Facilitating Self-Regulation with Mobile Devices to Improve Spoken Interaction

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Author's Note

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Abstract

The objective of this study was to determine the effectiveness of self-regulation with mobile devices on spoken interaction in twenty-seven students at a public university in Guayaquil-Ecuador. This action research lasted six weeks and included mixed methods, collecting data from pre and posttests, interviews, self-reflections, and field notes. The participants were trained to self-assess their spoken interactions using the rubric. The rubric components included grammar/vocabulary, pronunciation, and interactive communication. The participants created scripted dialogues simulating real-life scenarios, videotaped them using their mobile devices, and self-assessed their performances. Quantitative results revealed a large effect size (Cohen´s d= 0.82) and statistical significance ($p < .05$). Qualitative analysis showed that students had a positive perspective of the innovation, that self-assessment was key to developing learner autonomy, that pair work motivated learners to speak, and that mobile assisted language learning was a useful tool to monitor their learning. This article concluded that cell phones support self-regulation and are beneficial to improve learning outcomes and promote learner autonomy. These results could have implications for teachers aiming at improving spoken interaction, EFL learning, as well as developing learner autonomy. This author encourages further research about self-regulation strategies for an extended period using a control group.

Keywords: self-regulation, mobile-assisted language learning, spoken interaction, EFL learning, learner autonomy.

Resumen

El objetivo de este estudio fue determinar la efectividad de la autorregulación con dispositivos móviles sobre la interacción oral en veintisiete estudiantes de una universidad pública en Guayaquil-Ecuador. Esta investigación-acción duró seis semanas e incluyó métodos mixtos, recolectando datos de pruebas preliminares y posteriores, entrevistas, autorreflexiones, y anotaciones de campo. Los participantes fueron entrenados para autoevaluar sus interacciones habladas usando la rúbrica. Los componentes de la rúbrica incluyeron gramática/vocabulario, pronunciación, y comunicación interactiva. Los participantes crearon diálogos con guiones que simulaban escenarios de la vida real, los grabaron en video usando sus celulares y autoevaluaron sus actuaciones. Los resultados cuantitativos revelaron un tamaño del efecto de alta magnitud (*d* de Cohen = 0.82) y significancia estadística ($p < .05$). El análisis cualitativo mostró que los participantes tenían una perspectiva positiva sobre la innovación, que la autoevaluación fue clave para lograr autonomía del alumno, que el trabajo en pareja motivó a los estudiantes a hablar, y que el aprendizaje de idiomas asistido por dispositivos móviles fue una herramienta útil para monitorear su aprendizaje. Este artículo concluye que los teléfonos móviles apoyan la autorregulación, son beneficiosos para mejorar el aprendizaje y fomentan la autonomía del alumno. Estos resultados podrían tener implicaciones para los docentes que buscan mejorar la interacción oral, el aprendizaje EFL y desarrollar autonomía del alumno. Este autor recomienda que se realicen más investigaciones sobre autorregulación por un período prolongado utilizando un grupo de control.

Palabras clave: autorregulación, aprendizaje de idiomas asistido por dispositivos móviles, interacción oral, aprendizaje EFL, autonomía del alumno.

Facilitating Self-Regulation with Mobile Devices to Improve Spoken Interaction

English has a dominant role in the modern world, and a significant part of students learn English to reach speaking proficiency (Richards & Renandya, 2002). The English Proficiency Index report (English First [EF], 2019) concluded that there is a consistent relationship between English proficiency and innovation with the use of technology, noticing that English, as a means of global connectedness, falls in line with fairness and social commitment. According to the EF report, Europe and Asia qualified as the highest proficiency level with Latin America and the Middle East, as the lowest.

In Latin America, Argentina hit the highest proficiency level in the region; however, Ecuador reached the lowest (EF, 2019). These results highlight the necessity of improving English skills in Ecuador. The Council of Higher Education (Consejo de Educación Superior [CES], 2019) requires that the university students possess at least a B1 speaking proficiency before graduation following the standard reference level framework of the Council of Europe. Studies evidence that there are factors hindering the English-speaking development like anxiety and sensitivity of making mistakes (Richards & Renandya, 2002). Speaking is the most challenging skill because of its use in different aspects of life (El-Sakka, 2016; Leong & Ahmadi, 2017), and a critical skill for EFL teachers worldwide (Burns & Hill, 2013). Despite the challenges, there are learning strategies available for EFL teachers to overcome the speaking limitations. According to Communicative Language Teaching (CLT), different strategies can be used to improve spoken communication (Richards, 2006). Sociocultural theory (SCT) encourages interaction as a social process to enhance learning. It determines the Zone of Proximal Development (ZPD) as what learners can do individually and what they can do collaboratively (Burns & Hill, 2013). Additionally, Burns and Hill stated that teachers can design speaking activities to work

collaboratively to foster spoken interaction. Lee and Oxford (2008) found that strategies play an important role in language learning. According to O'Malley and Chamot, metacognitive strategies cause reflection, the need for planning for learning, and monitoring the development of speaking and comprehension while it is occurring, as well as self-evaluation after the process (1990, as cited in Sisquiarco et al., 2018).

Self-regulation is a cyclical procedure that the learners apply to plan for an assignment, monitor their performances, and reflect on their results. Then, the cycle starts again, and the learners can reflect and make the necessary adjustments and be ready for the next assignment (Zimmerman, 2002; Zumbrunn et al., 2011). Some studies revealed that facilitating self-regulation has a significant effect on spoken production (El Sakka, 2016; Zumbrunn et al., 2011). On the other hand, Mahjoob (2015) found a correlation between self-regulation and English proficiency, although with a weak statistical significance. This author recommended more studies applying new methods to facilitate self-regulation in overall educational areas.

Mobile-Assisted Language Learning (MALL) is a potential tool for constructivism in EFL learning (Hsu, 2013, as cited in Elfeky & Masadeh, 2016). Kondo et al. found that some MALL activities could promote self-regulated learning (2012, as cited in Viberg & Andersson, 2019). Studies of Hwang et al. highlighted that mobile learning situates learners in scenarios that motivate them to communicate with peers and expose them to real-life experiences, thereby improving higher order thinking performance (2012, as cited in Lai & Hwang, 2014). On the other hand, Choliz's study concluded that mobile phones represented negative results in the academic, social, and working contexts (2012, as cited in Gökçearslan et al., 2016).

There are some studies supporting self-regulation and MALL like El Sakka (2016), Viberg and Andersson (2019), and Zumbrunn et al. (2011). In Ecuador, some studies stated that self-regulation with mobile devices is beneficial for improving speaking skills (Ontaneda, 2019; Saltos, 2019; Vega, 2019). Additionally, this study aims to contribute to the field by applying self-regulation using mobile devices to improve English spoken interaction in students of a public university in Guayaquil, Ecuador, where no similar studies have been conducted. Therefore, this document will provide new information for further research on self-regulation facilitated with mobile devices in different EFL contexts. The author of the present study considers self-regulation as a powerful strategy to encourage the students to be conscious of their learning and become autonomous learners.

Literature Review

This Literature Review determines Sociocultural Theory as the theoretical framework of the present study about facilitating self-regulation (independent variable) to improve spoken interaction (independent variable) with mobile devices. Additionally, this section includes critical aspects of Second Language Acquisition (SLA) to be discussed further. Also, the teaching approach for this innovation was the Communicative Language Teaching (CLT) which aims to achieve communicative competence. The lesson plan as the planning feature of this innovation was based on Understanding by Design (UbD). Furthermore, this literature review presents the definitions of terms such as speaking, spoken interaction, grammar, vocabulary, pronunciation, as well as self-regulation, self-assessment as part of self-regulation, and Mobile-Assisted Language Learning (MALL). Additionally, some studies seeking to improve spoken interaction contribute with their findings to the application of self-regulation with mobile learning. Also, this study refers to an article that does not support self-regulation with the use of mobile learning, as well as

another article suggesting more studies with self-regulation strategies to improve speaking proficiency.

