How to Improve the Construction and Layout of Smart Classrooms for Teaching English

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Abstract

The goal of this study is to ascertain the most important factors in effectively using smart classrooms. The Korean government has announced that it intends to build at least one smart classroom in every school by 2015. The Ministry of Education in Korea had built at least one English smart classroom already. Therefore, all the schools have smart English classrooms (technology based IT classroom). This study can also apply to the general design of smart classrooms for other subjects as well. To investigate this, we conducted a survey of 41 secondary school teachers and 144 high school students. Those students used the smart-classroom for English at least 2 in a week. These students used the classroom for learning communication skills primarily. The questionnaire consisted of fifteen questions covering such topics as: strong and weak points of the smart classroom, and the ways that can make teachers and students teach and learn English more effectively in a smart classroom. The data, which was measured with cross-tabs, the T-test and ANOVA, and frequency analysis using the statistical software, SPSS 12.0, showed that teachers and students are in agreement about the necessity of the smart classroom and agree on the need for more diverse teaching methods in the classroom. Teachers especially wanted more variation in smart classroom construction methods. As such, we conclude it is better to make 2 or 3 on low-budget smart classrooms with different designs if the school has over 24 classes. Based on the data analysis, more research should be followed about the possible designs for smart classrooms.

Keywords: smart classroom, smart-learning, smart-classrooms designed to teach English

1. Introduction

The English language has emerged as an important means of communication in the information and knowledge based society, and has secured a dominant position in almost every field. Especially in Korea, the Korean Ministry of Education has stressed the importance of communicative ability of English language and therefore strongly demanded that the entire English class should be taught using only English (Kachru, 1985; Burtler, 2004). The objective of the policy is that teaching English in English will guarantee learners with more opportunity to use English in class. To promote this atmosphere, the Korean government began to construct smart-classrooms especially designed to teach English (or just called as 'English Zone') in all the schools. All the schools in Korea, whether private or public, from elementary to high school must have at least one smart classroom exclusively for English class since 2010. The purpose of this study is to evaluate the effectiveness of smart-classrooms in order to improve students' English communicative competence. In addition, a survey was done for collecting opinions from teachers and students in public high schools.

2. Related Work

2.1. Smart Classroom

There are some studies conducted to examine the effects of smart classrooms. Gyue, Lee, Kim, Park, Shim, and Lee (2013) investigated twelve smart classrooms in Korean model schools and a further two model schools owned by the US government. Nine of the Korean schools are digital textbook model schools, smart education model schools, rural model schools, smart learning policy schools, or subject classroom system schools. Just 3 are general schools. Among the 12 Korean schools, there are 7 elementary, 4 middle, and 1 high school. The two US government owned schools are Silverton Primary School and Dallas Brooks Community Primary School. Their Multimedia systems and environments are similar to the Korean schools, regardless of the place, and their model schools were generally similar as well. All of the smart classrooms have smart-pads, laptop or desk-top computers, an electronic white board, and an electronic teacher desk, a beam projector, and a projector. Most of the smart classrooms have camcorders and digital cameras. This research showed positive changes in students' attitude and the effectiveness with which they studied in smart classrooms (p.199). However, the teachers want to be provided with good smart teaching methods as they use the fancy smart classrooms. Therefore it is necessary to provide the appropriate teaching-learning model and methods as well as the equipment.

In addition, Kang, Heo, Lee, Kim and Lim (2013) studied some more smart classrooms in the South Africa, the UK as well as the US. Archbishop Mitty High School in California uses i-pads, stylus pans, beam projectors and apps to learn about equations and parabolas in math class. The Key School in the South Africa, a school for handicapped children, teaches autistic students with smart pads. Using smart pads, they can communicate by touching the screen with their fingers instead of speaking. Usually the autistics do not have high willingness to communicate with others by speaking. Schools in the US State of Idaho are using Blackboard Learning Management Systems in addition of smart equipment like smart phones, smart pads, and PCs. In Merchant Taylors' Girls' School, the students are learning by digital textbooks using e-book programs, instead of paper books.

Kang *et al* (2013) also suggested a list of smart equipment types in smart classrooms like those seen in table 1. The table indicates both obligatory tools and optional tools.

Table 1. Elements of Smart Classroom

Elements	Obligatory	Optional
Electronic white board	O	
Electronic teacher's desk	O	
PCs for teacher	O	
PCs for students	O	
Speaker	O	
Mirroring device	O	
Smart pad	O	
Smart pad box	O	
Smart pad charging box	O	
Scanner		O
Smart pad key board		O
Smart pen for teacher		O
Smart pen for students		O
Cloud system	O	
Beam Projector		O
Camcorder	O	
Digital camera	O	

Audio amp	O	
Mike		O
Echo canceller		O
Distance conference solution	O	

2.2. Subject Classroom System

There are some previous studies conducted to examine subject classrooms for English, social studies and other subjects. Kim and Park (2011) investigated the impact of the subject classroom system on classroom environments and overall class patterns based on school visits, classrooms observations, and personal interviews with teachers in the 9 middle and high schools where the subject classroom system is already set up and operating.

