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Cloud Collaborative Reflective Strategy and Its Effect Toward English Pronunciation of Pre-Service Teachers in Their Teaching Practice Program

Dedi Kurniawan
English Education Program Study
Universitas Sriwijaya
Palembang, Indonesia
dedikurniawan@unsri.ac.id

Lingga Agustina Suganda
English Education Program Study
Universitas Sriwijaya
Palembang, Indonesia

Zuraida
English Education Program Study
Universitas Sriwijaya
Palembang, Indonesia

Abstract—**The study aims at finding out the effect of the Cloud Collaborative Reflective Strategy (CCRS) on English Pronunciation. It was an experimental study with pretest-posttest control group design, and the forty samples of which were randomly taken from the population of seventy-nine pre-service teachers in their teaching practice. The data from the pretests and posttests were taken by recording class opening sessions of the pre-service teachers in experimental and control groups, and then they were rated using a percentage of the correctly pronounced word toward total words pronounced. The t-test was used to analyze the effects of CCRS improvement. The strengthen the data, a questionnaire measuring their perception toward the strategy was distributed. The results from the paired sample t-test in the experimental group show that there was a significant difference in scores for pretest and posttest. From an independent t-test, it was found out that that there was a significant difference in scores of posttest in experimental and posttest in control. Students' perceptions toward this strategy, as seen from their response to the questionnaire, is supportive of the findings. They perceived the strategy as helpful toward their pronunciation improvement. This result suggests that CCSR affects the improvement of pre-service teachers' pronunciation.**

Keywords: Cloud Collaborative Reflective Strategy (CCRS), t-test, teaching practice program

I. INTRODUCTION

Pronunciation is perhaps the most neglected aspect of language as compared to others, such as structure and vocabulary. An indicator of proficient language speakers is pronunciation. Zimmerman [1] expresses that pronunciation is important because it is the first thing to notice about one's competence in the language. Moreover, on the importance of pronunciation factor in the communication, [2-3] states that the main difficulty foreign language learners experienced in communicating in English were pronunciation. In general, they assume that pronunciation is the potential to be a major problem in communication. In a more empirical finding,

Kurniawan [4] in his study concluded that the pre-service teachers in the program made a mistake in pronouncing the two phonemes that he investigated the voiceless tooth fricative ($/\theta/$) and the voiceless dental ($/\eth/$).

It is important to have an improved English pronunciation for pre-service teachers since it is one of the inputs of language learning [5]. Furthermore, [6] summarizes that in the view of any language learning theories (behavioral, nativist, and interactionist) inputs play an important role in the process of language learning. Furthermore, on inputs in language learning in the classroom, [7] argues that the success of language learning may depend on the language used in the communication classroom. In line with this opinion, [8] concludes that English as foreign language learners can have the ability to achieve near-native speaker language competences if there is a communication process in the classroom in English.

This study tries to offer a strategy called Cloud Collaborative Reflective or CCRS in short. This strategy is expected to help students improve their English pronunciation by reflecting on recorded speeches in the teaching practice phase. By sharing it with a competent and more competent person, it will provide collaborative input from the recording. Thus, this study investigates the effects of this strategy on one's English pronunciation and pre-service teacher perceptions about the application of the strategy. There has been a large number of studies, as elaborated in the next section, trying to find ways of improving the quality of teachers' pronunciation, but only a few deal with pronunciation by combining reflection and using cloud computing technology. This study tries to fill this gap, and by doing this, it can show how cloud computing can be beneficial to all language aspects and skills.

A. Teacher Talk

The language teachers use in the classroom; in this case, English is referred to as teacher talk [7]. Teacher Talk is a very important input in Language learning as part of language exposure [9-13]. For the Indonesian context in general, and South Sumatra in particular, teacher talk, is the main input in the English language learning process where communication in English outside of it is the most unlikely to occur. It can be concluded that in teaching and learning activities, the English language teacher use in the classroom is part of the input. Good input will allow students to learn better and succeed in the learning process. In other words, and a more specific aspect, a good English pronunciation from an English teacher can help students to learn English better. Concerning the finding from Kurniawan [4], it is sensible to say that the improvement of pronunciation is required for the pre-service teachers in the program. The preservice teachers have undergone the Teaching English as a Foreign Language Program for at least 3.5 years with some students who have been there for 4.5 years. They had received, before their teaching practice program, training related to pronunciation at least in 5 courses amounting to 12 credit hours. Teaching practice is the program from the university to send their pre-service teacher for actual teaching, guided and independent, experience at schools. Different treatments were needed to improve their pronunciation, as have been cited at the beginning that pre-service teacher made a mistake in pronunciation although they have undergone an intensive training before their teaching practice program, one of which is the reflective learning. It was also that they had taken all their courses, so it was very hard to have face-to-face treatments with them.