Second Language Acquisition (SLA)

SLA is the process of acquiring or learning a language in addition to the mother language (Tomlinson, 2013). Affective and cognitive engagement facilitates SLA. Brown pointed out that the affective factors involved in EFL learning are motivation, anxiety, self-esteem, empathy, and attitude (1994, as cited in Richards & Renandya, 2002). Krashen (2013) stated that the Affective Filter Hypothesis happens "if the acquirer is anxious, has low self-esteem, does not consider himself or herself to be a potential member of the group that speaks the language" (p. 4). Krashen added the Monitor Hypothesis stating that "consciously learned language is only available to us as a Monitor, or editor" (p. 2).

Sociocultural Theory (SCT)

Sociocultural theory (SCT) refers to learning as a social process with interactions; however, keeping the individually constructed process (Vygotsky, 1978). Vygotsky highlighted the benefits of learning experiences with peers and teachers, as well as pointed out the term "mediation" or "regulation" (Lantolf et al., 2015). According to Vygotsky, cultural tools, along with technological devices (i.e., cell phones, the Internet, computers, and so forth), as well as psychological tools (i.e., language, symbols, and so forth) are essential for cognitive development (1978, as cited in Woolfolk, 2016).

Developed by L. S. Vygotsky in 1920, the Zone of Proximal Development (ZPD) is "the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). Interactive activities with a peer facilitate the assessment of the learner's ZPD. Kathleen

Berger stated that the ZPD is the "magic middle" where students are neither bored nor frustrated (2012, as cited in Woolfolk, 2016). According to Woolfolk, teachers should implement tasks where learners achieve understanding with the support of the teacher, peer work, or learning materials.

Communicative Language Teaching (CLT)

Richards (2006) defined Communicative Language Teaching as a group of principles concerning the objectives of teaching a language, the role of the students and the teacher in the classroom, and how students learn. Richards identified that the purpose of CLT is communicative competence. In 1971 Hymes defined *communicative competence* as having students use the language for meaningful communication. Fluency and accuracy are predominant parts of the communicative approach (Brown, 2001). *Accuracy* refers to the appropriate employment of linguistic structures (grammatical accuracy) and vocabulary (semantic accuracy; Namaziandost et al., 2019). On the other hand, *fluency* is the ability to produce understandable oral production and keep communication without losing listeners' interest (Hughes, 2002, as cited in Leong & Ahmadi, 2017).

Understanding by Design (UbD)

The present study follows the curriculum-planning framework of Understanding by Design (UbD) developed by Grant Wiggins and Jay McTighe in 1998. Under this framework, the teacher plans to develop learners' understanding to experience meaningful learning and transfer it to real-life contexts (Wiggins & McTighe, 2011). UbD is ruled by Backward Design, which, according to Wiggins and McTighe, pointed to three stages: desired results, evidence, and learning plan.

Speaking

Levelt defined speaking as a complex mental process that mixes several cognitive skills at the same time (1989, as cited in Burns & Hill, 2013). The first skill is Conceptualization: Speakers need content and previous knowledge to produce, begin a topic, or choose ideas to interact, for example, tell a story or describe something. The second skill is Formulation: Speakers need to know grammatical structures and vocabulary to say things. The third skill is Articulation: Speakers need to manage the physical process of mouth, teeth, and tongue; when learners automatize pronunciation, they become competent speakers. Therefore, students need to have previous knowledge, order structures, and patterns in their minds to speak. H. Douglas Brown argued that for students that do not have a higher level of the language, speaking during classes is demanding (1993, as cited in Burns & Hill, 2013). Another challenging factor for speaking is a cognitive process that can cause nervousness for students.

Burns and Hill (2013) pointed out that teachers must use strategies to reduce anxiety. Rebecca Oxford grouped the learning strategies into categories like cognitive, metacognitive, affective, and social (1990, as cited in Richards & Renandya, 2002). Speaking activities and strategies to work collaboratively help students to interact and receive feedback in the form of backchannels (Burns & Hill, 2013). Shumin (2002) argued that activities with more intense structured situations, dialogues, and role play are ideal for enhancing communicative competence. Green et al. (2002) stated that video offers beneficial possibilities of feedback because of sociolinguistic strategies, displayed performances, language exposure, and accuracy. Likewise, this study pointed out the advantage of using videos and posting them on reflecting journals to receive feedback rather than showing it to the class.

For teachers to adapt the curriculum with activities and strategies to improve spoken interactions, it is necessary to include a framework of reference. In 2018, the Council of Europe (CoE) published the Common European Framework of Reference for Languages: Learning, Teaching, Assessment (CEFR) Companion Volume with new descriptors renaming speaking, listening, reading, and writing model with a new model of communication such as reception, production, interaction, and mediation. This model stands for both spoken and written forms. Furthermore, under this new model, the users are social agents, and the language is a means of communication (CoE, 2018).

Spoken Interaction

Brown (2001) stated that Interaction is the exchange of ideas and thoughts between people. Additionally, communicative interaction has a positive impact on L2 acquisition (Loewen, 2015, as cited in Lessard-Clouston, 2018). Furthermore, the categories of spoken interaction activities are organized by three macro-functions: interpersonal (conversation), evaluative (informal discussions), and transactional (information exchange, buying and selling goods and services; CoE, 2018). In the same way, the European Council pointed out the Spoken Interaction Descriptors for A2 as follows:

- “I can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar topics and activities” (p. 168).
- “I can handle very short social exchanges, even though I can't usually understand enough to keep the conversation going myself” (p. 168).

Moreover, within this framework, the development of proficiency becomes a cycle in which learners perform tasks, thrive in competences, and gain strategies. Communicative strategies link communicative language activities and communicative language competence

(CoE, 2018). Moreover, CEFR scales for A2's spoken interaction strategies consider turn-taking, collaborative strategies, and asking for clarification.

Vocabulary

Vocabulary is "a core component of language proficiency and provides much of the basis for how well learners speak, listen, read and write" (Richards & Renandya, 2002, p. 255). Richards and Renandya added that without an extensive vocabulary and strategies for learning new words, the students could not reach their potential. Also, vocabulary range refers to the "breadth and variety of words and expressions used" (CoE, 2018, p. 132). Concerning vocabulary control, the CoE defined it as the "ability to choose an appropriate expression from their repertoire" (p. 134). For this study, the focus will be on the A2 level. For A2 level vocabulary range includes in the scale concepts like the range of settings and type of language as well as vocabulary control involves familiarity of topics. Lessard-Clouston (2018) suggested that vocabulary is more likely to be recalled in spoken performance tasks than just by reading.

Grammatical Accuracy (GA)

GA refers to both the student's ability to remember ready-made expressions accurately as well as to employ grammatical structures while communicating ideas (CoE, 2018). Also, the CoE considers for A2's descriptor scales the concept control of a specific repertoire. Richards and Renandya (2002) stated that beyond learning the rules of grammar, it is also necessary to know how to apply the rules in genuine interaction. According to Thornbury, the appropriate usage of the grammatical forms inquires the extent and difficulty of the communications and well-structured clauses (2005, cited in Leong & Ahmadi, 2017). In this way, it refers to controlling the use of grammar within the dialogues properly. For EFL students, grammar mistakes cause a change in the meaning of the spoken

interaction resulting in problems of understanding (Mahripah, 2014, as cited in Leong & Ahmadi, 2017). According to Lessard-Clouston (2018), reusing and recycling grammar and vocabulary foster learners' understanding and meaningful learning, thus they can link the content in specific contexts. For this innovation, the criteria for self-assessing the A2 grammar accuracy on spoken interaction includes the use of simple grammatical forms learned in class. In the same way, Joo (2016) stated that objective rating criteria promote students to self-assessment accuracy.

Pronunciation

Pronunciation, also known as phonology, encompasses the production of sounds, use of stress, rhythm, and intonation (Richards & Renandya, 2002). The Council of Europe includes the scale of phonological control, considering understanding or intelligibility. Within the descriptors for A2, it provides articulation (pronunciation of sounds), prosody (intonation, rhythm, and stress), as well as speech rate/chunking. For EFL learners, pronunciation is difficult because the words do not sound the way they are spelled (Leong & Ahmadi, 2017).

