

Teacher's Opinions on the Cloud Classroom

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Abstract. In college students and faculty are eager to quickly access and getting information via internet wherever they are. In order to satisfy diverse teaching-learning needs, constructing cloud classroom is popular in colleges of China nowadays. However, what a kind of cloud classroom is really suitable for needs of teaching and learning, and what user's attitude is should be studied. The purpose of the study is to explore what teacher attitude is after they used the particular cloud classroom. And how they comment on the cloud classroom. 20 teachers from English major were interviewed and participated questionnaire survey. Some findings were gotten: 1) cloud classroom with no student PC and circular table-chair layout are appropriate to having language course. 2) Teacher like to have classes in cloud classroom, compared with in conventional classroom, and there is no difference of attitude between male and female teachers. According to teachers' comments on cloud classroom, the further study will explore how to reduce these shortcomings and build better cloud classrooms whether from hardware or from software.

Keywords: Computer-assisted teaching, cloud services, cloud classroom, classroom layout.

1. Introduction

Nowadays, computer-assisted teaching is more popular in educational field. From k-12 to college, most schools use the computer, internet, and other digital technology to assistant teaching and learning [1, 2, and 3]. Out of question, teachers and students are more interesting in these more impressing and vivid teaching ways and the learning outcomes are more efficient [4]. Moreover, with the sharing model coming into people's eyes, Sharing Resources and Sharing Economy become more and more popular. Some educational resources are shared online and teaching-learning resources and methods are prevalent on the internet. Especially, after cloud computing appears, the cloud is a favorite technology applied in education [5].

From a scholastic standpoint, the cloud offers educators outside of urban and private school environments equal access to world-class, global educational sites and teaching environments. As a result, their methodologies and their students' learning opportunities have a chance to flourish along with the best schools in the world, equalizing the playing field. Students benefit from the cloud because the technology helps them make more efficient use of their time in the classroom [6]. The cloud keeps them up to speed with their classmates. And some world leading university also provide some educational cloud service applications, like Massachusetts Institute of Technology, Stanford University, Harvard University, Oakland University, University of Leeds, University at Buffalo. China also has many famous university using educational cloud services in education, like Tsinghua University, Peking University and Zhejiang University.

For above reasons, many colleges built their cloud classrooms, either virtual classroom or equipped digital devised physical cloud classroom.

However, some scholars gave some negative comments on students much more depend on internet in their study. They think students waste their more time online to do something without their study, like playing online game, browsing pictures, or going shopping online. But some scholars conducted a questionnaire survey among college students about spending time online, the result was that students spent more time on their study than other things via internet. They prefer to take online course or search studying resource, especially for Chinese students, online English learning and cloud resources are more convenient and abundant. Many college students select online English listening practice programs to improve their listening level, even English teachers also assigned learning task via internet [7]. In other words, half tasks of English teaching-learning are done via internet or cloud services, except for face to face teaching [8]. However, there are still some gaps between teachers

and students. When face-to-face teaching in the classroom, students often are bored and teacher also feel tired and hurried due to limited class time. When completely depending on cloud service for teaching and learning, teacher and students cannot sit together at the same time and teachers cannot get responses from students immediately, such as answering ‘yes’ or ‘no’, or knowing their feelings from faces at that time. Moreover, due to shorting face-to-face discussion in a classroom with classmates or teachers, the relationship between teacher and students or among classmates will become fade [9]. If there are some kind of classroom that students not only can sit together to listen to their teacher, but also can use cloud service via local area network (LAN), it will facilitate teaching and learning and be better than conventional classrooms or teacher-free net classrooms. So, cloud classroom fast appears into many colleges. 2016, our department built their first two cloud classrooms for English major teaching.

2. Method

2.1 Cloud Classroom Equipment and Layout

Considered cloud service traits, mainly depending network, equipment is more economical than usual network classroom. Common network classroom has some personal computers (PCs), often called student PCs and one proxy, called teacher PC, which are connected to switchers or routers to make connections of LAN and internet. Teacher PC can control student PCs. In such classroom the student desks and chairs are set in row-column layout, according to the classroom size. Usually, there are narrow space for students sitting in chair and standing up from chair, especially for students who sit against classroom wall. When a teacher wants to have a lecture in such classroom, he can only walk backwards and forwards in aisles of classroom or stands in front of teacher PC and could hardly see most student’s faces because monitors on the desk block his sight lines. His eye sights can also hardly reach students who sit in the corners of classroom and know what they are doing during the class. However, our cloud classroom is different.

