Mobile Phones-Assisted Practice and Note-Taking in Foreign Language Oral Production

Diana C. Durán-Bautista, Universidad de La Sabana, Colombia

https://orcid.org/0000-0003-3957-7942

Sandra Patricia Huertas-Malagón, Universidad de La Sabana, Colombia

ABSTRACT

In foreign language instruction, students are often exposed to computer-mediated testing in international exams and language courses; however, regular classrooms are not equipped with computer labs to offer a lesson coherent with that testing procedure. To fill this gap, mobile-assisted language learning emerges as a portable option for computer-mediated learning and testing. Hence, this action research aims to study the implementation of mobile phones-assisted practice, combined with note-taking, as test-wise and test-management strategies, to tackle the needs of 218 participants who were taking an English as a foreign language program at a Colombian university. In the diagnostic stage, learners expressed that the most difficult computer-assessed skill was speaking, due to lack of confidence and suitable strategies. Findings revealed an improvement in students' oral performance, collaboration levels, and high acceptance of mobile phones-assisted practice as a test preparation tool that facilitates autonomy, metacognition, and peer-feedback.

KEYWORDS

Collaborative Learning, Computer-Assisted Language Learning, Computer-Mediated Testing, English as a Foreign Language, Mobile-Assisted Language Learning, Peer-Feedback, Self-Direction, Speaking Skills

INTRODUCTION

Although the educational community is currently exploring options of alternative assessment, the national evaluation system in Colombia, and in many other countries, embraces summative assessment and standardized tests in foreign language instruction. Students are often required to show evidence of their English proficiency through international exams to culminate undergraduate programs and to apply for a scholarship or graduate programs, nationally or internationally (Ng, 2007; Universidad de La Sabana, 2013); therefore, institutions are accountable for exposing students to different assessment procedures, even in non-test-oriented programs (López, 2009). While computer-mediated assessment is a convenient trend for the evaluators, due to immediate feedback, test security, time savings, and environmental proposals (Parshall, Spray, Kalohn and Davey, 2001), it is worth remarking that regular classrooms are not equipped with computers to make the lessons coherent with the evaluation method (Russell et al., 2004). Padilla-Beltrán, Vega-Rojas and Ricón-Caballero (2014) state that one limitation of incorporating technology use in institutions of higher education is the responsibility of investing in equipment and design. Moreover, some students are not fully prepared to face the challenge of

navigating a computer-mediated exam, particularly when evaluating the oral skill; since testing usually evokes self-doubt and frustration in students, resulting in a deficient performance (Alltizer et al., 2008; Berber & Laborda, 2015; Dohl, 2012; Özden et al., 2004; Valencia, 2017).

Considering how essential it is to find a possible solution to reduce the gap between welfares and pitfalls related to computer-mediated testing, Mobile Phones-Assisted Language Learning (MALL) provides the alternative of an in-class practice that is similar to computer-mediated testing, but in a more portable form (Gromik, 2017). MALL can be defined as "mobile technologies in language learning, especially in situations where device portability offers specific advantages" (Kukulska-Hulme, 2013), as in this target context. Thus, this action research study aims at examining the effects of mobile phone-assisted practice, combined with note-taking, as test-management and test-wise strategies, to tackle the needs of 218 students belonging to an English as a Foreign Language (EFL) program in a Colombian university, where learners' oral competencies are evaluated through computer-mediated tests twice a semester.

BACKGROUND

In the past three decades, there has been a growing interest in the field of second language acquisition regarding language testing and test-taking strategies, intending to identify the variables related to the test-takers' strategies, usage, and second language learning processes (Cohen, 2006; Cohen & Upton, 2007; Swain, Huang, Barkaoui, Brooks & Lapkin, 2009; Barkaoui, Brooks, Swain & Lapkin, 2013; Huang, 2013). However, little has been said about the procedural strategies students might use as preparation for computer-mediated tests, and more specifically, for speaking computer-mediated testing; which demands more research interests in this area.

When highlighting the importance of identifying procedural strategies as preparation for computer-mediated exams, it is also essential to review the macro and sub-constructs that underpinned this study, such as Strategy-Based Instruction, Mobile Phones-Assisted Practice and Note-Taking Strategies as test-wise and test-management strategies. These constructs provide a sound basis for the design and implementation of this research.