2.3. Research Questions

1. What does a smart classroom look like? What kinds of equipment are used in smart classrooms for English?

2. How do participants perceive the effects of English class in smart classrooms?

3. Methodology

3.1. Participants

A survey was conducted on forty-one secondary school teachers across the nation and one hundred forty-four high school students in Deajeon, Korea. The students had English classes twice a week in the smart-classroom especially designed to teach English.

3.2. Smart English Classrooms Constructed by the Researcher

The researcher designed and constructed a smart classroom to teach English, with the support of the Korean government. The Korean Ministry of Education (MOE) invested about a budget of 116,800,000,000 won to construct all the schools from 2008 to 2010. The MOE announced that it will let every school in Korea construct at least one smart classroom for teaching English. Figure 1 shows the desks and chairs in smart classrooms with English-friendly interiors.

Figure 1. Movable Chairs and an English-Friendly Environment

Unlike smart classrooms for other subjects, the smart classrooms for English need to be equipped with movable chairs and desks because the purpose of smart classrooms for

English is to boost students' communicative competence during the class according to MOE's English policy; TEE (Teach English in English). The recommended teaching method in smart classrooms for English is CLT (Communicative Language Teaching). In the CLT approach, teachers have to give many opportunities for students to talk with not only the teacher but also with their colleagues. So they usually make groups and perform some communicative oriented group work or pair work. It is better to use movable chairs and desks to accommodate this sort of communication and group-building. There are also some pictures about English conversational situations displayed on the wall. It can motivate students to actively learn English.

Smart classrooms for English teaching have a special element called the 'virtual studio' like that shown in figure 2. It is for role-playing activities, one of the ways to boost communication in English. The virtual studio is usually used after learning the main expressions included in a dialogue. After a teacher covers the main dialogue, the students can practice the conversation with their partner or group members. In front of a green-screen, the students can perform a role play and the camcorder which is attached on the ceiling can record the student performance. At the same time, the camcorder can transfer the video to the electronic board in the front of class. Then other students can watch their colleagues' performance on TV simultaneously. The virtual studio is so useful to encourage students do actions like in real situation. Next to the virtual studio, there are six PCs for students. The computers in smart classrooms for English usually are used for information searches or group work. The main activity should not be using the computer, but should be English communicative activities. Therefore, designers should have computers located in the back or side of the classroom.

Figure 2. Virtual Studio and PCs

According to the previous research (Gyue at all, 2013), teachers who used smart classrooms demanded to be provided teaching methods or materials which are proper to teach in the classroom. In the aspect of supporting suitable teaching methods, smart classrooms for English began to introduce the ER (Extensive Reading) Method for teaching vocabulary and reading as well as grammar and writing.
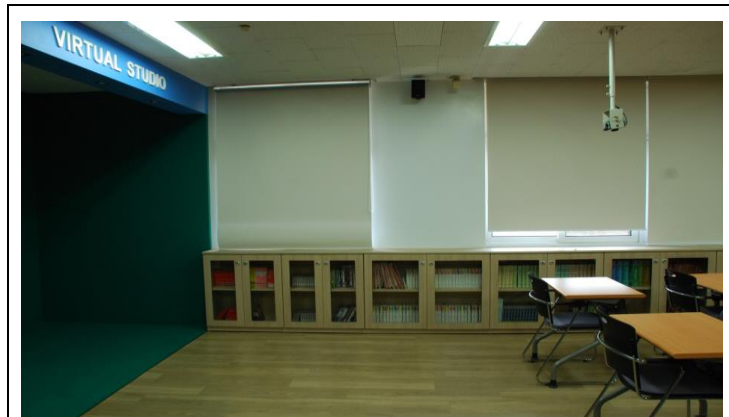
Figure 3. English Books for Extensive Reading in an English-language Smart Classroom

People say that extensive reading is hard to implement in normal English class due to the stringent school curricula to follow and the educational focus on the college entrance examination. This is all despite ER's experimentally verified benefits on the cognitive and affective domains of learners. However, it's not rare to find action research reporting the successes of extensive reading programs in smart classrooms in Korea. However, an informative and continuous guide to ER in a smart classroom is needed. Figure 4 shows fundamental elements of a smart classroom - an electronic whiteboard and washable blackboard in the front. On the left part we can see ER book shelves. On the right, we can see English friendly big pictures to encourage willingness to communicate in English.

Figure 4. An Electronic Whiteboard and Washable Blackboard in the Front

3.3. Research Questions

The questionnaire consisted of fifteen questions covering areas such as the strong and weak points of the smart-classroom environment, and the ways that the teachers could utilize the room to teach more effectively.