Firstly, there are some small size monitors of PC and some very cute student terminators instead of student PCs in the classroom. One teacher PC set in front of classroom works as a proxy for connecting internet but a real cloud server is set in another room which processes and stores the datum from students. Students don’t feel there are no any physical PCs besides them and they can do anything that they can operate on physical PC. Students can also inset their USB flash drivers into the student terminators for storing the datum. Teacher PC can control student monitors and send down teaching materials. Actually, teacher PC exchange datum or indications with cloud server set another room via LAN, and output from cloud server appears on student monitors. It seems that teacher PC interacts with student PCs. The cloud classroom equipment is set as following figure 1.

Fig. 1 shows that cloud server and main switcher are set in room1. Teacher PC is connected to cloud server via main switcher and there is no student PC, instead of student monitor in room2. Cloud server process datum and instructions from students or teachers. The function of main equipment of cloud classroom is showed in Table 1.

Table 1. Function of main equipment of cloud classroom

Components	Main function
Cloud server	Main component, it provides some software to make courses, hand out materials, manage student cloud table and teacher PC, and connect external net.
Teacher PC	Teachers user it to give students lectures and control student cloud table.
Student monitor	it connects the image files of courses, and students can operate it to get learning function.

Secondly, the student table-chair layout is also different from usual network classroom. Round or octangle tables are set in cloud classroom, and several student monitors are set on a table. Students also sit in a circle to listen to their teacher. Fig 2 shows the table-chair layout of the cloud classroom.