Self-Regulation

Self-regulation is “an active constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, behavior, guided and constrained by their goals and the contextual features in the environment” (Pintrich, 2000, as cited in Abbasi & Nosratinia, 2018, p. 15). Self-regulation is a selective implementation of strategies so that the learners change their mental processes into adapted skills towards learning activities (El-Sakka, 2016; Zimmerman, 2002). Also, it refers to self-metacognitive, motivational, and behavioral processes that transform skills through outcomes in a different context (Brown & Harris, 2014; Zumbrunn et al., 2011).

Mahjoob's (2015) study concluded that self-regulation and speaking proficiency had a weak correlation and suggested more studies to implement self-regulation in different contexts. However, various studies support the benefits of implementing self-regulation. El-Sakka (2016) stated that self-regulation helps learners to manage their spoken production and lower their speaking anxiety. In Ecuador, some studies concluded that self-regulation positively impacts on speaking skills in different contexts as well as provides students with strategies to be more autonomous (Ontaneda, 2019; Saltos, 2019; Vega, 2019).

Self-regulated learning is a cyclical process that includes sub-processes or strategies to be applied by the students (El Sakka, 2016; Zhu & Mok, 2018; Zimmerman, 2002; Zumbrunn et al., 2011). Similarly, the self-regulated process involves goal setting, planning, flexible use of learning strategies, self-monitoring, self-motivation, and self-evaluation (Zumbrunn et al., 2011). The phases are the forethought phase, the performance phase (the process during the performance), and the self-reflection phase (process after the performance; Zimmerman, 2002).

The forethought phase consists of processes and opinions subsisting before students' performance. Students are dynamic participants by setting goals, recognizing strategies that will allow them to achieve their learning goals, and evaluate their interests over the assignments, and their learning objectives (El Sakka, 2016; Zhu & Mok, 2018). Planning and goal setting are complementing procedures. Planning can support students to set up well-reasoned goals and learning strategies to succeed (Schunk, 2001, as cited in Zumbrunn et al., 2011). Flexible use of learning strategies means that the students can modify strategies if needed to promote their learning process close to their expected goals (Zumbrunn et al., 2011).

In the performance phase, the students apply the learning strategies to fulfill the assignments, monitor their progress, and motivate themselves to accomplish the learning goals (El Sakka, 2016). Self-monitoring is a reshaped form of self-observation and alludes to the cognitive trace of individual processes (Zimmerman, 2002). Likewise, El Sakka (2016) added that while students self-monitor strategies and self-control the process, they also look for support from a skilled person to achieve goals. When the students apply the strategies to monitor themselves to achieve a learning goal, self-motivation increases (Zumbrunn et al., 2011). According to Brown (2001), the most powerful principle of learning is the "Intrinsic Motivation Principle" because learners are intrinsically involved in their learning process by independently selecting or modifying any strategy. Brown added that by participating in their learning process, learners take the responsibility for their own learning, thus, increasing motivation as they become autonomous learners. Learners that have learning goals think that they can improve their intelligence with effort and will (Bransford et al., 2000).

In the self-reflection phase, students self-evaluate their performances, analyze their self-satisfaction, and adjust if necessary, for the next assignment (El Sakka, 2016). Self-satisfaction includes defensive reactions that hinder any opportunity to learn, and adaptive reactions to modify any learning strategy (Zimmerman, 2002). When learners can self-assess their learning, they become self-regulated learners (Winne & Hadwin, 1998, as cited in Zumbrunn et al., 2011). Within this phase, self-assessment is a component of self-regulation.

Self-Assessment

Self-assessment refers to an assessment of a learner's work for formative objectives and should be part of self-regulation as a competence practiced in school (Brown & Harris,

2014). Additionally, Andrade and Du defined it as a formative assessment of learning and performance, contrasting results with the settled goals or criteria, thus allowing learners to determine the strengths and weaknesses in their performances and analyze them properly (2007, as cited in Spiller, 2012). In this way, students' self-reflections affect their next plans and learning goals and start the self-regulation cycle again.

Feedback is a relevant aspect of formative assessment (Andrade, 2008). It must focus on understanding, may be formal or informal as well as employed synchronously and asynchronously (Bransford et al., 2000). Furthermore, learners can be their feedback source through self-assessment, getting appropriate and helpful information to improve their learning process (Andrade, 2008). Learners' reasoning must be visible through tests or papers (Bransford et al., 2000). In this way, a rubric can assist reflective self-assessment (Andrade, 2008).

Scaffolding allows students to perform more complex tasks than students could do without such assistance (Shute, 2008). Affective factors, as well as the proficiency level of learners, influence the understanding of feedback. Therefore, collective scaffolding is necessary to assist each other in the learning process (Yoshida, as cited in Joo, 2016).

Peñaflorida (2002) stated that *learner autonomy* is "a process that enables learners to recognize and assess their own needs, to choose and apply their learning strategies or styles eventually leading to the effective management of learning" (p. 346). Additionally, Dickinson suggested that autonomy is achieved when learners make decisions about their learning and fulfill their plan (1987, as cited in Tavallali & Marzban, 2015). The latter authors suggested in their study that the implementation of self-regulated strategies during an extended period is needed to "become totally autonomous learners"

The *rubric* is an instrument that details criteria and shows quality levels for a specific task (Andrade, 2008). Andrade highlighted that an effective rubric could guide the learners in their revision process and improvement by monitoring and comparing their production to the rubric. Furthermore, the author stated that learners' self-assessment through rubrics could be fostered by peer-assessment as well as teacher feedback. Also, Abad and Alzate argued that when rubrics are combined with strategic instructions, learners reach control of their learning and can practice focusing on improving their performances (2016, as cited in Sisquiarco et al., 2018). Hattie and Timperley (2007) contributed with the term 'Effective Feedback,' which must prompt the reflection of significant questions such as "Where am I going? (what are the goals?), how am I going? (What progress is being made toward the goal?), and Where to next? (What activities need to be undertaken to make better progress?)" (p. 86).

Some studies like Joo (2016), Brown and Harris (2014), and Rolheiser and Ross (2001) concluded that four conditions are required to achieve realistic self-assessment. The first condition is clear information about the criteria, which means that the students are well informed about how to evaluate the tasks. The second condition is proper training, which guides the students on how they must apply the criteria. The third condition refers to the characteristic of the students and their perceptions of self-assessment. Finally, the fourth one is the integration with the curriculum, which refers to the techniques and work quality. Sisquiarco et al. (2018) stated that feedback that provides guidelines for using learning strategies causes a high impact on learners' spoken production by enhancing their autonomy and skill perceptions.

Mobile-Assisted Language Learning (MALL)

Mobile-Assisted Language Learning (MALL) refers to the insertion of mobile technology in the process of language learning (Miangah & Nezarat, 2012). One of the advantages for educators is the potential of mobile technologies to provide authentic language practices and new assessment possibilities (Nikou & Economides, 2017). Contrary to conventional classes, in MALL, the learners do not need to go to school or have a computer to learn. In that way, it is the ideal way to learn because it solves the issues of time and distances (Miangah & Nezarat, 2012). MALL facilitates users' learning; in other words, it is also a metacognitive tool (Sha et al., 2012). MALL supplies "mental, social, contextual, and spatial activities via microlearning all day long and makes the learning process more self-directed and regulated" (Elfeki & Masadeh, 2016, p. 22).

In contrast, Choliz stated that mobile phones cause drawbacks in the academic, social, and working contexts (2012, as cited in Gökçearslan et al., 2016). Nevertheless, studies cited here concluded that mobile learning was more successful than traditional teaching strategies to develop the academic fulfillment of learners (Elfeki & Masadeh, 2016; Lai & Hwang, 2014). Also, learners can achieve more motivating assessments, autonomous learning, and a helpful instructional environment (Nikou & Economides, 2017).

To summarize, previous studies evidenced that the use of self-regulation with mobile devices contributes to the improvement of speaking skills, motivation, and development of learner autonomy. It is necessary to examine the impact of self-regulation on spoken interaction in this study. Therefore, this study addressed the following questions:

1. To what extent does self-regulation impact speaking skills in A2 level EFL University students? Quantitative.
2. To what extent did students' self-assessment improve? Quantitative.