Strategy-Based Instruction

Strategy-based instruction (SBI, hereafter) is a learner-centered approach to teaching comprised of explicit and implicit systematic strategy repertoires integrated into the course content (Cohen & Weaver, 1998). A typical teacher's role while implementing SBI is providing students with clear models and opportunities to reflect upon the rationale behind strategy use, plan an approach to a specific activity or language task, and evaluate the strategy effectiveness (Cohen & Weaver, 1998), as followed in this study. The effectiveness of explicitly teaching strategies not only promotes learning but also can improve oral competences (Manchón, 2000, 2008) since strategy awareness is "the best predictor of strategy use" (Lee & Oxford, 2008). Likewise, learning strategies are described as "any set of operations, steps, plans, or routines used by the learner to facilitate the obtaining, retrieval, and use of information" (Rubin, 1987). Furthermore, "learning strategies are specific actions taken by learners to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (Oxford, 1990).

Strategic competence constitutes one of the major constructs underlying the deployment of theoretical frameworks and models to shape the way test-taking strategies can be implemented (Bachman, 1990; Fulcher, 2003; Cohen, 2006; Bachman & Palmer, 2010). Although the interest in SBI has grown for decades, this paper focuses its implementation along with more recent trends, such as MALL to fulfill the needs of participants who are users of computed-mediated testing (Kukulska-Hulme, 2008). In the arena of SBI on speaking proficiency, two relevant approaches stated by Cohen (2006) have been identified as the main strategy-based references for this study when it comes to

language assessment: test management strategies (note-taking) and test-wise strategies (mobile phone-assisted practice).

A systematic use of test management and test-wise strategies was consistently applied in this study. With regard to the test management strategy, it provided students with elements to carry on a hierarchical organization of their ideas while taking notes (Wan & Yu, 2015). Thus, it allowed students to approach the test tasks more coherently and accurately (Cohen, 2012; Huang, 2016). In a like manner, test-wise strategies granted students the possibility of knowing the "testing formats or other peripheral information" instead of the "expected cognitive processes" (Cohen, 2012b, p. 263e264), from a more instrumental perspective. In this way, when using mobile phones in class to simulate a computer-based speaking test, students were systematically requested to record an audio track, following the testing format and time constraints while taking a test.

Hence, this study prompted participants to make significant progress in their language learning and speaking test outcomes by being explicitly trained on procedural and explicit strategies such as note-taking and mobile phones-assisted practice (Cohen, 2012). These test-management and test-wise strategies were expected to enable participants to improve their oral skills and strategy usage when exposed to self-diagnosed and peer-assessment tools (checklists), speaking task models, and different testing delivery formats, to make decisions on the best way to tackle a computer-mediated speaking test.

Mobile Phones-Assisted Practice

In this study, mobile phone-assisted practice was implemented as a test-wise strategy. Test-wise strategies grant test-takers the possibility of becoming familiar with the format of the test (Cohen, 2012), from a more instrumental perspective, transforming teacher-centered instruction into meaningful student-centered learning opportunities, practice and feedback (Wright, 2011). In the context targeted by this study, when using mobile phones in class to simulate a computer-mediated speaking test, participants would have the chance to experience the testing format and time constraints before presenting a test, among others (Tarighat & Khodabakhsh, 2016).

The use of mobile phones in education has been demonstrated to have a positive impact, in the areas of foreign language learning (Alemi, Sarab & Lari, 2012; Pengnate, 2018), vocabulary retention (Alemi, Sarab & Lari, 2012), learner autonomy (Hazaea & Alzubi, 2018), immediate feedback (Ali, Gulzar, & Yasmeen, 2018), opportunities for learning conveniently: anytime and anywhere (Mauricio, 2017), ubiquitous language learning opportunities (Pengnate, 2018), individual and personal learning (Mauricio, 2017), and learners' motivation (Mauricio, 2017; Storch & Juares-Paz 2019). However, Pengnate (2018) found out that learners perceive that oral skills (listening and speaking) via mobile-assisted learning, need to be more confronted; speaking will be tackled in this study.