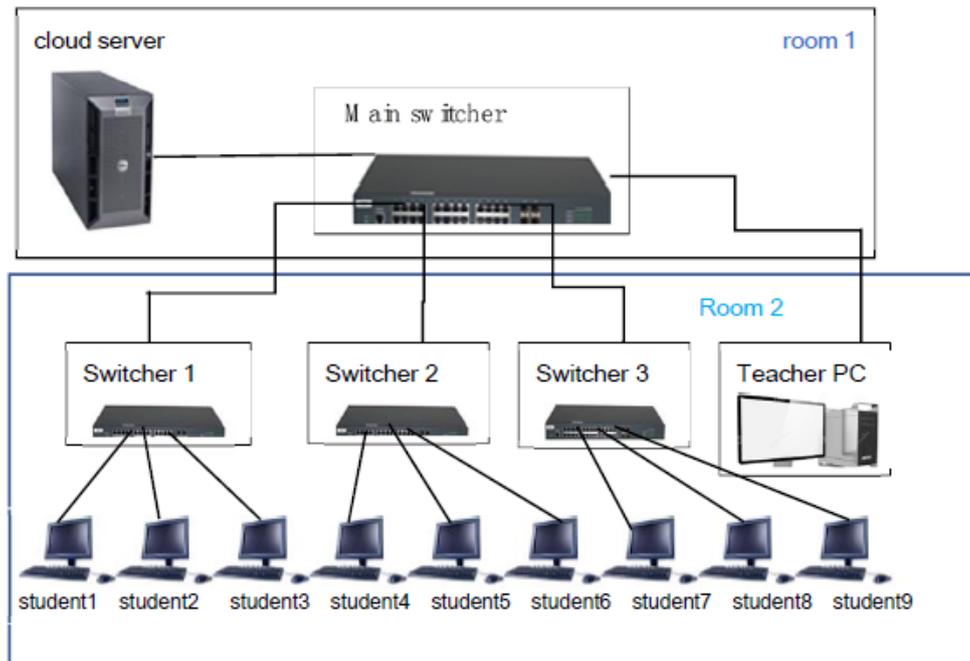


Fig 1. Equipment of Cloud Classroom

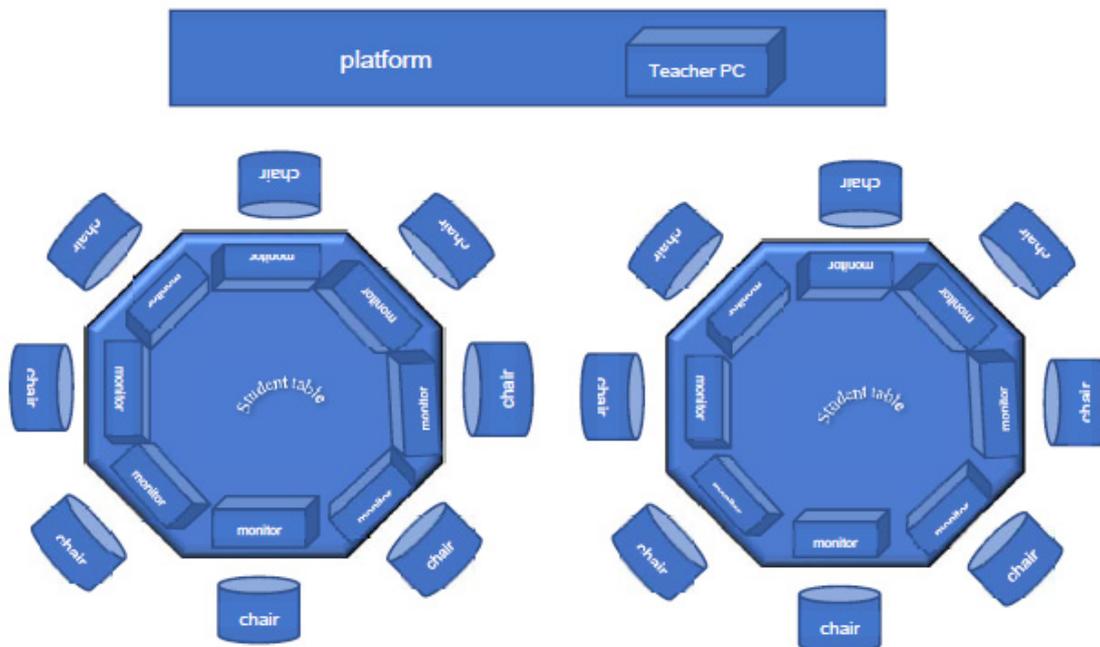


Fig 2. The table-chair layout in the cloud

Setting this layout showed in Fig 2 can save more space for teacher walking to the side of any student in the classroom. Students who sit at the same table can talk or discuss about some course topics, face to face, which facilitates student to grasp what classmates say and focus on topics. Students can get the help from their classmates who sit the same table conveniently. They can also easily sit in and go out from their seats without other chairs on their ways. In a word, this layout is convenient for teachers and students to walk in or out, like a meeting room.

2.2 Data Collection

English major students have classes in these two cloud classrooms, and most students are freshmen and sophomores. The main classes which are instructors in cloud classroom are oral course, speaking course, listening course, translation course and writing course. There are 24 teachers in teaching and research section of English major, and 20 of them teach some courses in the cloud classroom. 7 of 20

teachers are men and 13 teachers are women. There are 30 items in interview questions for teachers. 30 items are divided into three parts, namely feeling part, comparing part (the comparison between cloud classroom and regular classroom) and comment part. The first 11 items are in feeling part, the second 10 items belong to comparing part and the last 9 items belong to comment part. The first two parts (feeling part and comparing part) are about teacher's attitude towards cloud classroom.

Questions are showed as follows

1. Do you like teaching in cloud classroom?
2. Do you like this equipment of cloud classroom?
3. Do you like using the cloud service to set your class?
4. Do you like sharing your class in the cloud server?
5. Do you like to talk about some new ideas with colleagues via cloud service?
6. Do you like the layout of cloud classroom?
7. Do you like the atmosphere of cloud classroom?
8. Do you clearly watch students doing nothing with your course in the cloud classroom?
9. Do you like to walk backwards and forwards or to the side of students in the classroom?
10. Do you prefer giving lectures in cloud classroom to in regular classroom?
11. Do you like face-to-face discussion among students during your class?
12. Do you think student more concentrate your course in the cloud classroom than in the regular classroom?
13. Do you think students become more active in cloud classroom than in the regular classroom?
14. Do you think students interact more frequently in cloud classroom than in the regular classroom?
15. Do you think student turn in assignments more actively after using cloud classroom than before?
16. Do you think cloud classroom is more convenient for learning than the regular classroom?
17. Do you think you can easily set your course pace in cloud classroom?
18. Do you think you can conveniently switch your class pattern from giving a speech to listening to what student talk?
19. Do you think you can get better teaching outcome in cloud classroom than in the regular classroom?
20. Do you think students perform better in cloud classroom than in regular classroom?
21. Do you think in cloud classroom learning efficiency could be improved much faster than in the regular classroom?
22. What is the advantage of the layout?
23. What is the disadvantage of the layout?
24. What is the benefit that students can get from the cloud classroom?
25. What is really negative aspect that the cloud classroom gives?
26. What is the atmosphere of cloud classroom?
27. What do your most like about cloud classroom?
28. What do you dislike most about the cloud classroom?
29. What is your advice about having a class in the cloud classroom?
30. What is the difference of cloud classroom from the regular classroom?