3. What was the students' perspective of the innovation? Qualitative.

Innovation

The general objective of this innovation was to describe the effect of self-regulation with mobile devices on spoken interaction in twenty-seven students at a public university in Guayaquil-Ecuador. This innovation lasted six weeks. The Lesson Plan (Appendix A) considered in this study was based on Understanding by Design and included desired results, evidence, and learning plan (Appendix A). The textbook used was Personal Best A2 Elementary applying American English for adults. This resource is a student's book and workbook combined edition with an integrated web-based video resource and the Personal Best Language App (Rogers, 2017).

The participants of this study worked in pairs and performed five dialogues recorded in the video of about two minutes each using their mobile devices and uploaded them to Padlet and YouTube. Padlet e-portfolios were employed as a tool for the self-regulation cycle, and a means to receive feedback rather than speaking in front of the class. YouTube facilitated the easier uploading of videos to Padlet. This innovation followed four stages: Training, self-regulation, transfer of learning, and implementing the action plan.

In the training stage, students were instructed about how to apply the criteria of the rubric to self-assess the spoken performances. Students were trained by practicing assessment of three Cambridge A2 speaking test videos. Also, participants learned how to upload videos from their mobile devices to YouTube and Padlet. The students had to record and upload a pilot video of approximately one minute and a half.

During the self-regulation process, students reviewed the self-regulation cycle and the criteria of the rubric (Appendix B). Each participant received the rubric together with the self-reflection page (Appendix C). Within the classes, the students wrote their dialogues

based on the vocabulary and grammar learned in class adapted to a specific scenario simulating a real-life situation. They received clear instructions during the class hours supported by the class WhatsApp group. The students had to speak without looking at their scripts, while they were videotaping with their mobile phones. Afterward, their videos were uploaded both on Padlet and on YouTube and they shared the links using the class WhatsApp group.

In the transfer stage, after videotaping the videos, the participants self-assessed their spoken interactions using the rubric criteria (Appendix B). Also, they wrote their reflections on their progress using the reflection page (Appendix C). During the action plan stage, the students set goals for the next video. The students employed the action plan included at the end of the rubric (Appendix B), selected among the strategies detailed, and decided whether to continue with the same strategies or modify something for the next spoken performance.

Methodology

The present is an Action Research (AR) project. Action research considers teachers taking 'action' to determine a change or the effectiveness in which the study includes the observation and the analysis of the results (Burns, 2009, as cited in Yuan & Lee, 2015). AR includes planning, action, observation, and reflection to evidence understanding and improvement (Edwards & Burns, 2015). This AR employed mixed methods such as qualitative and quantitative methods to analyze the effect of self-regulation (independent variable) on spoken interaction (dependent variable). The quantitative approach collects and analyzes the data according to logic rules to answer the research questions with validity and reliability (Sampieri et al., 2014). Additionally, Sampieri et al. stated that the qualitative method collects data without numeric measurement to reconstruct reality as it is observed by the participants of a defined system. This research describes the participants of a one-group

experimental design, who were mostly young adults of the first semester of a public university. Likewise, this section illustrates the instruments applied during this project. Finally, it shows how the data was collected to obtain the results.

Participants

This study had a one-group experimental design. The participants of this study (eight females and nineteen males) were students of the first semester of an eight-semester career in a public university in Guayaquil, Ecuador. At the beginning of the implementation, thirty-four students agreed to participate in this action research. However, seven students decided to drop the English classes in the last week of the implementation. Therefore, these aspects affected the number of participants in the post-test of this action research. Most of the participants were from Guayaquil, and 38% came from other provinces. The ethnicity of the participants was Mestizo, White, Afro-Ecuadorian, and Montubio. After performing the placement test, the results showed that 41% of students were at an A2, 32% of participants were A1 level, and 9% B1 level. The results were collected from the free online Kaplan test (Appendix D).

Instruments

To determine English proficiency at the beginning of the study, the researcher selected Kaplan online test because of the online facility (Appendix D). Kaplan International Languages has eighty years of experience in education and is one of the globe's largest education sources (Kaplan International Languages, 2020). United States ACCET, British Council, English Australia, Languages Canada, English New Zealand, and Ireland ACELS accredited Kaplan.

The Strategy Inventory for Language Learning (SILL) is a language learning strategy instrument, and the most employed strategy questionnaire worldwide (Oxford &

Burry-Stock, 1995). The questionnaire SILL was adapted and translated into Spanish for a better understanding and response (Appendix E). The questionnaire was applied at the beginning of the study and provided background information of students as well. The results showed that seventeen students were nervous about speaking English because of the pronunciation (seven students), being afraid of making mistakes (six students), lack of L2 knowledge (three students), and an introvert (one student). Concerning the use of strategies, 68% of participants sometimes used strategies to learn English, and 32% replied they always used strategies to learn English. The most used strategy was "organizing and evaluating your learning," followed by "using all your mental processes" and "learning with others."

The quantitative data were collected from the self-regulation rubric (Appendix B) to assess the participants' spoken interactions. This measurement allowed the researcher to answer the first and second research questions. The design of the rubric followed the format of the Cambridge English: Key English Test (KET) for school speaking tests (Cambridge, 2020). During the training stage, the students practiced the use of the rubric, assessing three Cambridge A2 speaking test videos. Both the participants (the students) and the researcher (the teacher) employed the same rubric for assessing the spoken interaction (Appendix B). The purpose of the rubric as a component of self-assessment was to measure students' spoken interaction and set goals.

The rubric contained three parts (Appendix B). The first part consisted of clear instructions to consider the whole process. It showed the content material and the pages of the book to review when writing the dialogue. The second part included the self-assessment form with the descriptors for each category. The sub-skill categories to be assessed were grammar and vocabulary, pronunciation, and interactive communication, and each one over

three points. The progress involved the functions of the spoken interaction, the use of new vocabulary/grammar rules, understanding the speaker, clear pronunciation, strategies for turn-taking, cooperating, and asking for clarification. Likewise, the rubric included the action plan with the purpose of planning self-improvement, setting the learning goals, and laying out learning strategies.

A semi-structured interview was conducted at the end of the study to determine the students' perspectives about this innovation as well as strategies used (Appendix F). There were ten open questions for the participants related to 10 categories, such as learning, strategies, positive aspects, challenges, technology, oral interaction, affective, sub-skills, autonomy, and self-regulation. The interviews were performed out of class hours and arranged with the students at their suitable schedule in the university facilities. Before the interviews were videotaped, the interviewer with participants practiced answering questions. Considering the low proficiency level of the students, the researcher performed the interview in Spanish with the eight participants. However, three participants were volunteers to achieve it in English as well.

The purpose of the self-reflection document was for the student to reflect on performance and their learning process (Appendix C). This document was completed together with the rubric after videotaping the dialogues. The instruction was to write a log of about fifty words to describe their experience. For the first two videos, the participants wrote their thoughts in Spanish, as a practice. For the last three videos, they wrote it in English as a writing practice. The teacher provided the learners with feedback during classes and out of class hours on Padlet.

Another instrument that helped to collect data from the students was the field notes the teacher collected (Appendix G). This information was based on teacher observation

during class hours. The researcher wrote down the evidence of better learning when the students wrote the dialogues in pairs, practiced the conversations before videotaping, and also when talking with the students about their monitoring process in which they were noticing improvements in speaking.

Data Analysis

The data obtained from the pre and posttest were collected, typed, and codified in the Excel program. Afterward, the data were copied to the SPSS program to apply descriptive statistics. Descriptive statistics allow the illustration of the characteristics of the participants of a study (Marshall & Jonker, 2010). The SPSS program allowed the researcher to get the Mean (M), and the Standard deviation (SD). Also, the Effect size of Cohen (d) was calculated using an online calculator. For the first question, relating the extent to which self-regulation impacted the speaking skills of the participants after innovation, the researcher calculated the mean from the scores of the pretest at the beginning and the posttest at the end of the innovation. Also, the study included sub-scales such as grammar, pronunciation, and interactive communication. For the second question, whether the students' self-assessment improved after the innovation, the researcher compared the mean of the scores of the students and the teacher in the pre and posttest.

