Trade Practice without any technology—that is they have learned out of textbooks and teachers only. This is the control group. The students from the
author have had lessons using suitable classroom cellphone technology that allows more active learning; Mosoteach is chosen as the representative application software, which allows students to collaborate in teams inside and outside the classroom.

Comparisons will be made between the results to test if there is an improvement from the use of technology compared to the traditional book learning method.

2 similar classes are chosen, one has 77 students, the other has 78 students, both similar size of classes are taught International Trade Practice, which is a very practical course, requiring students to have the ability of problem-solving, deep-thinking, independent and creative qualification. This course cultivates students to cooperate and collaborate to fulfill group projects with what they have learnt from classroom teaching.

This experiment will assess the learning output and performance from 3 aspects: attendance, performance and learning output.

**Smart Class Design Intention and Findings via Mosoteach**

Mosoteach is based on artificial intelligence, cloud technology, big data and mobile Internet technology. It is an intelligent cloud teaching platform to promote the reform of teaching mode.

Mosoteach has 6 modules; they are performance, resource, member, activities, message and details. Performance and activities are designed to encourage and motivate students via the donation of experience value, resource is used to share latest policy in economic field and literature, message is used to announce, and the details will provide basic arrangement about this course, this module challenges the teacher to have a comprehensive design so that the students can be familiar with the course schedule.

After the use of Mosoteach in the course of international trade and practice, we collected the following data to assess the students’ performance.

1. Attendance: We choose ten times attendance to compare, in graph1, the red line(lower one) represents the attendance of the traditional class, we can see that at the very beginning the rate of attendance is very high, because most of the students just returned to school, and are enthusiasm about learning, then they are becoming lazy, so the rate falls, but when times move towards the end of term, the rate increases again, for they are afraid of being failed and eager to get help from teachers. While Mosoteach is employed, the rate of attendance looks better than the traditional one, all of the students have to go to class. The average attendance is 96.1% for traditional class, while the average for technology-enhanced is much higher, that is 98.3%.

![Figure 1. Rate of attendance.](image-url)
2. Performance. In order to motivate the students to fully involved in the class activities, the author use diverse activities, brainstorming is on the top of the activities, which accounts for 75%, through this the students have to concentrate on learning, after a short period of learning, a mini-test or question will be circulated to collect ideas from all the students, experience value will be given based on different performance. Group work accounts for 17%, this part extends learning forward and afterward, the team will have to work together to think out problem solving plan, it is helpful to cultivate the students’ team spirit and cooperation. Questionnaire sometimes are used to collect opinion and getting feedback to improve teaching quality and learning experience. Test is only used for the mid-term exam.

3. Learning output: Graph 4 provides learning output at the end of term. For the traditional class, 28 students failed, and only 1 students is on the top, 64 students are in the range of 60-69, which accounts for the majority, 47 students are in the range of 70-79, which also accounts of more, in the range of 80-89, there are 15 students. While after Mosoteach is adopted, the statistics improves a lot. Only 5 students failed in the final exam, and 9 students are on the top level. The students in the range of 80-89 increase to 25, the students in the range of 60-79 fall to 116 together. It is easily found that the learning output is much better after technology has been used in classroom activities.
Feedback from Questionnaire and Interview

At the beginning of term, questionnaire is circulated around students via Mosoteach. 80% of the target students wish to get practical knowledge and useful skills in career, 50% of the students have no idea about what is this course about, 5% show indifference in learning. Therefore the author invites expert in this field to introduce the industry and the required qualification so that the students have a better understanding about the relationship between campus learning and future career.

In the middle of term interview is conducted, 80% students love this new style of teaching, they are becoming more concentrating, participating and classroom is becoming more active. But as to the team work, 60% reflect that not every member makes contribution, they are free loading, especially the they are evaluated as a group not individual, they think sometimes it is unfair. Based on this response, the author redesign the guideline of team dividing and assessment.

At the end of term, deep interview is conducted with 20 students, they reflect the technology enhanced teaching and learning is more effective than the traditional one.

Summary

From the questionnaire, interview, deep interview and data analysis, it is concluded that the technology enhanced teaching activity are more welcomed and effective than the traditional one, students are more involved and participating, teachers extend teaching activities outside campus, more resources can be shared, timeless communication is achieved on Mosoteach.

Enhanced technology teaching is a tendency which is unavoidable. Current university teachers have to master at least one type of teaching application software to further explore the functions and make full use of it. This extends classroom activities outside campus, and extends teachers working hours. This new style enriches teaching experience, while bring challenges too.

More experiments will be made and more data will be collected in the following terms, hopefully to design a more advanced, intelligent and fruitful home-web-campus 3-D teaching model.

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