

Self-Regulated Learning Method Through Smartphone Assistance in Promoting Speaking Ability

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Abstract—Self-regulated learning is a method of the student-centered learning paradigm. This method encourages students to be actively involved in the learning process, organize themselves, recognize their capabilities, and take the initiative to decide the appropriate way to achieve the learning achievement. The use of self-regulated learning with smartphones' assistance has had a double effect on students' language proficiency. However, the self-regulated learning method with smartphone assistance in the speaking class has not been supported by current empirical studies. The evidence indicates that self-regulated learning with smartphones' assistance affects students' English skills, such as acuity in micro-and macro-linguistics analysis, improved digital literacy, enthusiasm for learning, and self-potential development autonomy. This study aimed to analyze the impact of using the self-regulated learning method with smartphones in the speaking class. This review is a quantitative study with a pre-test and post-test design that was executed between October 2020 until January 2021. 110 students were chosen as samples in this study. An English-speaking rubric has been used to obtain data; that data was then analyzed by a software application that is SPSS 24.0, which was proceeded by qualitative description. The findings demonstrate that using a self-regulated learning method with smartphone assistance has positively impacted student speaking ability. This increased effect is demonstrated by the adjusted mean score on the post-test = 82.32. English instructors are encouraged to apply this method by considering students' characteristics, cognitive capacities, learning styles, learner autonomy, and the steps of how to apply this method in the instruction process.

Index Terms—Self-regulated learning, smartphone, speaking ability, teaching

I. INTRODUCTION

The learning process in a specific academic unit is often affected by internal and external factors. Internal factors are the learners themselves, such as motivation, initiative, responsibility, commitment, persistence, critical thinking, and empathy. Meanwhile, external factors come from outside students, such as teaching methods, teaching materials, learning platforms, types of assessment, classroom atmosphere, parental involvement, peer support, and many more. The implementation of self-regulated learning can facilitate the need for these two factors in the learning process. Self-regulated learning is a learning concept that psychologists have believed to encourage students to self-regulate themselves and be responsible for the tasks assigned to them (Sutikno, 2016; Yulanda, 2017).

The term self-regulated learning emerged from Bandura's (1986) theory of social cognition. Bandura' affirms that humans are the result of interrelated relational systems based on personal, behavioural and environmental aspects. On the other hand, the environment affects individuals' actions, which in turn affects one's activity. Self-regulated learning allows a student to be positioned to control the thoughts, ideas, and feelings that reside inside himself to achieve the desired achievements (Schunk & Zimmerman, 1998; Slavin, 2009). Self-regulated learning emphasizes the importance of responsibility, motivation, and personal strategies to understand and master the subject matter being studied (Pintrich & De Groot, 1990; Woolfolk, 2008).

Self-regulated learning is a combination of learning skills and self-control that makes learning more interactive, exciting, and meaningful for students to be more motivated to fulfil their goals (Glynn et al., 2005; Murphy & Alexander, 2000). Self-regulation is a bridge for learners to turn all of their potential inside themselves to remain motivated to make improvements to achieve optimal learning outcomes (Steffens, 2006; Zimmerman, 2002). Self-regulated learning becomes an integral part of learning since it enables students to continue to exercise self-knowledge, monitor, sustain engagement and responsibility for all school tasks that will have implications for optimizing learning performance (Boekaerts, 1999; Cheng, 2011).

The achievement of learning outcomes from certain language skills cannot be excluded from the students' struggle and the application of a number of techniques or strategies used by the English teacher (Suastra & Menggo, 2020). The terms techniques, strategies, methods, approaches and/or learning models are being used in the same sense. Method is the term used in this research, such that, the technique or method used by the lecturer to empower students to achieve the learning objectives of the speaking subject. The choice of a particular method in a learning process quite often takes into account a number of factors, such as the ability of the teacher to implement the method, the complexity of the teaching material content, the learning style of the student, the learning media, the type of assessment and the orientation of the expected learning outcomes of a certain ability standard (Beyaztaş & Senemoğlu, 2015; Cheruiyot, 2018; Munzaki et al., 2016).