On the other hand, the researcher applied inferential statistics to compare the data collected at the beginning and at the end of the implementation to show if self-regulation as the independent variable affected the speaking skills of the students as the dependent variable of this study. Inferential statistics allow the researcher to infer from the sample group conclusions that can be employed to a larger population (Marshall & Jonker, 2010). The SPSS program allowed the t-test (t). As this study considered only one experimental group, the researcher applied a 'paired sample t-test,' which is a procedure to compare a

group before and after an intervention and get the statistical significance (Flores-Ruiz et al., 2017).

For the qualitative statistics, the researcher employed the sampling method, in which a sample or a small group "is selected as representative of the whole universe" (P. Pandey & Pandey, 2015, p. 40). The sample for this analysis included eight participants selected randomly. According to P. Pandey & Pandey, simple random sampling means that each element of the universe has the same probability of participation. In this study, the lottery or fishbowl technique was applied. The researcher wrote the names of each participant in a small rolled piece of paper, then deposited in a container. According to P. Pandey & Pandey, randomization supplies pertinent data without subjectivity.

For the data analysis, the researcher collected raw data including oral responses from the interviews (Appendix F), self-reflections, and field notes (Appendix G). The researcher gives structure to the data, organizing the units, the categories, aspects, and patterns (Willig, 2008, as cited in Sampieri et al., 2014). For example, the researcher recorded the interviews and transcribed the answers to the open questions in a Word document. The material collected was coded or organized and sorted into chunks or categories to give it meaning. The author applied descriptive statistics to get a table of frequency distribution with nominal data or categories obtained from the interview (Appendix F).

The researcher contrasted the results through methodological triangulation. Methodological triangulation contributes to the validity and reliability of the findings (Ashour, 2018). Patton determined that *triangulation* refers to the combination of methods to reinforce a research design (1987, as cited in Richards & Renandya, 2002). For this study, the methodological triangulation included the pre/posttest results, the interviews, the

self-reflection of the participants, and the field notes of the researcher. A graphic with the categories of each source was employed to verify whether the results were consistent and focused on the purpose of the investigation (Appendix H).

Ethical Consideration

The researcher obtained written authorization from the director of the career in the faculty after explaining the purpose of the study (Appendix I). For ethical reasons, the participants were advised that the data collected during this study would be employed for research purposes only. Additionally, the names of the participants, as well as the institution, were not to be published, and participants had the right to decline their participation in this study at any time.

Results of the Study

This part shows both quantitative and qualitative results. For quantitative results to answer the first and the second question, data were obtained from the pre and posttest, applying descriptive and inferential statistics. For the qualitative approach, the results to answer the third question were obtained from the semi-structured interview, the self-reflections, and the field notes.

1. To what extent did self-regulation impact speaking skills in A2 level EFL University students?

To determine if there was an improvement of speaking skills as a result of the innovation, the researcher employed a paired-sample t-test to analyze the students' scores of the pretest and the posttest to the same sample (n = 27). The results were as follows:

Table 1

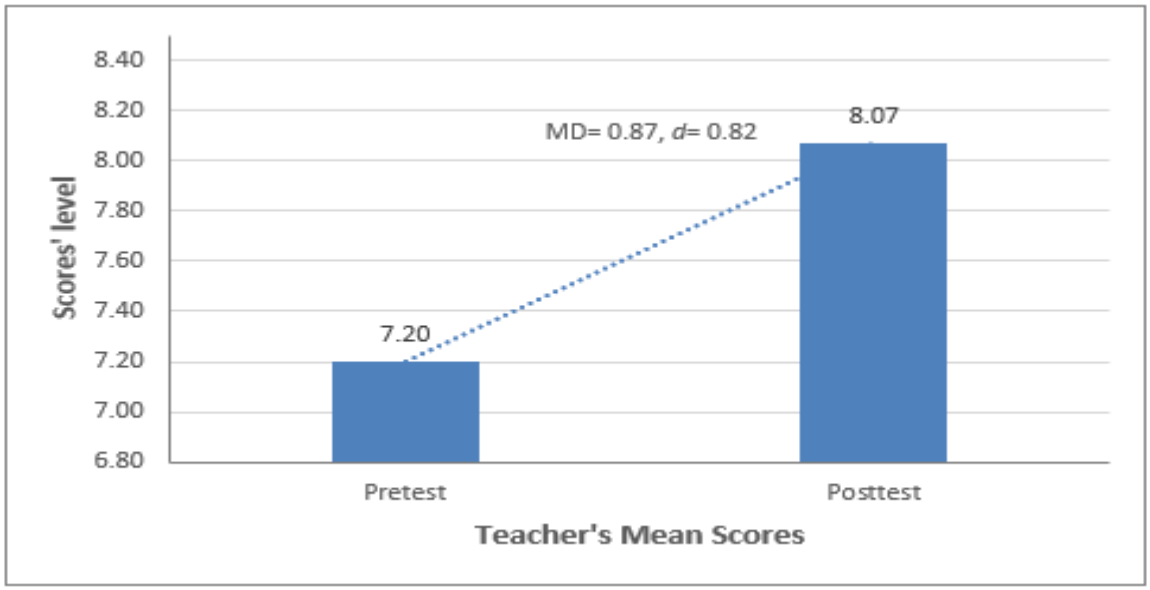
Paired-Sample t-test Results of the Speaking Pretest and Posttest

Test	n = 27		95% CI		d	t	Sig. (2 tailed)
	M	SD	Lower	Upper			
Pre-Test	7.204	1.195	6.7310	7.6764	-	-	-
Post-Test	8.074	0.917	7.7114	8.4367	-	-	-
Difference	0.870	0.644	0.6155	1.1253	0.817	7.018	0.000

Note. *n* = Number of Participants. M = Mean. SD = Standard Deviation. CI = Confidence Interval (95%). *d* = Effect Size. *t* = The sample value of the t-*test. Sig. (2-tailed)* = *p*-value < 0.05.

Table 1 illustrates a dependent sample t-test that provided the results of statistical significance as well as the effect size obtained from an online calculator. The teacher's mean in the pretest was 7.20 and the posttest was 8.07, which reflects an increase in the mean scores of the posttest (MD = 0.87). Similarly, the pretest standard deviation was 1.195, while at the posttest, it was 0.917. Moreover, the 95% confidence interval of the pretest mean (lower 6.73, upper 7.68), and the posttest mean (lower 7.71, upper 8.44), shows an increase of the scores in the posttest, with an alpha of 0.05 and the p-value of .000 ($p < 0.05$), this strongly evidences that the improvement is due to the innovation and not by chance. Likewise, the effect size (d) of 0.82 represents a high effect size of the innovation.

Figure 1. Mean Scores Comparison and the Effect Size of Self-Regulation Implementation



Note. The Mean Difference (MD) is 0.87, and the effect size (Cohen's *d*) is 0.82.

Table 2

Paired-Sample t-test Results of the Speaking Sub-skills

	Pretest		Posttest					Sig. (2
Sub-skills	M	SD	M	SD	MD	d	t	tailed)
Grammar and Vocabulary	2.06	0.35	2.17	0.28	0.11	0.35	2.00	0.001
Pronunciation	2.07	0.45	2.26	0.29	0.19	0.49	2.60	0.002
Communicative Interaction	2.07	0.55	2.69	0.48	0.61	1.18	8.46	0.000

Note. $n = 27$. M = Mean. SD = Standard Deviation. MD = Mean Difference. d = Effect Size. t = The sample value of the t-*test. Sig. (2-tailed)* = p-value < 0.05.

Table 2 illustrates a paired sample t-test over the teacher's mean scores in the pretest and the posttest that provided the results of statistical significance as well as the effect size for each speaking sub-skill.

