

Rain Classroom-Based Smart Class Construction: Taking Advanced Business English Courses as an Example

Ling Zhang

Department of Foreign Languages and Cultures, Beijing Wuzi University, Beijing, China

Email address:

Irene_zhangling@hotmail.com

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Abstract: The internet is transforming from the traditional wired network to the wireless one and moving forwards to the post-internet era which is a break through beyond the limitation of time and space. The technology will bring forth new ways and new tools of teaching. The APP "Rain Classroom" developed by Qinghua University is a typical case. This research, based on the application of Rain Classroom (RC) in Advanced Business English, is trying to build a practical model of smart class. This model consists of four co-related parts. Part one is preparation part with extensive learning resources from the Internet, and then pre-lesson part, the independent and cooperative learning part with task list from teachers. After that, learners enter the Rain Classroom-based classroom learning part, and finally is the after-class knowledge internalization part with revision task list. Author applied the four part model in her course ---advanced business English for half a year. This empirical study compared the learning outcome of two classes, one of them is Rain classroom-based and the other one is traditional teaching method-based. The research discovered that RC helps to promote the equality between teachers and students, broaden students knowledge, facilitate the knowledge application, easily organize learning data, form learning report and finally effectively build smart class. But at the same time, the research found that Rain Classroom is not a panacea to all the teaching problems. It still needs a lot of upgrade in question design, learner interaction, and reasonable forming the classroom report.

Keywords: Rain Classroom (RC), Smart Class, Empirical Study

1. Introduction

In recent years, smart classroom reform, for example, MOOC and Flipped Classroom, has become a hot topic of academic circles and teaching practices, but currently they are mainly used in all competitions, live classes and open classes, less applied in daily teaching practices. Most of teachers have not applied "Internet + Education" mode into daily teaching classes. MOOC is operated usually by a team instead of a single teacher, so it is not convenient for teachers. Rain Classroom makes single-person operations of "Internet+" teaching mode possible [1]. This study takes "Advanced Business English" courses as an example, makes empirical studies on Rain Classroom teaching practices under the background of "Internet+ Education" and conducts teaching reform for smart classroom structure to provide some references for teaching reform of other courses.

1.1. Rain Classroom

"Rain Classroom" is a new smart teaching tool released on April 2016 jointly developed by the Tsinghua University online education office and <https://next.xuetangx.com/>. "Rain Classroom" is divided into three parts from the view of software system: mobile terminal, computer terminal and remote server. Mobile terminal and computer terminal software are used for teaching application, while the remote server is equipped for the running of the support system and collection, storage, analysis and decision of big teaching data. "Rain Classroom" software interface is based on PowerPoint (PPT) and Tencent Wechat platform, which is popular while most of the teachers and students have them on their computers and smart phone terminals. For the convenience of use, "Rain Classroom" increases the functions of these two softwares through which teachers outside the classroom could push videos, voices and courseware to mobile terminals of students, get feedback information from students and realize

real-time communications between teachers and students in the classroom to provide the humanized and convenient interactions. Students could use their smart mobiles, not limited by public tools and others' help. This software, equipped with personal learning guidance and simulated learning design, is user-friendly and easy applicable.

1.2. Smart Classroom

Chinese education is always changing as the information technology progresses. Researchers have different views of the concept of smart classroom has not been clear. Zhong thinks the construction of smart classroom relies on the information technology. It changes traditional teaching methods, integrates information technology into the classroom teaching, and constructs personal, smart and digital classroom teaching environment to form the new classes for the smart ability training. [2]

Smart classroom integrates information technology with education to change students' knowledge on the subjects which makes it a new form and trend of Flipped Classroom, which further combines information technology and educational teaching [3] At the era of big data, traditional classroom teaching faces both new challenges and opportunities. It is effective to transform traditional classes both in the ways learning data analysis to change teaching behaviors. Rain classroom-based smart classroom based on could complete the dynamic learning data collection and analysis before, during and after classes, based on learning data analysis, smart classroom is more applicable to the classroom teaching reformation and innovation under the background of education information technology and big data.