Self-regulated learning is a method which can be used in the learning process as it has strong implications for improvements in the performance of the teacher teaching methods and improves the academic achievement of students (Moos & Ringdal, 2012; Zimmerman, 1990). For students, self-regulated learning can promote self-confidence, recognize their academic abilities (metacognition), critical thinking, self-assessment, being able to adapt, and also be able to change learning habits that are appropriate in achieving academic goals. Meantime, for teachers, the usage of a self-regulated learning method is a space for reflection on the progress of the teaching method, the content of teaching materials, and the excellence of its role as a true facilitator or partner for students in the learning process.

Self-regulated learning as one of the alternative and contributing methods for developing students' English language skills (Abadikhah et al., 2018; El-Henawy et al., 2010). The authors state that this method's application can increase the sharpness of the analysis, evaluate the success of learning outcomes, and monitor improvements in learning habits to achieve the desired achievement targets. On the other hand, it is interesting to study using a particular media-assisted strategy in learning English. The media contribution used in combination with such learning experiences is more interesting and has countless impacts on students. Students achieve the most academic goals, increase learning enthusiasm, increase self-confidence in their work, and show a high level of objectivity (Elkot & Ali, 2020; Mostafa et al., 2019).

Self-regulated learning methods assisted by certain digital technology media in English learning provoke the researchers' academic obsession. Whereas the choice of digital technology media by applying the self-regulated learning method has been proven to improve student's English language skills and their digital skills (Lai & Gu, 2011; Priego et al., 2015; Rusydiyah et al., 2020). Improved English language skills and digital literacy skills of students strengthen their critical capacity in continuing to autonomously reflect deficiencies in their learning pattern. Today, students require critical thinking skills to complete a variety of school tasks or to solve everyday life challenges (Alfuhaiqi, 2015; Ndiung et al., 2021).

The application of the self-regulated learning method with smart phones assistance has an impact on improving the English language skills of students (Almekhlafy & Alzubi, 2017; Godwin-Jones, 2017). Student-owned smart phones serve as an exploration space to deepen the language comprehension and language production they are learning. In addition, the use of smart phones in English language learning is also a source of holistic knowledge, increasing language capacity relevant to ICT, learning motivation, critical thinking, and self-evaluation media, which contribute to their own metacognitive acuity (Kacatl & Klínová 2019; Kusmaryani et al., 2019).

The findings of a number of studies above have not explicitly revealed the impact of implementing self-regulated learning methods assisted by smart phones with the WhatsApp video call group application to improve students' English speaking skills. This gap prompted the researchers to conduct this empirical study.

Referring to the outlines and empiric findings pointed out above, this study aims to analyze and reveal empiric facts related to using the self-regulated learning method with smartphone assistance in the speaking class.

II. REVIEW OF LITERATURE

A. *Self-regulated Learning and Speaking Ability*

Self-regulated learning is a learning process that can permit students to be self-regulating when constructing concepts or ideas and changing their learning pattern to achieve optimal performance. Self-regulated learning is the ability of students to become active students with metacognition, motivation, and actions in the learning process (Zimmerman, 1990). Zimmerman explains to a self-regulated learner, from a metacognition viewpoint, that is, students plan, organize, control, monitor, and evaluate themselves at various levels from what they have learned. Processes such as these assist students in academic achievement and in recognizing their strengths and weaknesses. For this reason, the concept of self-regulated learning can be used as a method in the learning process.

Several of the teacher's methods in the learning process contribute to the students' achievement, both academic and pedagogical values that enable them to respond to persons. This demand can be fulfilled by applying self-regulated learning in learning activities. This method stimulates students to become more innovative, independent learners, a source of knowledge for themselves, critical thinking, high commitment to learning, responsibility, and lifelong learning (Hawkins, 2018; Nakata, 2010).