Figure 2. Comparison of Mean Scores on Speaking Sub-skills

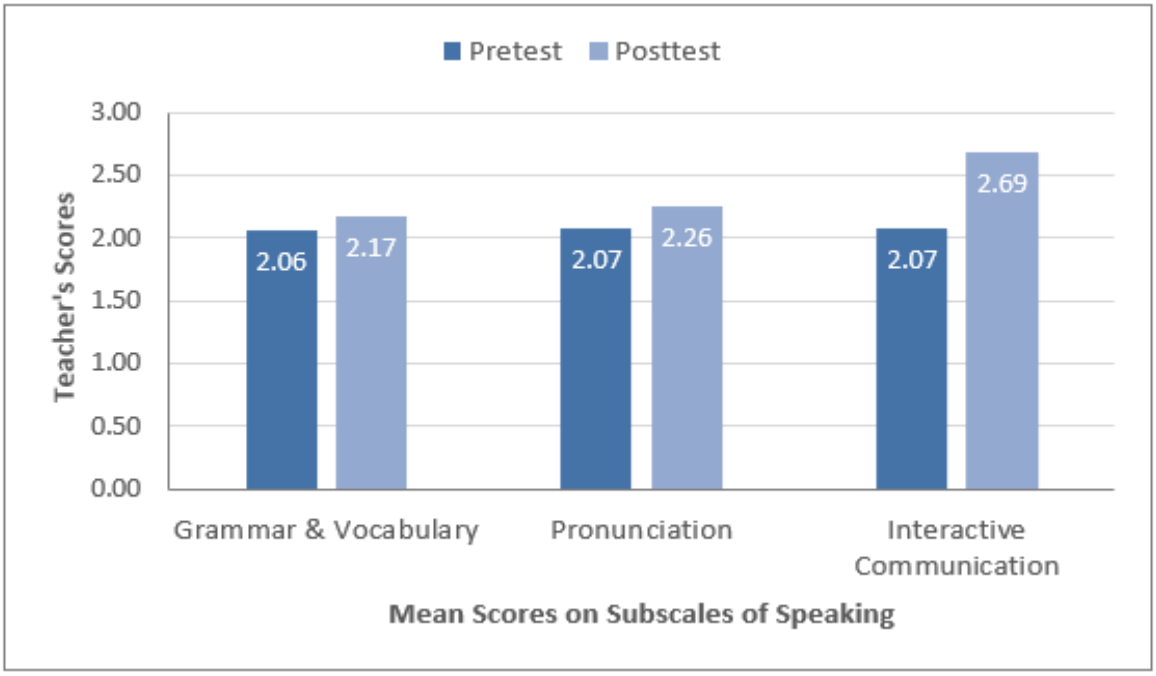


Figure 2 focuses on the speaking sub-skill categories of grammar and vocabulary, pronunciation, and interactive communication. After comparing the means of pretest and the posttest of all speaking sub-skills, the findings show an improvement in all the components. Interaction with a mean of 2.69 and a mean difference of 0.61 is the sub-skill that reflects the higher development after the innovation.

2. To what extent did students' self-assessment improve?

To determine progress in self-assessment, basic descriptive statistics was applied to the students' and teacher's scores at the pre and posttest.

Table 3

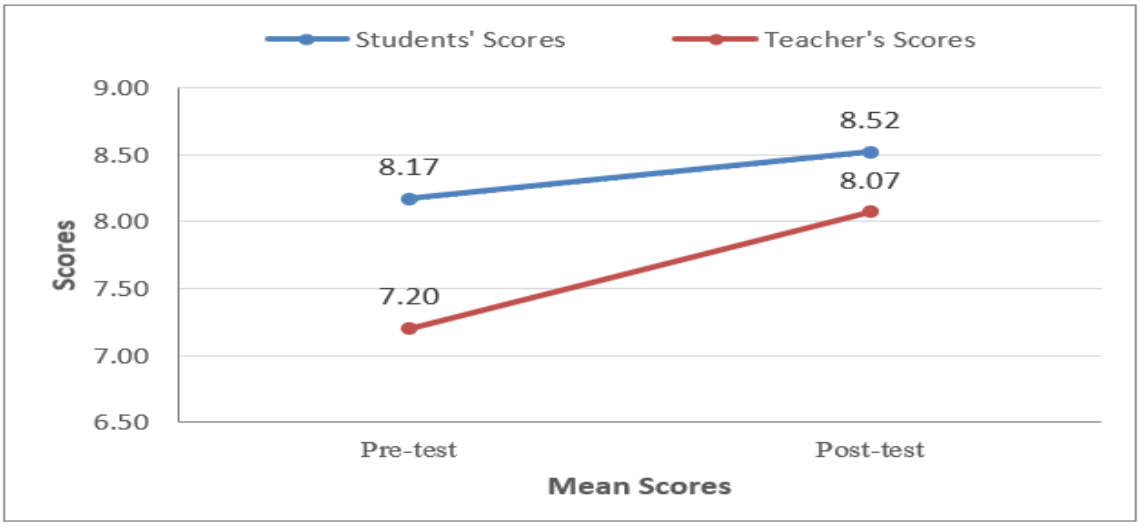
Comparison of Students' and Teachers' Mean

Test	Students' Scores		Teacher's Scores		n=27
	M	SD	M	SD	MD
Pretest	8.17	1.20	7.20	1.20	0.97
Posttest	8.52	0.90	8.07	0.92	0.45

Note. *n* = Number of Participants. M = Mean. SD = Standard Deviation. MD = Mean Difference.

Table 3 illustrates the students' mean scores and the teacher's mean scores in the pretest and posttest. In the pretest, the students' mean was 8.17 with a standard deviation of 1.20 against the teacher's mean of 7.20, with a standard deviation of 1.20. There is a mean difference of 0.97. In the posttest, the students' mean was 8.52 with a standard deviation of 0.90, while the teacher's mean was 8.07, with a standard deviation of 0.92. The results of comparing the means with a mean difference of 0.45 evidence that the difference between the students' and the teacher's mean was closer at the end of the implementation.

Figure 3. Comparison of the Students' & Teachers' Mean Scores



3. What was the students' perspective of the innovation?

To determine the students' perspective, the researcher examined the answers of eight students to the semi-structured interview, eight action plans from the middle and the end of the innovation, eight reflections on the middle and the end of the innovation, and teacher's field notes during the process. The aspects included in the interview were:

learning, strategies, oral interaction, positive issues, challenges, technology, speaking sub-categories, autonomy, affective aspects, and self-regulation (See Table 4, Appendix I).

Regarding *learning aspects*, participant number seven (S7) mentioned "*During this process, I learned a lot of new words. Since I did not know anything about English, I learned to interact with my classmates*". Concerning the *challenges*, participant number six (S6) stated that "*I think a challenge was the time given to practice the dialogues and to videotape it. We needed more time". Regarding speaking* sub-categories, participant number one (S1) mentioned "*Pronunciation and grammar were the most difficult sub-categories*". A summary of the participants' comments follows:

Figure 4. Interview: Strategies Used by the Participants to Improve Spoken Interactions