B. Reflection in Language Learning

Reflection is defined as an active, meticulous, and persistent thought on the belief or knowledge that serving to transform uncertainty, doubt, conflict, and distraction into clarity, certitude, certainty, and harmony (Dewey, 1933) [14]. Furthermore, on reflection and learning process, Kolb (1984) [15], who developed the experiential learning model, states that a reflection is a machine that makes learning go forward. Without reflection, learning will run in place with no new understanding. In line with Kolb (1984), Gibbs (1988) [16] stated that experience is not enough in the learning process. Without reflection, the experience will be forgotten, or the learning potential of the experience will be lost. Through reflection, thoughts and feelings will emerge that can encourage the development of concepts or generalizations. There are at least three models in reflective learning, the reflective cycle of Gibbs (1988) [16], Reflections on activity/reflection after the activities of Schon (1983) [17], and experiential learning [15]. All these models generally are the description process of what happens, the process of association with existing understanding, and the process of planning of what will be done. The reflective learning process can occur individually or collaboratively. Hoyrup (2004) [18] argues that in individual reflective learning, the reflection process focuses solely on the individual.

In contrast, in collaborative, reflective learning, the reflection process requires communication and coordination among participants of the learning process. In the process of improving English pronunciation, the collaborative, reflective learning process will be more helpful. Stages of reflective learning will be more meaningful if, in the process, there are inputs from colleagues, lecturers, and linguists/native speakers. In short, the collaborative process of reflection will give more advantages as compared to the non-collaborative one. In the case of English pronunciation, without the event of pronunciation being recorded and reflected, of course, the experience will be quickly forgotten, so it is impossible to evaluate pronunciation and make improvements.

Reflective learning or reflection proves to help to improve the language competences of language learners (Arikaan, 2006 [19] and Chau, 2010 [20]). Furthermore, Mathew (2012) [21] concludes that reflected teaching and learning will be beneficial for both teachers and students of ELT if conducted properly. Researches have been done concerning reflective teaching in ELT in all language skills, and their findings generally supported the use of reflection [22-27]. Furthermore, some studies were conducted on reflective teachings, such as Suwartono (2014) [28], who concentrated on increasing suprasegmental phonemes using reflective learning. Vitanova, and Miller (2002) [29], who examined their students' reflection of their improvement in pronunciation.Abbasian and Bahmanie (2013) [30] who saw the relationship between EFL teachers' and learners' reflection on pronunciation factor in the teaching-learning process and learners' motivation. None of the studies handled classes without face to face meetings.

C. Cloud Computing Technology

Two points discussed in the preceding paragraphs are that the pre-service teachers no longer have class-room courses, so it was impossible to give them treatment in-classroom courses. And collaborative learning, which is better than individual reflection for language learning, might be the answer for it, under the condition that it is the non-classroom treatment. Hence, besides it is an attempt to find a way of improving language skills for the pre-service teachers, this study also is a trial to fill the gap in studies of reflective learning in ELT, which is non-classroom collaborative learning in improving pronunciation.

Information and communication technology has a large role in supporting the non-class collaboration process. English Language Learning has long been familiar with communication and information technology. Several studies have demonstrated the benefits of ICT in learning English. Such as to encourage students to collaborate and participate actively [31]. Develop the boundaries of traditional education and create a more independent learning community [32]. Allow students to link and connect ideas and show them on the internet that will ultimately help improve student performance [33]. All the results of this study indicate that the utilization of ICT can enhance ELT.

Cloud computing is an internet service that provides joint processing of resources and data on computers and other devices on demand. In other words, with cloud computing technology, computer data can easily be shared with others. The process of collaborative, reflective learning can go

smoothly without the constraints of space and time using this technology. (Change & Wills (2013) [34]. In short, it offers convenience in collaborative works and will help a lot in the process of online collaboration. In other words, non-classroom collaborative, reflective learning was made possible by this technology.