Regarding the technological device and mobile-assisted learning, a recent study from the Information and communications technology ministry in Colombia affirms that 76% of young learners, between 12 and 17 years old, own a mobile phone with a mobile internet connection (El Espectador, 2019); however, a policy-making debate is set in schools, and government, regarding the use of the tool as educational technology or as a simple entertainer (Ott, 2017). It is undeniable that mobile tools offer additional profits of accessibility since it is a portable device that most people have and use daily (Rainger, 2007). In the case of higher education, learners are very well equipped with technological devices, such as cellphones, tablets and laptops (Zawacki-Richter, Müskens, Krause, Alturki, & Aldraiweesh, 2015); Conversely, the use of mobile phones for language learning purposes is still limited (Pengnate, 2018), therefore "methods that support mobile device technology should be provided in a more robust learning environment" (Pengnate, 2018). The challenge for educators is to assure the use of mobile phones as an ally in the learning process (Ott, 2017).

Consistent with the above, this study implements mobile phones-assisted practice to enhance the oral skill. Participants were asked to track their process and to review previous speaking performances (Sung, Chang & Yang, 2015) by storing their audio tracks in their mobile phones, to provide self-

Table 1. Equivalence of the English levels to the CEFR

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
A1.1 (CEFR)	A1.2 (CEFR)	A2.1 (CEFR)	A2.2 (CEFR)	B1.1 (CEFR)	B1.2 (CEFR)	B2.1 (CEFR)

feedback, or by sharing them with others to receive peer and teacher feedback (Wright, 2011). In this way, participants were frequently exposed to the experience of recording audio on their mobile phones; to simulate the actual test and to have students identify the approaches needed to face the assessment (Tarighat & Khodabakhsh, 2016). Consequently, this study focuses on providing students with the right instruments and strategies to support not only their performance but also their metacognitive awareness.

Note-Taking

In a like manner, concerning test-management strategies, note-taking is considered as one of the most dominant strategies involving the understanding of the task, goal setting and planning how to reach the task goal (Moos & Azevedo, 2006). Note-taking is the process of classifying information and afterward recording this information (Piolat, Olive, & Kellogg, 2005). Despite the benefits of note-taking as a test-taking strategy, some researchers have identified that undergraduates do not regularly use it effectively (Bonner and Holliday, 2006).

Moreover, note-taking, as an explicit and instrumental in-class strategy, provides the test-takers with cognitive and metacognitive tools that allow them to approach the test tasks in a more coherent and accurate way (Huang, 2016). It comprises metacognitive strategies for pre-evaluation processes such as pre-planning, self-assessment, monitoring and evaluating; as well as post-evaluation stages, like ideas organization, performance before speaking, and self-performance analysis, among others (Cohen, Weaver & Li, 1996). Thus, note-taking has a broad relation to the test preparation dynamics proposed in this study, since students were explicitly shown a simplified way of pre-organizing and subordinating ideas through a series of authentic tasks (Wan & Yu, 2015) resulting in effective preparation for their speaking computer-mediated exams. Nevertheless, consistent studies in the field of note-taking as a speaking strategy application have been broadly unattended. Thus, with the purpose of knowing to what degree these strategies can be explicitly taught, and to what extent they could lead to the improvement of the oral ability, additional research is needed (Nakatani, 2005). That, especially in the Colombian EFL context, where the students' learning cultural patterns and metacognitive strategies must be considered when performing speaking tasks in a second language.