2. Senior Business English Teaching Practices Based on Rain Classroom

This study builds the smart classroom framework based on "Rain Classroom", Learning of the physical classroom is divided into before-class, during-class and after-class parts. Communications happens between teachers and students, students and students, persons and Medias, equipment and equipment. "Rain classroom" teachers need to do preparations before class. Firstly, the teacher log on the official account of "Rain Classroom" on Wechat, creates the course name and class name in the "start" button. In the first class, students scan the QRCode to enter into the class course group Wechat. [5] The teachers load "Rain Classroom" plug-in application and plant-in PPT software, and then edit the classroom exercises, learning tasks and interactive teaching courseware in the "Rain Classroom" interface of PPT software. In the courseware editing, the teacher could modify the existing PPT courseware as the learning content, insert slides for class tests, in the form of multiple choices and subjective topics, and also MOOC video and network video, which is called "mobile courseware". Mobile courseware or test questions made could be uploaded to the official account of "Rain Classroom" wechat of teachers' mobile terminals, shown in "Courseware

Database" and "Test Questions Database" under the "My work" menu. These sources could be edited with voice directions in the "Rain Classroom" wechat account. To expand learning sources, the wechat official account could be operated, designed with texts, figures, voices and videos that are pushed to students through the official account "Rain Classroom". The teacher could use the bullet function in the teaching to make the classroom more interactive with students. Rain classroom could make sure every teaching link before, during and after the class is real-time interactive, collect learning behavior data, and help the teacher understand students' learning effects and control learning rails, to adjust the teaching progress and focuses and realize the integration of teaching and learning [6].

3. Empirical Research

This study included 75 English majors on the "Advanced Business English" courses of Beijing Wuzi University, with both quantitative analysis and qualitative analysis. Then, the efficacy of smart classroom teaching based on "Rain Classroom" is evaluated by questionnaires and interview. Quantitative analysis is carried out to analyze the differences of learning effects between the smart teaching and traditional teaching mode. Anonymous questionnaire survey is performed to evaluate the students' recognition on the smart learning mode and satisfaction with the teaching design. Qualitative analysis is carried out to analyze the advantages and disadvantages of the new teaching mode with written interviews to put forward the solutions.

3.1. Quantitative Analysis

The evaluation before the test is performed on two classes from the Junior Year in different majors (37 students in each class) at the beginning of the semester. According to interval-level data of equal scores (10 scores), Class 1 (n=37) is included into the experimental class, while Class 2 (n=38) is used as the control class by the stratified sampling and cluster sampling. The experimental class uses the "Rain Classroom" smart teaching mode, while the control class still uses the traditional teaching mode. Both of them complete 16-weeks "Advanced Business English" teaching tasks according to the syllabus. At the end of the semester, post-test data (as hard as the pre-test) are collected from two classes. Independent-samples T test is carried out on results of two tests with SPSS19.0 statistics software by the difference inference statistics. Test results indicated (as shown in Table 1) significant differences were found in Business English test results between the control and experimental groups ($t=5.434$, $df=98$, $p<0.05$); ESP test results of the experimental group was significantly higher than those of the control group ($MD=11$).

Table 1. Sample T-test of Two Classes.

Class	size	Average	M	SD	T	MD
Experiment	37	84.56	76	8.83	5.434	10
Control	38	80.97	65	8.12		

To evaluate the students' recognition on the smart learning mode and satisfaction with the teaching designs, Likert scale was used to collect quantitative data. In this study, a total of 75 questionnaires were distributed while 70 valid questionnaires were collected. The data statistics indicated that 60 students (85%) were satisfied with the smart teaching designs based on

"Rain Classroom" with the satisfaction.

However, students are less satisfied with their own smart classroom learning, only 25 students (37%) satisfied. That is to say students have higher satisfaction with teachers' smart teaching designs than that of learning performance in the smart classroom.

Table 2. Learner's attitude to Rain Classroom.