The essence of self-regulated learning is that students are mentally active in the learning process, set study schedules, have their learning strategies, monitor learning progress, determine priority scales, and choose the proper referral

(Mukhid, 2008; Schunk & Ertmer, 2000; Yüce, 2019). Regarding the essence conveyed, self-regulated learning encourages students to gain knowledge, skills, and attitudes. These three components align with the three domains of assessing student success in learning, namely cognitive, affective, and psychomotor (Kasilingam et al., 2014; Noor et al., 2020).

For several features described, self-regulated learning is used as a contributive method in supporting the students' speaking ability achievement. Speaking ability is a speaker's ability to convey spoken messages effectively and functionally (Harmer, 2007; Larsen-Freeman, 2003). Students are challenged to have adequate knowledge of both micro-language, such as phonology, morphology, syntax, morphology, and macro, including communication strategies, pragmatics, and sociolinguistics (Fromkin, 2003; Poolsawad et al., 2015).

Students can be pleased with the two components described above by applying self-regulated learning in their speaking class. Students are given space to reflect on some aspects of the assessment of their English speaking performance. The five aspects of the assessment align with the two components specified previously: comprehension, vocabulary, grammar, pronunciation, and fluency (Brown, 2004; Menggo et al., 2019). When students want to do independent English speaking exercises, the five aspects become the standard for their evaluation, i.e. (1) comprehension that helps students to summarize and recognize the intent of the interaction, (2) vocabulary, where students can choose and use variations of diction in conversation, (3) grammar means that student-generated utterances are grammatically correct, (4) fluency indicates that learners are straightforward and convenient, without redundancy and silences in the interaction, and (5) pronunciation relying on correct articulation, tone of voice, pace and in producing the utterances.

As mentioned above, several of the aspects of speaking assessment can be understood gradually by students following the four stages of self-regulated learning, namely planning, self-monitoring, control, and evaluation. The planning stage focuses on identifying students' level of speaking skills and determining the strategy or type of activity used to reach that level. The self-monitoring phase highlights space for reflection on the learning progress of each speaking skill level. The control phase emphasizes the types of appropriate strategies for self-control related to the scheduling of speaking practicing. Moreover, the evaluation phase focuses on reflecting on the failure to reach a certain level of speaking skills and taking the initial effort to change learning patterns for achieving the desired target speaking level.

B. Smartphones Use in Speaking Class

Digital media contributes to the advancement of student learning achievement, and therefore teachers are responsible for determining and using effective media for learning. Smartphones are one of the media that persons need, particularly their entertainment, communication and educational needs. In the language learning process in the spread of Covid-19, teachers and students use this media (Aromaih, 2021; Leis et al., 2015). Smartphones greatly enhance English language skills, such as listening and speaking skills, learning autonomy, and students' ICT literacy (Menggo et al., 2021).

Smartphones bring many benefits in the English learning process, such as time and space efficiency (students can access them at anytime and anywhere), simple, secure and affordable learning progress (avoid spreading of Covid-19), cheap and convenient, as well as in line with the characteristics of students who are interested in digital-based learning (Khafaga & Shaalan, 2021; Jati, 2018).

Many mobile apps are being used for language learning, such as Zoom, WhatsApp, Electronic Dictionary, Skype, Podcast, Youtube, Webex, and many more (Koo, 2016; Menggo, 2021; Mubarak et al., 2020). WhatsApp video call group with audio-visual (for facial expressions, body language, the accuracy of pronunciation, the stress of the utterances produced) used in this research. Audio-visual use of WhatsApp due to lecturers directly sees students' speaking skills for assessment objectivity and running virtual interactions that affect student affective factors. Affective factors play an essential role in supporting students' learning success (Hoque, 2016; Sönmez, 2017). The affection of the emotional relationship between teachers and students involves developing students' attitudes and behaviour, even though practiced virtually because of the Covid-19 issue.

Some procedures are used by the lecturer in implementing self-regulated learning assisted by smartphones in the speaking class, such as (1) students are provided with a theme and decide their theme the day before speaking, (2) students are given 5-7 minutes of talking about topics that have been prepared, (3) students must understand aspects of the speaking evaluation before the Zoom presentation begins, (4) students may use a laptop if their smartphone is having problems, (5) when speaking, students are required to record their presentation, and (6) the lecturer provides input related to the fulfilment of the speaking evaluation aspects of each student at the end of learning activities.