MAIN FOCUS OF THE ARTICLE

Setting and Population

This study was conducted at a private university in Bogotá, Colombia. Participants were students from the different academic programs that the university offers, who were taking the subject of English as a foreign language (EFL) as part of their curriculum. The university requests students to reach a B2 level of proficiency in EFL for graduation purposes. This means students are expected to be independent users after taking 7 courses of general English. The equivalence of the English levels to the Common European Framework of Reference (CEFR) is shown in Table 1.
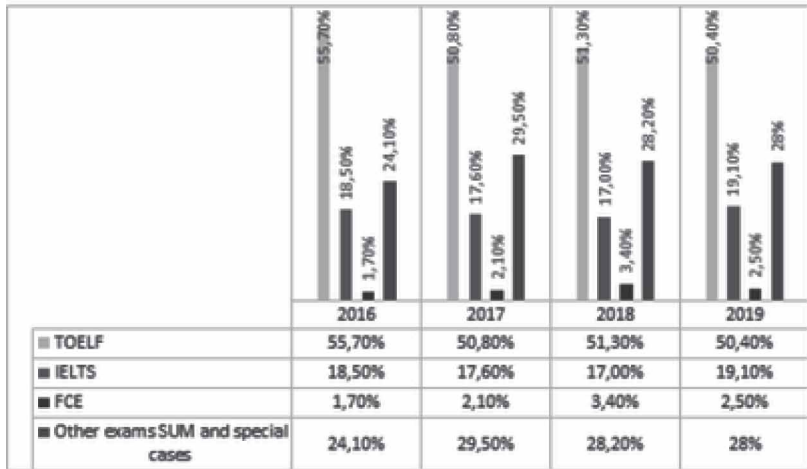
Four teachers volunteered to implement the strategies in their assigned courses for two semesters. Therefore, this study was carried out with a sample of 218 students from levels 1 (A1, elementary) to 6 (B1, Intermediate), as shown in Table 2.

The learners who belong to the EFL program at this university are evaluated twice a semester by taking computer-mediated tests divided into three components: listening, reading and speaking.

Table 2. Participants per proficiency level

Level	1	2	3	4	5	6	Total
participants	29	23	15	46	73	32	218

Figure 1. International Exams Chosen by Students

	2016	2017	2018	2019
TOELF	55,70%	50,80%	51,30%	50,40%
IELTS	18,50%	17,60%	17,00%	19,10%
FCE	1,70%	2,10%	3,40%	2,50%
Other exams SUM and special cases	24,10%	29,50%	28,20%	28%

Additionally, students are requested to take an international exam at the end of the program, to demonstrate they have reached the B2.1 level.

Needs Analysis and Problem Statement

As Ellis (2013) explains, a starting point of the action research phases is to identify a problem and to obtain information to verify it. Hence, it was fundamental to verify whether students were being properly prepared for the challenges related to computer-mediated testing. It is worth clarifying that the EFL program does not have a test-oriented syllabus; nevertheless, it is a fact that learners are exposed to computer-mediated testing in two cases: (1) their mid-term and final proficiency level exams in their regular courses and (2) the international test requirement for graduation.

In order to fulfill their international test requirement, learners can choose among TOELF, IELTS, FCE, CPE or CAE. As shown in Figure 1, TOELF, being a computer-mediated test, is the one that learners choose the most.

Therefore, one reason to justify this study was that, as the data suggested, students had a noticeable preference for a computer-mediated international test. Conversely, students usually complain about feeling uncomfortable taking the computer-mediated speaking test in their courses. Moreover, a second and more powerful reason to justify this study was the data collected in the needs analysis stage. The findings of a diagnostic survey suggested that most of the participants from this study perceived that the most difficult skill that is evaluated using computers is speaking, as shown in Figure 2.

Furthermore, data from Figure 3 implies that students seem to relate three main factors to the speaking evaluation difficulty:

1. Lack of strategies to develop this skill;
2. Lack of activities that simulate the exam;
3. Lack of time to prepare and take the exam.

Figure 2. Student's perceptions on the most difficult computer-assessed skill
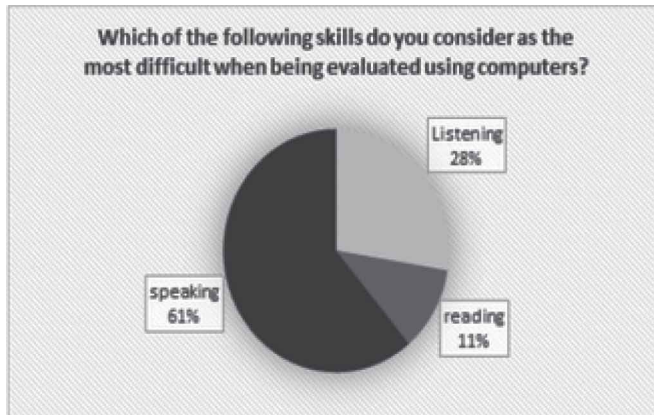
As highlighted above, the population under investigation asserts that speaking is perceived as the most difficult computer-evaluated skill. An alternative solution would be taking students to the computer laboratory more often to practice for their exams, however, it is logistically infeasible since about 2500 students take the EFL classes per semester; so the lab is only available, per turns, during exam seasons. Therefore, the context was shifted to mobile phones-assisted practice as a way to provide an alternative and more portable solution to implement a test-wise strategy.