II. METHOD

As discussed in the preceding section, this study investigated the effect of CCRS to pronunciation. CCRS stands for a cloud, collaborative, reflective strategy. This strategy can be described in figure 1. It is an adaptive form from experiential learning cycles [15].

CCRS is a cycle rather than a linear process in that the process can go on non-stop until the expected result is achieved. CCRS is constituted of three stages: (1) recording, (2) reflection, and (3) cloud collaboration. In the recording stage, the subject's audio record part of his/her language teaching process. By doing so, he/she tries to ensure a good quality of the recording. In the following stage, the corresponding subject listens to the recording multiple times and write a reflection of it. The reflection includes his/her general impression of the speech and what he/she identified as a mispronounced sound or words. In the third stage, the subject uploads the recording and the reflection to a shared cloud computing account common to the subject and the cloud collaborator. The cloud collaborators, in this stage, give collaborative input in two points, which are the general impression of the speech and the identification of the mispronounced word or sound. They will also provide audio-recorded correct pronunciation of the identified mispronunciation. All these are also uploaded to the shared cloud account. Having read and listened to the input, the students give general reply to the input as an acknowledgment that he/she has read and listened to them. The process then resumes stepping 1.

This study was a pre-test post-test control group experimental design that was conducted with a population of seventy-nine pre-service teachers who were in their teaching practice program at a university in 2017. The population had completed their classroom courses. By using random sampling, twenty samples were assigned to the experimental group and another twenty to the control group. The experimental group applied CCSR as treatment, and pre-test and post were administered to both groups.
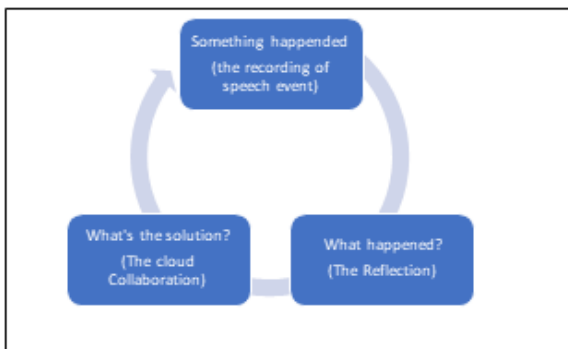

Fig. 1. Experiential learning cycles [15].

Before the treatment started, a pre-test was administered to both groups. They were asked to record the first three to five minutes of their speech in their class opening session. The recordings were rated by two raters who were native speakers of English living in South Sumatera. They rated them on the basis of the percentage of numbers of the correctly pronounced word over the numbers of all pronounced words. After the treatment, the post-test was administered in the same way. The result of the pre-test and post-test in both groups were analyzed using the paired-sample and independent sample t-tests. The raters also acted as the cloud collaborators.

Google Drive, as one of the cloud-computing platforms, was chosen for it was free and for its outspread use throughout the world. Despite its popularity, short pieces of training on the use of google drive use were conducted separately for experimental group and cloud collaborators to ensure the smooth process of reflective collaboration.

Researchers distributed questionnaires to investigate pre-service teacher perceptions about the application of CCSR. There were four aspects in it, (1) CCSR in general (items 1 and 2), (2) google drive (cloud) (item 3), (3) cloud collaborator (items 4 and 5), and (4) reflection (items 6 and 7). The items can be seen in table 1. Items in aspect 2, 3, and 4 are parts of CCRS that is Cloud, reflection, and cloud collaborator.

The responses were of Likert-like with five scales. The higher the scale, the more it does not conform to the item, 1 (one) being the highest conforming the item, scored 5, and 5 (five) as the lowest, scored 1. The score from every item were averaged, and the higher the mean, the more it conformed to the item. As an addition to the closed-ended items, two open-ended items were provided. They were obstacles they faced in and the suggestion they proposed to CCRS. The resulted data were analyzed quantitatively.