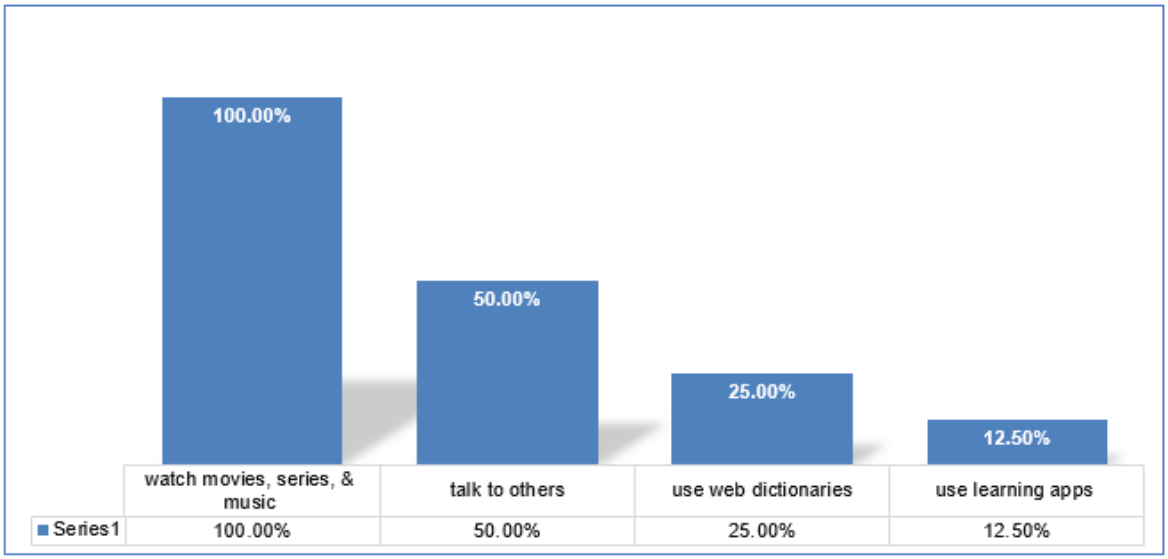


Figure 5. Interview: Positive Aspects

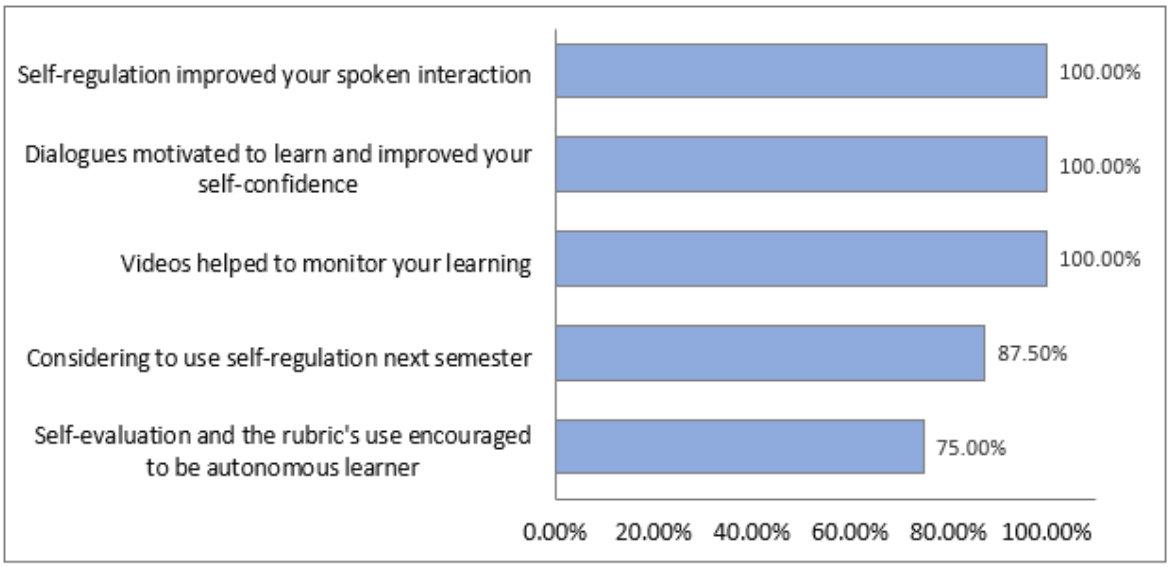
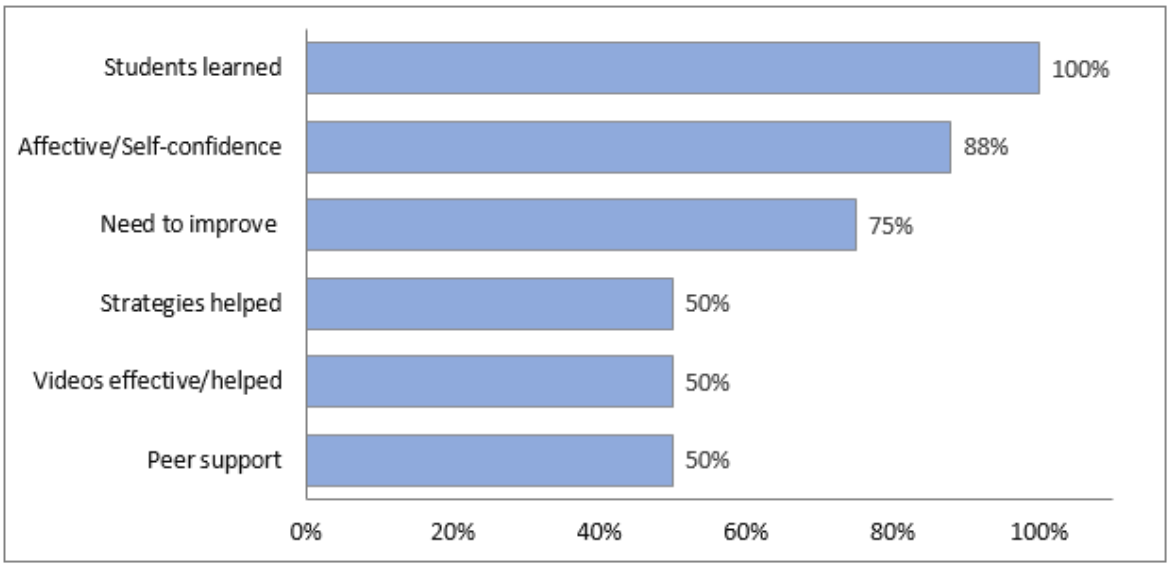


Figure 6. Components of Students' Self-Reflections



Note. A table with the aspects mentioned by eight students in their self-reflections in percentages.

Figure 6 presents the components that the students considered as most important during their reflections. The participants reflected they had learned vocabulary, pronunciation, interaction, understood why grammar is essential, changing their perceptions about this aspect, how to answer correctly, how to speak in different situations simulating

real-life scenarios as well as how to monitor their progress. Regarding strategies, they mentioned listening to music and watching movies as the most applied strategies to help them to improve. Moreover, peer support was an important aspect to learn, by practicing the dialogues with their partners, and helping each other were key factors to succeed in the oral interactions. Also, participants commented that they needed to improve pronunciation, vocabulary, and grammar as the most challenging. Regarding the affective aspect, they commented they felt good about monitoring their progress and felt encouraged and motivated to continue improving. In the same way, participants reflected on mobile learning with video as a pivotal tool to monitor their progress, reflecting on it as a 'different and new way of learning', as well as 'it is effective'. Finally, the participants mentioned in the self-reflections that the drawback to accomplish the scripted dialogues videotaped was the time, as quite short.

Table 5

The Most Employed English Learning Strategies According to Self-Reflections

Strategies Employed by the Participants to Learn English	%
Practice with music and movies	50
Always practice with someone	38
Make sure to listen as well as speak	25
Read out loud and record myself	25
Make sure to listen as well as speak	25
look up the words in a dictionary provided with audio files pronunciation	25
Practice special English sounds that may be difficult	25
focus on words that are giving me trouble	25
get the melody of the language	25
try to identify how the people's pronunciation is different from mine	13
Pay attention to word & sentence stress	13

Note. A table with the frequency of strategies applied by the students to improve their oral production in percentages. Source: Self-reflections. *n*=8. F=Frequency. %=Related to the sample.

Figure 7. Observed Aspects that Impacted Positively During Classes

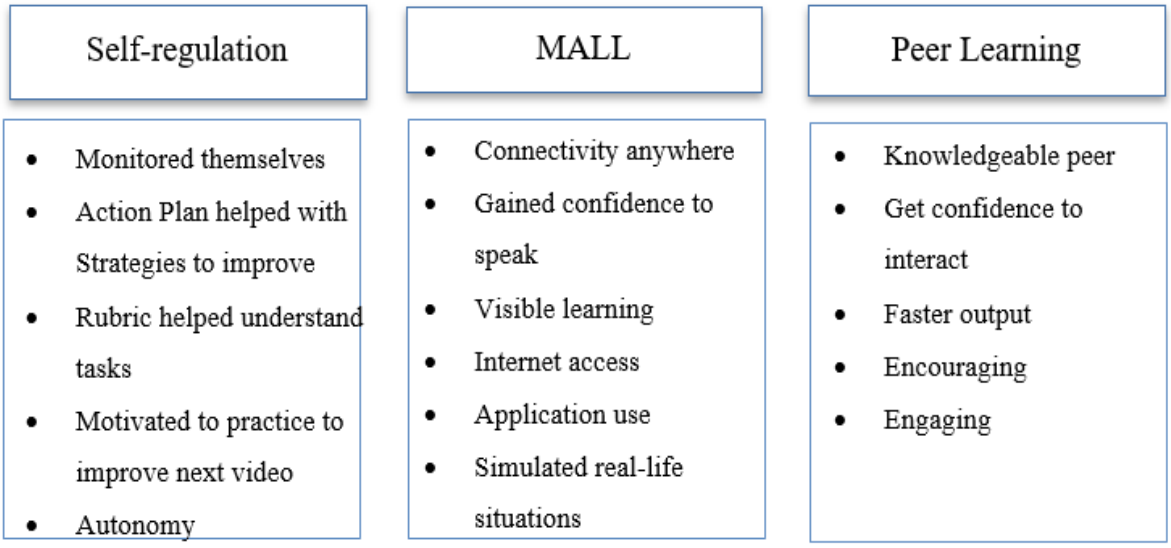


Figure 7 shows the three prominent aspects that were observed to help the students to improve oral interactions such as self-regulation, MALL, and peer learning.