Consequently, through a pedagogical intervention, this study aims at solving the overarching question:

What is the effect of mobile phones-assisted practice in combination with note-taking, as test-wise and test-management strategies, on the speaking performance and learning process of learners of English as a foreign language?

Research Design

Having discussed the context that the participants deal with, this section rationalizes the research design implemented as an attempt to reduce the identified issues. Edwards and Willis (2014) affirm that action research is usually carried out to describe systematic work in the classroom and to solve a

Figure 3. Perceived problems in the computer-mediated speaking exams
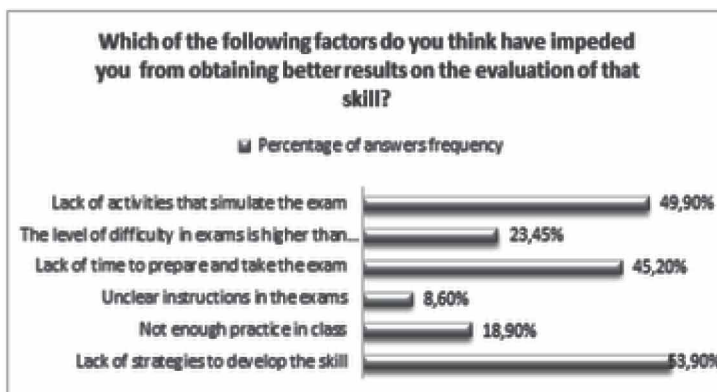
problem about professional practice; as justified in the previous section of this article. Action research is predominantly convenient in the educational context as instructors are able to deal with specific situations in the classroom (McKernan & McKernan, 2013).

Ellis (2013) explains the iterative phases of action research:

1. Identifying an issue or problem relevant to a specific instructional context (Initial idea).
2. Obtaining information relevant to the problem issue (fact-finding).
3. Working out a possible solution to this problem and devising ways of trying this out (the action plan).
4. Trying out the solution in the specific instructional context (implementation).
5. Collecting data to investigate whether the solution is effective (monitoring) If necessary, revising the action plan and proceeding through steps (4) and (5) again or alternatively identifying a new issue thrown up by the initial study (p. 27).

Bearing those steps in mind, this study followed the spiral of the action research design. Steps 1 and 2 (identification and analysis of the problem) have already been discussed in this paper.

RESEARCH METHODOLOGY

Action research is usually conducted on-site through methods related to qualitative research (McKernan & McKernan, 2013). However, using a mixed-methods approach allows the corroboration of findings (DeCuir-Gunby, 2008). Thus, the researchers decided to collect both qualitative and quantitative data. According to Gay and Airasian (2003), many data sources, both qualitative and quantitative, are pertinent to action research, such as student work samples, interview transcripts, test results, surveys, observation notes, etc. Therefore, the data was collected from different sources and in different moments as explained in the following section.

Data Collection Tools

All instruments were validated and piloted and were applied as follows.

Diagnostic Survey

A web-based diagnostic survey was applied to corroborate researchers' initial insights on the problem. It consisted of a set of questions regarding students' perceptions about the most difficult skills evaluated via computers and the factors they believed caused those difficulties. Results were presented above as the needs analysis of this paper. Analyzing the problem is a fundamental step in action research, Ellis (2012) calls it fact-finding.

Exit Survey

A web-based exit survey was applied to track whether students' initial insights, related to oral tests mediated by computers, were transformed after the implementation of note-taking strategies and mobile phone-assisted practice. The survey inquired about the strategies, factors, and class activities that students considered were useful to tackle their speaking computer-mediated exams.

Diagnostic Test

A test was implemented on a sample of 25 students (one random group) to identify students' strengths and weaknesses concerning the oral skill. The test followed the design of a regular speaking exam applied in the course. It was implemented at the beginning of the study and it was related to a topic covered in a recent class. Participants recorded the answers to the test under the same conditions as

a regular computer-mediated exam. The researchers evaluated the test using the criteria and scores provided by the analytic rubric that is used in regular computer-mediated speaking exams.