TABLE I. QUESTIONNAIRE ITEMS

No	Item
1	CCRS helps me identifying the mispronounced words in my speech
2	It helps me improve my pronunciation
3	Google drive helps a lot in the process of collaborative reflection
4	The cloud collaborators help me identifying the mispronounced words in my speech
5	They help me improve my pronunciation
6	The reflection I did helps me identifying the mispronounced words in my speech
7	It helps me improve my pronunciation

Before use, it was tried out for validity and internal consistency. The validity of the questionnaire was checked using bivariate correlation, which shows that all items are valid. The internal consistency was measured via a split-half reliability index, coefficient alpha (Chronbach, 1951) index. The index number was 0.983.

III. FINDINGS AND DISCUSSION

There are three points discussed in this part, (1) Descriptive statistics, (2) t-test result, and (3) pre-service teachers'

perception of CCRS. A discussion on the result will also be provided.

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A. Descriptive Statistics

The results show there is a tendency for one of the test scores to be distributed in the distribution center or the middle range between 51-85. None of the results were below 50, but few exceeded 85. In both groups, the mean of the posttest was higher than the posttest, and the increase was more significant at the experimental group compared to control.

TABLE II.   RESULTS OF PRETESTS AND POSTTESTS

	Pretest Experimental Group	Posttest Experimental Group	Pretest Control Group	Postest Control Group
<50	0	0	0	0
51-70	8	0	0	0
71-85	12	15	20	19
86-100	0	5	0	1
Mean	73.05	83.90	78.8	81.35
StDev	4.26	2.67	3.12	2.56
Min	65	78	73	78
Max	80	88	84	86

B. T-test

The results from the pretest and posttest in both groups were tested for their normal distribution using the Shapiro-Wilk test for the sample number of samples. The p-value of the pretest and posttest of the experimental group and pretest and posttest of the control group with df (20) were .339, .321, .557, .104 (chosen α was .05) respectively. The results show that all the data in all the tests were normally distributed. The QQ plots of every test are displayed below.
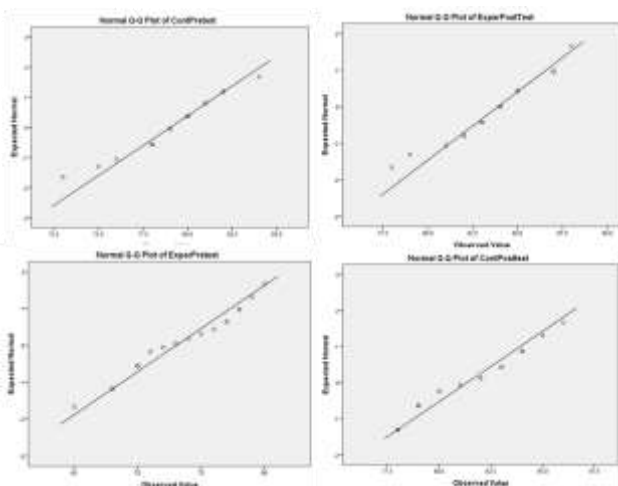
Fig. 2. QQ Plot for Normal Distribution of Pretest and Posttest in Experimental and Control Group

After conducting paired sample t-test, for experimental group, it was found out that there was a significant difference

in scores for pretest (mean=73.05, SD = 4.26) and posttest (mean=83.90, SD = 2.67) conditions; t(19)=-19.264, p=0.001. This suggests that CCRS does really have an effect on pronunciation improvement. Specifically, the result suggests that when CCRS was applied to pre-service teachers, their pronunciation improved. For control group, it was also found out that there was a significant difference in scores for pretest (mean=79.05, SD = 2.52) and posttest (mean=81.35, SD = 2.56) conditions; t(19)=-4.435, p=0.001. This result more strongly suggests that CCRS has an effect on the pronunciation since the significant increase of mean in the experimental group (10.85) was far higher than that of the control group (2.3).

Independent sample t-tests were performed to see if there were significant differences between the posttest in the experimental and control groups. From the test, it was found out that that there was a significant difference in scores of posttest in experimental (M=83.90, SD=2.67) and posttest in control (M=81.35, SD=81.35), conditions; t(38)=3.081, p=0.004. This result suggests that CCSR affects the improvement of pre-service teachers' pronunciation.

C. Questionnaire

The data from the questionnaire of the Application of Cloud Collaborative Reflective Strategy (CCRS) are displayed in table 3.

The responses for the first aspects with a mean score of 4.60 showed that the pre-service teachers view CCRS as very helpful in identifying their mispronunciation and that it helps them improve it as seen in the table. The results of other aspects supported these results, google drive, cloud collaborators, and reflection, which also had a higher mean that was above 4.50.