III. METHODS

A. Design

This study is quantitative research with a pre-test and post-test design. This design was used because the researchers wanted to analyze and reveal the impact of applying self-regulated learning methods with smartphones assistance in four speaking classes (Cohen et al., 2007, p.276). These four classes were randomly selected, two classes as the treatment group and two classes as the control group.

B. Population and Sample

The study population was 218 students from nine classes who took the speaking courses at the English language education study program, Universitas Katolik Indonesia Santu Paulus Ruteng, Indonesia. One hundred ten students (four classes) were preferred as samples using a random sampling technique. There are various kinds of smartphones owned by students, such as the Samsung Galaxy, 66%, Oppo, 27.5%, Vivo, 11%, and the Xiaomi Mi smartphone, 5.5%.

C. Research Instruments

Tests and questionnaires were used to obtain data. The test was used to measure the students' speaking ability. The questionnaire was to examine the types of smartphones they had and the students' perceptions regarding self-regulated learning with smartphone assistance in their speaking class. However, the review did not examine data relevant to student perceptions only as researchers' documents. The test used refers to the speaking rubric developed by Brown (2004), which includes five aspects of assessment: grammar, vocabulary, comprehension, fluency, and pronunciation. The maximum score for each aspect is twenty, and the minimum score is five. The final score obtained is the accumulation of these five aspects. Then, the range of speaking ability ratings ranged from 20-100.

D. Procedure and Data Analysis

Data was gathered through three procedures: (1) the scoring rubric was given to the two raters, (2) the scoring rubric was disseminated to respondents by lecturers who gave the courses, and (3) the questionnaire distributed through Google form. Then, the data were analyzed using a t-test preceded by assumptions tests, which include a normality test and homogeneity of variance test, by using SPSS software program 24.0 for Windows.

E. Ethical Code of Research

This research has obeyed rules and regulations for researching in Indonesia. It has been approved by the research boards from the Universitas Katolik Indonesia Santu Paulus Ruteng, Indonesia.

IV. FINDINGS

The researchers note that there is a positive impact on applying the self-regulated learning method with smartphones assistance in the speaking class. This impact is shown by the data on the difference in the mean score results in the pre-test and post-test, both the treatment and control groups. The mean results of the pre-test and post-test of the two groups are presented in Tables 1 and 2 below.

TABLE 1
PRE-TEST AVERAGE RESULTS

Group	N	Mean	Median	Modus	Stand. Dev.	Variance	Range	Min	Max
Experimental	56	65.62	65	65	6.74	54.51	25	50	75
Control	54	61.69	65	65	6.47	41.86	25	50	75

The pre-test result shows that the two classes were equivalent. The mean score was much the same. The normalizing and variance analysis result shows an experimental group ($p = .091$) and a control group ($p = .067$). Therefore, it was seen that the data were normally distributed. The homogeneity variance test ($p = .362$) revealed that the two groups had a homogeneity variance.

After applying the self-regulated method assisted by smartphones, a post-test was administered using a speaking rubric consisting of five evaluation dimensions: grammar, vocabulary, comprehension, fluency, and pronunciation. The maximum score for each of these dimensions is twenty, and the minimum score is five. Thus, the maximum score of the five dimensions is accumulated, namely 100, and twenty for the minimum score. The distinction of mean scores for both groups in the post-test results could be seen in Table 2 below.

TABLE 2
POST-TEST MEAN SCORES

Group	N	Mean	Median	Modus	Stand. Dev.	Variance	Range	Min	Max
Experimental	56	82.32	85	85	6.32	39.96	25	65	90
Control	54	73.39	75	75	7.18	51.57	30	60	90

The data in Table 2 above were confined to the normality of the data distribution test and the group homogeneity variance test. They were testing the normality of the data using the Kolmogorov-Smirnov test. The significance value for the experimental and control groups ($p = .176, ns$ and $p = .069, ns$) indicates that the population's sample data is normally distributed. The data variance homogeneity test results indicate a significance value of $p = .278$, which implies that the groups had variance homogeneity.