There are 5-point scales, Likert Scale, in answering options for each question of 21 items in the feeling part and comparing part. The scale is consisted of expressions, such as "strongly like=5", "like=4", "neither like nor hate=3", "dislike=2", and "strongly hate=1". The attitude score is sum of each item score. The higher scores are, the more strongly teacher likes the cloud classroom. When teachers were interviewed, they were asked to fill the 21 questions form and answer the last 9 questions belonged to comment part. Table 2 shows the collected datum from 21 questions.

Table 2. Datum of teacher's attitude towards cloud classroom

Case number	Question number	Option point scale	Maximum of score ^a	Minimum of score ^a	Mean	Stander deviation
M ^b =7, F ^c =13, Total=20	21	1-5	95	55	81.3 5 ^d <mean 15 ^d >mean	12.85

A Score= the sum points of 21 items

B M= male teacher

C F= female teacher

D the number of teacher whose score is more than mean or less than mean.

As for comment part, 20 teachers gave their answers for each question, and the answers are showed in Table 3.

Table 3. Teachers' answers for 9 questions about cloud classroom

questions	answers	number	%
22. What is the advantage of the layout?	More free space	5	25
	Good for discussion	8	40
	The distance between teacher and student become closer.	7	35
23. What is the disadvantage of the layout?	Students sit too casually	8	40
	Student easily talk to each other	8	40
	It is challenge for teachers to control course pace.	4	20
24. What is the benefit that students can get from the cloud classroom?	Improve learning outcomes	7	35
	Improve their English oral level.	8	40
	Improve their creative capabilities	5	25
	Some students easily imitate classmates' ideas or copy homework.	9	45
25. What is really negative aspect that the cloud classroom gives?	Student is distraight easily during the class because of conveniently going online.	6	30
	Students' spelling level would go down for easily using e-dictionary.	5	25
26. What is the atmosphere of cloud classroom?	It is active	11	55
	It is Enthusiastic	6	30
	It is noisier.	3	15
27. What do your most like about cloud classroom?	Conveniently change teaching model	4	20
	Easily get teaching material	8	40
	Fast get students' feedback	8	40
28. What do you dislike most about the cloud classroom?	Dislike Android version for connecting cell phone, which disturb student concentration on course	5	25
	No dislike	11	55
	Hate student cheat in the test due to easily using materials on cloud server.	4	20
29. What is your advice about having a class in the cloud classroom?	Should get more such classrooms	10	50
	Should increase network speed.	8	40
	Should add the software to teacher PC for controlling student monitors.	2	10
30. What is the difference of cloud classroom from the regular classroom?	Course pace become faster	5	25
	Teaching model become flexible	5	25
	Really get better teaching efficiency.	6	30
	Some better, some worse.	2	10
	No obvious difference	2	10

3. Result

Table 2 shows 20 % (5 of 20 teachers) teachers give the points which are blew the mean ($m=81.3$ and 5 values are 55, 58, 60, 63 and 67, respectively). In feeling part, most teacher don't dislike to teach students in cloud classroom. For example, when they answer item 1, "Do you like teaching in cloud classroom?", 80% teachers answer "like" and only 20% teachers answer "neither like nor dislike", but nobody answer "dislike". Or for item 5, "Do you like to talk about some new ideas with colleagues via cloud service?" 70% teachers answer "like" and nobody answers "dislike".

In comparing part, 75% teachers think there are lot of advantage for teaching in cloud classroom, such as conveniently getting teaching materials, easily changing teaching model, fast switching teaching- learning roles, and better for face-to-face discussion. For example, for item 19, “Do you think you can get better teaching outcome in cloud classroom than in the regular classroom?”, 75% teachers think they can get better teaching outcomes in cloud classroom than in the regular classroom and the same percentage is in item 17, “Do you think you can easily set your course pace in cloud classroom?” In a word, form Table 2, the result is gotten: most teacher like using the cloud classroom for their teaching. And teaching-learning efficiency would be better in the cloud classroom than in the regular classroom.