TABLE III.   RESULTS OF QUESTIONNAIRE

No	Item	Mean
1	CCRS helps me identifying the mispronounced words in my speech	4.60
2	It helps me improve my pronunciation	4.65
3	Google drive helps a lot in the process of collaborative reflection	4.70
4	The cloud collaborators help me identifying the mispronounced my speech	4.90
5	They help me improve my pronunciation	4.80
6	The reflection I did helps me identifying the mispronounced words in my speech	4.70
7	It helps me improve my pronunciation	4.60

Most of the response chosen is one which has the highest conformity with the item, proceeded by which also high in conformity, and the least chosen is three which has fair conformity. None of the responses 4 and 5 were chosen, and these responses have negative conformity toward the item.

There were two open-ended questions in the questionnaire, (1) obstacles and (2) suggestions in CCSR. None of the samples submitted suggestions for the strategy, but several obstacles were revealed, (1) time availability, (2) technical

problem in making a recording, and (3) their perception of the use of the English language in the classroom. The strict schedules of their teaching practice program had made some of the samples to be too busy to sit back, listen to their recording, and write a reflection. It created a delay in the process of the strategy in general. Some students failed to prepare themselves to be ready to create a good quality recording. The perception that the students that they were teaching were confused about what they were saying and that they were afraid if they speak in English, the students would not understand the lesson had also been a barrier for the recording process.

The results show that CCSR has an improvement effect toward pronunciation, one of the aspects of language skills, in the pre-service teacher. This finding is in line with other studies dealing with reflective teaching in ELT (Arikaan, 2006; Chau, 2010; Mathew, 2012; Cole & Feng, 2015; Juhary 2014; Kavaliauskienė, Suchanova, & Veličkienė, 2012; Burton, 2009; Quirke and Zagallo, 2009; Carol & Tatsuka, 2009; Reichmann & Peyton, 2009). This study also fills the gap of studies of reflective learning in pronunciation (Suwartono, 2014; Vitanova & Miller, 2002; and Abbasian & Bahmanie, 2013). This study focuses on the non-classroom collaborative, reflective learning, which none of the studies tried to explore.

TABLE IV.   ITEMS RESPONSES

Response	Item Number						
	1	*2*	*3*	*4*	*5*	*6*	*7*
1	60%	70%	70%	90%	80%	70%	65%
2	40%	25%	30%	10%	20%	30%	30%
3	0%	5%	0%	0%	0%	0%	5%
4	0%	0%	0%	0%	0%	0%	0%
5	0%	0%	0%	0%	0%	0%	0%

Cloud computing was very helpful in the process of collaboration, and it is in line with what Change and Wills (2013) state that collaboration can go smoothly without the limitation of space and time. Collaborators were also seen as very helpful in the process of identifying mispronunciation and improving it. It is in line with the theory collaboration that of collaborative reflection that it will be helpful since in the reflection process, communication, and coordination among participants of the learning (Hoyrup, 2004). Reflection itself was also viewed as very helpful in identifying mispronunciation and improving it. It is in line with Arikaan (2006) and Chan (2010) that concludes that reflective learning or reflection proves to help improve the language competences of the language learner. CCRS, in general, as stated previously, was helpful in identifying mispronunciation and improving it. This statement was supported by the fact that the other items' mean in the questionnaire were all high. The other aspects were parts of CCRS that is a cloud, reflection, and cloud collaborators. This showed that there was the conformity of the general item and its parts.

The results from the questionnaire suggest that students perceive CCRS as helpful to help them identify their mispronunciation and improve it. Specifically, the pre-service teachers perceive the strategy as helpful in improving their pronunciation. It supports the empirical finding from the t-test. This conformity puts forward for consideration that CCSR does work to improve English pronunciation.

IV. CONCLUSION AND SUGGESTION

CCSR, as seen from tests' results and students' perception, can be seen as having the possibility of helping students in improving their pronunciation. This strategy can be one option for the teacher when dealing with pronunciation since it is one of the most neglected aspects of the language.   It is suggested that other studies on CCSR are conducted with larger samples with more variables taken into account and controlled, such as student's involvement and their attitude toward the class.

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