Hypothesis Test: T-test

The application of self-regulated learning assisted by smartphones in the speaking class has a very positive impact on the experimental class. This impact could be seen on the average post-test value of the two classes (Table 2). In addition, the average gain scores could be shown from the pre-test and post-test results presented in Table 3 below.

TABLE 3
AVERAGE OF GAIN SCORE

Group	N	Score				Category
		Ideal score	Minimum score	Maximum score	Average	
Experimental	56	100	0.22	0.67	0.50	Intermediate
Control	54	100	0.11	0.67	0.33	Low

Based on the average score for the experimental group versus the average score for the control group, it was claimed that the experimental group had higher scores than the control group. The distinctions between the two groups are better illustrated in Figure 1 below.



Figure 1. Average of Gain Score

The results from Figure 1 suggest that the experimental group had more significant cumulative gains than the control group. Moreover, the average gain score is verified by t-tests. The result of the t-test displays that $t_{ob} = 72.065$, while $t_{cv} = 1.658$. Depending on the specified criterion, this value demonstrates that there is indeed a substantial difference in the speaking ability of students who taught using self-regulated learning through smartphone assistance and those taught without using this method; in other words, the treatment provided to the experimental group has been successful.

V. DISCUSSION

The use of the self-regulated learning method assisted by smartphones has had a very positive effect on students' speaking ability. This effect can be demonstrated by the results of the average post-test scores for the two research groups. This data's findings further strengthen several previous researchers' claims that self-regulated learning assisted by smartphones is a contributive method of learning. This method can change the way students learn, strengthen the continuity of the learning system, self-evaluate the knowledge and skills they already have, and independently find the correct pattern in meeting the expected learning achievement standards (Aharony & Zion, 2019; Hartley et al., 2020).

Digital literacy is an absolute option for students majoring in English today since it is a primary variable in strengthening their English competency. Being a multi-literate person is the orientation of education in the 21st century. It is not enough for students majoring in English to only rely on the ability to communicate English but also to be supported by literacy in other fields, such as information literacy, media, and ICT literacy (Ahmadi, 2018; Bahadorfar & Omidvar, 2014; Menggo et al., 2019). This idea can be fulfilled by implementing self-regulated learning methods assisted by a particular digital technology in learning English (Alwaely, 2018; Upadhyay, 2018). These findings confirm that this method has several impacts in the speaking class, such as improved acuity in speaking assessment, digital literacy, enthusiasm for learning, and self-potential improvement autonomy.

Students carefully evaluate weaknesses and improve each aspect of speaking abilities assessment, such as grammar, vocabulary, comprehension, fluency, and pronunciation. Grammar aids students' critical ability in producing speech and sharpens their analytical skills for other language skills (Akbari, 2014; Alhaysony & Alhaisoni, 2017). Grammar is the fundamental base for any speaker in producing meaningful utterances. Speaking English with correct grammar does not confuse the listener about the message conveyed, so there is no stagnation in communicating.

Self-regulated learning also affects the dimensions of student comprehension of conversations. By following this method's stages, students can recognize the message they want to convey to their interlocutors before starting to interact. On that basis, comprehension is a part of the assessment of speaking skills that cannot be taken lightly by EFL learners. This aspect of understanding encourages students to have no difficulty interacting because they know what the substance of the interaction is (Abbaspour, 2016; Ahmad et al., 2019).

Fluency is also one element of speaking skills assessment. Indeed, students' self-regulated learning through Smartphone assistance can measure aspects of their speaking performance fluency. Students can quickly determine indicators of their speaking fluency using such Smartphone applications, such as not pausing, stopping, or thinking too long, which gives the impression that their speaking fluency is poor (Latifa et al., 2015; Zhang, 2020). The fluency aspect indicates that a speaker has mastered the substance of speaking and is clear of speech organ function.