The above results evidence the positive impact on the improvement of speaking skills after implementing self-regulation with the participants of this study. Interactive Communication was the sub-skill that improved the most. Also, students' self-assessment competence improved at the end of the innovation. Likewise, the perceptions of the participants were positive in almost all aspects, except for the short time of the implementation.

Discussion

The purpose of this section is to determine the main points of this study. Additionally, the results of this research are contrasted with the findings of other studies. The discussion is ordered according to the research questions.

Concerning the extent to which self-regulation impacted the speaking skills of the participants after innovation, the findings show a significant impact (d = 0.82). Also, the

results show an improvement in the participants' speaking skills related to innovation and not by chance ($p < 0.05$). These findings reinforce other studies stating that self-regulation helps learners to manage their spoken production and lower their speaking anxiety (El Sakka, 2016). Furthermore, each speaking sub-skill showed an increase: Communicative Interaction ($d = 1.18$), Pronunciation ($d = 0.49$), Grammar and Vocabulary ($d = 0.35$). It reinforces the findings of other studies such as Brown and Harris (2014); El Sakka (2016); Sisquiarco et al. (2018); Zimmerman (2002); Zumbrunn et al. (2011), concluding that self-regulation bears a positive impact on speaking skills.

For the second research question about whether the students' self-assessment improved after the innovation, the results showed improvement. The mean difference of the students was 0.97 higher than the teacher's mean in the pretest, however, the difference reduced to 0.45 in the posttest. Although there was not a substantial change, the findings showed an increase in self-assessment competence. In the beginning, students were unrealistic in their scores but became more aware as they acquired self-assessment expertise. This finding correlates with Brown and Harris (2014); Joo (2016); Rolheiser and Ross (2001) that higher realism and expertise on self-assessment is observed in more trained and skillful students. Also, this researcher identified crucial factors that enabled the students to improve their self-assessment competence. One of those factors included an understanding of the expectations of the rubric, as discussed by Brown and Harris (2014); Joo (2016); Rolheiser and Ross (2001). Likewise, a second factor was scaffolded feedback in class during the teaching-learning process. A third factor was the implementation of MALL that impacted their competence. This correlates with earlier research findings of Bransford et al. (2000), addressing that learners' reflections must be visible, and the teacher must supply feedback focusing on understanding both synchronously and asynchronously.

Regarding the third question about the students' perspective of the innovation, it was a consensus among the participants of the interviews that the self-regulation process implemented improved their oral interactions. Also, they gained the confidence to speak, as well as considered self-regulation with mobile devices as a new and engaging way of learning. These findings support the concepts of self-regulation with mobile devices are more successful than traditional teaching strategies (Elfeki & Massadeh, 2016; Lai & Hwang, 2014). Even though learners noticed speaking skills improvement, grammar and pronunciation were the most difficult sub-categories to improve. Along this line, Leong and Ahmadi (2017) pointed out that pronunciation is overwhelming because of the differences between sound and spelling. These authors also stated that the grammatical structures cause drawbacks in interactions.

Moreover, participants' reflections showed that after the implementation of the self-regulation process facilitated with mobile devices, they became more autonomous, and developed their monitoring skills using the videos. These findings support the conclusions of Nikou and Economides (2017), pointing out that mobile learning provides more engaging assessments and autonomous supportive environments. Finally, most of the students showed a positive opinion to continue using self-regulation learning strategies the next semester motivated by this positive experience. These results confirm the findings of Zumbrunn et al. (2001) stating that once learners monitor their learning progress and reach the objectives, the self-motivation grows.

Additionally, the field notes showed that peer work activities enhanced the learning process and spoken interactions in an engaging way. Likewise, videotaping the dialogues helped the learners to identify their weaknesses when interacting and learning from their peers. The above-mentioned evidence agrees with Burns and Hill (2013) stating that

speaking activities and strategies to work collaboratively help students to interact and receive feedback. Furthermore, the learners reduced their fear of making mistakes and feeling anxiety, as well as being confident to speak in L2 during the classes. These findings correlate with Krashen's affective filter (2013) hypothesis in which the learner with anxiety and low self-esteem will not be comfortable speaking or learning a language. Finally, this author noticed that self-regulation with mobile devices promoted learner autonomy. These results go in line with Dickinson's conclusions stating that when learners make decisions about their learning and accomplish their plan, they achieve autonomy (1987, as cited in Tavallali & Marzban, 2015).

Conclusions

Through this reflection, the author determines whether the research goals were achieved. Besides, this section contributes original ideas to the body of knowledge. Also, limitations of the study are described. Finally, recommendations for further studies are examined.

The general objective of this study was to determine the effectiveness of self-regulation with mobile devices on spoken interaction in students of a public university in Guayaquil, Ecuador. The results showed that self-regulation with mobile devices effectively impacted on EFL students' speaking skills. Additionally, the participants' perceptions toward the innovation were positive, and the students considered they improved in their oral production. The researcher noticed that learners reduced their fear of making mistakes and feeling anxiety when making the last videos. Similarly, some students spoke L1 at the beginning of the innovation and gained more confidence to speak English at the end of this study.

Moreover, the participants benefited from the collaborative work with their partners helping and learning from each other when practicing the dialogues and recording the videos. The learners were free to select their partners, so they felt comfortable working on the conversations and videotaping themselves. Likewise, participants found that the pair-work activities were engaging. Moreover, providing clear criteria in the rubric and appropriate feedback along with MALL helped the learning process and improved self-assessment skills. Furthermore, the self-regulation process promoted learner autonomy.

To conclude, it is relevant for EFL teachers to figure out how to help students speak as they interact in class. Studies like the present show successful results. Therefore, this study will contribute to the educational community by offering a plan for the implementation of self-regulation with the use of mobile devices as a beneficial tool for encouraging students to speak, increasing speaking proficiency, and developing learner autonomy.

Limitations

One of the limitations of this study was the small sample size of only 27 EFL students. Another limitation was not having a control group. Besides, the implementation of this study lasted only 6 weeks. Also, the lack of wireless fidelity to the Internet (wi-fi) to upload the videos was a handicap in the process. Finally, the lack of audiovisual equipment to analyze the videos made the resource accessibility quite difficult.

Recommendations

The researcher of this study recommends a larger sample size, and a more extended period (e.g., a semester, or a full scholar year). Likewise, a control group to compare results would be beneficial. Also, an inventory of technology among participants before the implementation to guarantee connectedness with uploading the videos would be helpful.

Further studies like the present one would contribute to the positive effect of self-regulation with mobile devices in different contexts and explore further strategies for improving spoken interactions and EFL proficiency.

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Appendix A

Available upon request

Appendix B

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Appendix C

Individual Self-Reflection

Available upon request.

Appendix D

Available upon request

Appendix E

Strategy Inventory for Language Learning (SILL)

Available upon request

Appendix F

Available upon request

Appendix G

Field Notes

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Appendix H

Triangulation Diagram

Available upon request.

Appendix I

The Letter of Authorization from the Public University

Available upon request.

Appendix J

Available upon request

Appendix K

Available upon request

Appendix L

Padlet Videos

Available upon request

Appendix M

The E-Portfolio

Available upon request