Description	Avg	S.D	S-1	S-2	S-3	S-4	S-5
Helpful in doing self-study	4.02	0.77	1	7	10	60	22
Enhancing my learning efficiency	3.96	0.85	5	6	35	37	27
More chance to practice	4.23	0.79	2	8	11	58	21
Will keep using RC	4.02	0.72	1	9	12	57	21

(scale-1: Strongly Disagree Scale-2: Disagree Scale-3: Not Sure Scale-4: Agree Scale-5: Strongly Agree)

3.2. Qualitative Analysis

Students are interested in this smart classroom teaching based on "Rain Classroom", but the survey results indicated that students thought their learning performance was to be improved. Classification and statistics on students' qualitative feedback showed that this new teaching mode improved learning performance in the following two ways: First, this smart classroom teaching mode inspires learning interests by satisfying their personal demands; second, diversified functions of "Rain Classroom" create new teaching forms and designs.

4. Discussion

4.1. Advantages

4.1.1. Improve Teaching Techniques

"Advanced Business English" courses involve a great many of tasks, and teachers have no enough time to show PPT, so students do not fully take notes. "Rain Classroom" effectively relieves this question. "Rain Classroom" combines the computer and smart phone by the technical manner, and the teacher could send courseware to students' phones through the media computer. After the class, students could review PPT courseware on the phone. Practically, most of students say that these functions reduce the burdens of taking notes. Additionally, "Rain Classroom" could help the teacher insert tests among PPT pages and give the test results, and the teacher could check students' performance at any time. [7] And the teacher could decide whether to give new knowledge according to class practices. This interactive mode is not achieved in the previous teaching practices.

4.1.2. Efficient Classroom Management

Classroom attendance is always a complex thing for teachers, while "Rain Classroom" solves this question. The teacher shows the courseware with the projector, and then the students scan "Rain Classroom" QRcode to get the PPT notes. At this time, the name list of students who have scanned the QRcode would be sent to the teacher terminal, and then the roll call work is completed. The teacher could also insert 1-2 tests in the PPT pages to check the students' performance and reveal the students who are absent.

4.1.3. Data-Based "Process Evaluation" by "Rain Classroom"

At present, more and more universities conduct "process evaluation" on students' learning performances, and check their results according to their daily performance, not their final exams [8] "Rain Classroom" system records all data on the preview, in-class test, class attendance and after-class exercises, and provides objective references for the teacher to conduct "process evaluation".

4.2. Existing Problems

Personal before-class guidance the teacher should optimize the before-class MOOC teaching sources and select the most applicable sources from MOOC teaching sources to increase students' participation. If necessary, the teacher should provide one-to-one preview tutorship to know about students' previews and practical applications of rain classroom.

"Rain Classroom" test instruments fail to meet the requirements of business English teaching now, "Rain Classroom" software has the best auto-checking and data statistics on single choice and multiple choices in business English tests. However, some topics on the software still are checked by the teachers, for example, completion, comprehensive completion, short answer questions and translation questions, etc. Hence, "Rain Classroom" could not help the teacher test the comprehensive knowledge of business English [9].

Correct use of phones in the teaching process with "Rain Classroom" software, students should use the phone terminals for the convenience, but some students would use entertainment functions of the phone, rather than the learning function. [10]

So the teachers should monitor the students in using the phones. After the students complete previews and after-class reviews on time, the students could monitor their performance by the teacher terminal; in the first class, the teachers should tell students that phone is an auxiliary tool that is not used when the teacher gives the lectures. Only in the class tests or discussions, the students could use the mobile phone. [11]

Integrity of classroom report the rain classroom teaching system generates this class report, including the classroom situation and students' performance. The rain classroom

software should be improved in the these aspects, for example, generate students' process learning performance, daily test results of each student, provide student file format and management maintenance function, give the proportions of each situation and provide teaching suggestion, and provide references for course designs. [12] These functions could help the teacher know about every student and design the content of the next semester. [13, 14]

5. Conclusion

It can be seen from the study results that the rain classroom not only provides support for in-class and after-class interactions between teachers and students, but also collects all data, providing references for the education research and management personnel to make quantitative research on students' learning behaviors. Predictably, with the development and applications of smart teaching instruments, the Rain Classroom learning behavior data would have great impacts in the education field. [15] In future, the researchers will collect more dimensional teaching data, analyze students' behaviors to help the education management department know about the current situations of classroom teaching and promote the teachers to improve the teaching methods and efficiency.

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