Students recognize and understand each component of the speaking assessment's shortcomings and take appropriate action to fix them as actual implementation of the self-regulated learning method in the speaking class. For obvious reasons, the lack of a pronunciation component, a student tries to improve the accuracy of the pronunciation of the words or phrases she/he says. Pronunciation attributes are fundamental to ensuring students achieve excellence in speaking ability (Gilakjani, 2016; Shah et al., 2017). Intelligible pronunciation has a crucial function in conversation. Without sufficient spelling skills, a student's expression can be seriously impacted, which can lead to incomprehensible

speech and can cause strain on hearers. All these components are often extensively considered by students, since all the components of this assessment must be fulfilled and are intertwined in measuring students' English speaking ability (Mckay, 2007; Thornbury, 2005).

It is strongly recommended that a variety of applications for Smartphones be used in speaking classes so that students can practice their English freely outside the school environment. The speaking instructor is suggested to choose an appropriate application to allow students to have speaking exercises independently. The mobile phone helps students develop their self-assessment of speaking, namely vocabulary, comprehension, fluency, grammar and pronunciation (Amirnejad, 2015; Hariry, 2015).

Self-regulated learning is a learning activity that guides students to be able to organize themselves, recognize self-efficacy, have the motivation, and take the initiative to take the right way to achieve learning achievement (Madihie & Mos, 2018; Min & Nasir, 2020; Sumarni et al., 2020). This understanding of self-regulated learning motivates ESL / EFL learners to strengthen their learning improvement planning. Motivation is an internal student factor that plays a vital role to meet learning target goals. Zimmerman (1999) states that this method has interrelated dimensions, including motivation, strategy, effects, and the social environment. Motivation is a crucial variable of self-control in learning English since motivation contributes to the maximum effort and responsibility for the learning activities (Al-Qahtani, 2013; Long et al., 2013; Hong & Ganapathy, 2017).

Recognizing students' motivation to learn English has a crucial part in helping students learn English successfully. It is an essential aspect to consider for educators to acknowledge students' issue and generate a friendly teaching environment that will encourage students to do more to learn English. By developing a strong motivation, the learners are likely to respond to the language classroom, to find out all the English learning opportunities, independent English practices, have critical thinking skills, be capable of adapting to student learning, and ready to accept the risk of learning (Al-Tamimi & Shuib, 2009; Anjomshoa & Sadighi, 2015).

Learning is the key in higher education. There is no good reason for students to put all their faith in one source of knowledge. The aim of the independent inquiry is to help all plans and proposals and release any uncertainty in the sources of information. By applying self-regulated learning concepts, this problem can be addressed (Beishuizen & Steffens, 2011; Effeney et al., 2013). With learning autonomy, too, students can make self-regulation to get the dreams they want.

VI. CONCLUSION AND IMPLICATION

This study focuses on the impact of using self-regulated learning methods assisted by smartphones in the speaking class. From an analysis of existing results, researchers could conclude that this method has a great potential to enhance students' speaking ability. This increase was asserted by the results of the mean post-test score in the experimental class. The mean score is the accumulation of each speaking assessment component, such as comprehension, vocabulary, grammar, pronunciation, and fluency. Autonomy, continuity of learning and learning initiatives are other impacts of implementing self-regulated learning methods assisted by smartphones. On the basis of all these data, there is no doubt about the effectiveness of implementing self-regulated learning through Smartphones assistance in speaking classes. Students are main actors in all forms of learning activities, both in the planning, self-monitoring, control, and evaluation stages.

This result applies primarily to speaking classes, but it does not ignore the possibility that using self-regulated learning methods assisted by smartphones can be extended to other subjects. Non-university educators are also encouraged to apply this method as long as they thoroughly understand their students' characteristics, cognitive capacities, learning styles, motivation, learner autonomy, and the procedures for applying this method in the classroom. It is not unlikely for self-regulated learning methods assisted by Smartphone to have a double contribution to students' academic and non-academic outcomes if the stages of the method are carefully applied.

ACKNOWLEDGMENTS

Thanks to the Rector of Universitas Katolik Indonesia Santu Paulus Ruteng, who endorsed and facilitated this research.

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