1) Do you think smart classrooms especially designed to teach English are useful?
2) How many hours a week should you use the smart classroom?
3) What kind of teaching style is appropriate in smart English classrooms?
4) Is it good to teach English in English in a classroom designed to teach English?
5) What kind of multimedia tools are useful in smart classrooms?
6) What kind of multimedia tool does your teacher use most?
7) What is the strongest point in the smart classroom for English?

8) After having English class in the smart classroom, do you feel your English was improved?

9) What is the weakest point of the specialized smart classroom for English class?

4. Results and Discussions

4.1. Participants' Perception of the Smart Classroom

To measure participants' perceptions about smart classrooms for English learning, I polled 41 teachers and 144 students regarding their opinions about the smart classroom I built. Teachers' ages ranged from 25 – 55 and all of them majored or sub-majored in English education. Students are all 1st year high-schoolers. The questionnaire was divided roughly into 2 sections: the effectiveness of a smart classroom and opinions about TEE classes in smart English classroom. The responses were analyzed by SPSS. The scores from teachers and students is shown in table 2.

Table 2. The Opinions of Smart Classroom

Questionnaire Items	Strongly disagree (%)	Disagree (%)	Undecided (%)	Agree (%)	Strongly agree (%)
To study in smart classroom is useful.	T: 0.0	9.8	22.0	34.1	34.1
	S: 3.5	11.1	25.7	41.7	18.0
Is it good to teach English in English in the classroom?	T: 0.0	7.3	24.4	36.6	31.7
	S: 2.1	7.6	23.6	47.9	18.8

Note: T= teacher, S= student

Most of the teachers and students thought the smart classroom was useful. Over half of them also gave opinion that it is good to teach English in English in the classroom.

Regarding respondents' priorities, Table 3 shows the preferred types of equipment.

4.2. Participants' Perception on the Most Frequently Used and Best Elements of Smart Classroom

The teacher poll showed that the electronic board was the most utilized piece of equipment. Students reported the washable blackboard was the most frequently used equipment in a smart classroom to be used for teaching.

Table 3. The Most Frequently Used Multi-Media Tool of the Smart Classroom

	Teacher	Student	N	χ^2	P
virtual studio	2	19	21		
electronic board	16	46	62		
washable blackboard	7	49	56	33.328	.000
English books for ER	6	10	16		

internet searching tool	3	20	23
others	7	0	7
total	41	144	185

Note: χ² = chi-square test, *P* = *P*-value

Teachers also reported using other types of equipment frequently. In order: the washable black board, English books for ER, internet searching tools, and the virtual studio. Subjects taught and learned English in high school. There seems to be low frequency use of the virtual studio.

Table 4. The Best Multi-Media Tool of the Classroom

	Teacher	Student	N	χ^2	P
the virtual studio	0	16	16		
electronic boards	10	22	32		
washable blackboards	2	10	12		
English books	4	8	12		
internet research tools	0	28	28	28.580	.000
movable desks and chairs	1	9	10		
clean environment	3	0	3		
English only space	21	51	72		
total	41	144	185		

Table 4 showed the results of χ^2. The result of our poll indicates that a majority of Korean teachers and students like the smart classroom because it provides a 'space only for English'. Teachers like electronic boards second most. However, students like the internet research function second most.

5. Conclusion

We examined the current situation concerning smart classrooms in Korea, where the government has given considerable support. To explain how to construct smart classrooms for English in all the schools in Korea, we have to think about the English Education policy, which was created to boost up TEE (Teach English in English) in Korea for Communicative Language Teaching. This top-down effort made all the schools have at least one smart classroom to realize the government's strong English policy.

The Ministry of Education (MOE) in Korea let every school in Korea have a specialized English Classroom for enhancing the practical capacity for English communication. The Korean government has emphasized TEE policy. We can say the Korean government serves as a perfect system for providing hardware. However, local English teachers cannot use the technology-based smart classrooms effectively. The next step for smart classrooms for English classes in Korea is to provide the proper leveled

contents continuously. It is necessary to analyze what and how to implement and maintain effective classes in smart classrooms for English in Korean elementary and secondary schools successfully. I also suggest the use of diverse teaching methods which can be used in smart classrooms with good technology and more effective communication.

The results indicated that the teachers and students are in agreement that various smart classroom environments and diverse teachings methods are necessary to conduct more effective English classes using smart classrooms. The teachers especially demanded more diverse smart classrooms. Therefore, it is better to make 2 or 3 low-budget variation types of smart-classrooms to teach English if a school has over 24 classes.

Acknowledgements

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Author

Young-Joo Jeon, She received her Ph. D in English education from Kong-ju National University. She has been a professor of English education department at Mok-won University since 2010. She had taught English in several middle and high schools for 15 years before. She has been involved in many different government projects in English education policy, teaching methodology and classroom observation using Technology.