In order to know if there are statistically significant differences of attitudes between male and female, Independence-Samples T Test analysis was done, the result is shown as following.

Table 4. T-test for attitude score grouped by gender

Independent variable	gender	N	Mean	Std. Deviation	Levine's test F value	t-test T value	do	Sig p value
score	male	7	75.7143	15.72381	5.182	-1.299	18	.226*
	female	13	84.3077	10.48320				

* $p > 0.05$

Table 4 shows that there is no statistically significant difference of attitude between male and female teachers ($p = 0.226 > \alpha = 0.05$).

Table 3 shows teachers' comments on cloud classroom. Most teacher gave their objective comments on cloud classroom. Some are positive, and others are negative. For example, when answering item 24, “What is the benefit that students can get from the cloud classroom?”, 20 teachers gave their good comments and 35% teachers' answers are “improve learning outcomes”, 40% of them answered “improve student English oral level”, and 25% answered “improve their creative capabilities”. Of course, teachers think there is still some disadvantage in the cloud classroom. For instance, for item 25, “What is really negative aspect that the cloud computer gives?” 45% teachers think some students easily imitate classmates' ideas or copy homework by using cloud service, 30% of then think student would be distraight easily during the class because of conveniently going online, and 25% teachers think students' spelling level would go down for easily using e-dictionary on cloud service. At last, teacher also gave some advice about cloud classroom, which facilitate to build a better cloud classroom. From item 22 -30, the finding is that, general speaking, positive comments are more than negative comments.

4. Discussion

Cloud classroom was first build in our department for English major in 2016, even if cloud service and cloud computer are popular in the world in 2011. Firstly, in order to save money and save space, there are only student monitors in our cloud classroom, instead of student PC. The datum from inputting devices, like keyboard, are processed in cloud server PC. It is different from regular network classroom which has equipped many students PC. The function of every equipment in the cloud classroom is showed in Table 1. These functions basically meet the teaching require. It is also an innovation point for building a language lab.

Secondly, language learning needs more practices, especially verbal speaking. Even if students need to learn theory of language during the course, they should also have more chances for speaking English in the classroom. So, the circular table-chair layout could provide more chances for talking. The study also got some information from teachers, both teachers and students like this layout because face-to-face discussion could push more student to speak [10, 11]. It is also another innovation point for building a language lab.

Cloud classroom had been built in our department. However, for teachers and students, it is like a new thing that suddenly appears in front of them. They start to know it during the process of using it. The study tries to know what teacher attitude is towards cloud classroom and how they comment on it. After interview 20 teachers who teach some courses in cloud classroom, the study suggests that most teachers think cloud classroom has more advantages for teaching and learning than the regular classroom. And from Table 2, 75% teachers think they can conveniently share their courseware, easily set their classroom instruction, quickly speed up their course pace, fast switch teaching-learning role, and timely get students feedback to course, and so on. From Table 3, 80% teachers think cloud classroom can promote the initiative of students, push student to discuss, enliven the classroom atmosphere, facilitate student to speak aloud, give student more chance for practice, improve their English language skill, and spirit their creative capabilities, and so on. Table 3 also shows some teachers' negative comments on it and some advice, which could improve to build a better cloud classroom.

In a word, the study suggests that cloud classroom really facilitate teaching and learning and there are more advantages in cloud classroom than in regular classroom.

The study has its limitation, firstly it only explored teacher attitude towards new language lab-cloud classroom-but did not study student attitude. Secondly, the study did not explore if this cloud classroom is also suitable other course, like science course, except for language course. Thirdly, the sample size of the study is too small.

5. Conclusion

Our cloud classroom is economical and substantial, because of free student PC and more space. This classroom is suitable for language learning, but not good for science course, like calculating course which needs high performance cloud server. But it will suggest that other colleges should consider their actual requirements to build their own cloud classroom. The study mainly aims to know what teachers' attitudes are toward cloud classroom, and what their comments on it. The findings are that cloud classroom are much better than regular classroom for teaching and learning from teacher's perspective. However, there are still some disadvantages of cloud classroom that teachers talk about. The further study should to explore how to reduce these shortcomings and build better cloud classrooms whether from hardware or from software.

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