Exit Test

At the end of the implementation, an exit test was applied to the same sample of participants as in the diagnostic test. Once again, participants recorded the answers to a test which was similar to a regular computer-mediated speaking exam. The researchers evaluated the test with the same analytic rubric, used for exams and also in the diagnostic test. These two artifacts (diagnostic and exit test) were used to compare and assess the progress participants might have had during the implementation, through a T-test analysis.

Semi-Structured Interview

At the end of the semester, each teacher interviewed their participants. Students volunteered to have a short talk about the experience of using the note-taking strategy and mobile phone assisted-practice as a way to get prepared for their speaking computer-based test. The 4 teachers, who took part in the study, were guided by the same questions. This interview consisted of 3 open-ended and follow up questions, regarding topics such as their perceptions about their own learning process, the usefulness of the strategies to tackle the oral computer-mediated tests and the effects of the strategies on confidence levels. Teachers and students were allowed to extend the conversation as desired. This semi-structured interview was used to find out the impact of the strategies on participants' insights about computer-mediated speaking tests, speaking performance, strategies implemented and their general learning process.

The purpose and implementation stage of each instrument is summarized in Table 3.

Pedagogical Intervention

An intervention protocol was planned and implemented in 13 out of 16 weeks of class, each of the two semesters. Once a week, teachers provided a sample of a speaking exam, related to the content studied during that week in class. A regular speaking exam consists of the following steps:

1. **Presentation of the task:** A statement presenting the general requirement of the task and three or four follow-up questions/statements to expand the speech about the requested topic.
2. **Preparation stage:** Time to take notes and prepare their speech.
3. **Presentation stage:** Time to record the answer to the task on the computer.

Students were advised to prepare the tasks considering the following steps (adapted from Jakeman and McDowell, 2008):

1. Read the task carefully to make sure you fully understand the topic and the further points.
2. Identify the keywords or key elements.
3. Decide whether you will need to talk about the past, the present, or the future. (Identify the language and linguistic features you will need to use).
4. Take notes of at least two key ideas for each of the points in each task.
5. Take notes of any key vocabulary that you could use.

In the pedagogical intervention, two stages of the task were mainly considered, each one with a corresponding strategy to tackle it:

1. **Preparation stage:** Note-taking strategy (Test-management strategy).
2. **Presentation stage:** Mobile phones-assisted practice (Test-wise strategy).

Table 3. Data collection instruments and implementation stages

Instrument	Purpose	Stage
Diagnostic survey	-Identify the participants' attitudes, needs, strengths and weaknesses. -Confirm the problem addressed.	At the beginning of the academic semester (Academic week 2)
Exit survey	- Identify the strategies, factors and class activities that students considered useful to tackle their speaking computer-mediated exams. -Re-assess the learners' attitudes, needs, strengths and weaknesses after the implementation.	At the end of the academic semester (After the two oral computer-mediated tests)
Diagnostic Test	- Identify students' strengths and weaknesses in the oral skill.	At the beginning of the academic semester (Academic week 3)
Exit Test	- Measure and assess the progress of participants during the intervention concerning the oral skill, comparing the results with the diagnostic test.	At the end of the academic semester (Before the final computer-mediated test)
Semi-structured interview	- Find out participants' insights regarding the usefulness of the strategies. - Find out the impact of the strategies on students' beliefs about computer-mediated speaking tests.	At the end of the academic semester (After the two oral computer-mediated tests)

Preparation Stage: Note-Taking as a Test-Management Strategy

For the first tasks, a modeling technique was chosen to guide students through the appropriate use of the note-taking strategy. "Teaching concepts with appropriate modeling and imitation allows students to learn naturally and intuitively" (Haston, 2007, Para. 29). Consequently, the teachers modeled the activity by following aloud the steps described above, adapted from Jakeman and McDowell's model (2008).

Regarding the note-taking strategy precisely, participants helped the teachers with ideas to provide an answer to the requested task, and the teachers wrote on the board a sample of notes that would guide the requested oral answer. This think-aloud technique is also considered a way of modeling: "Doing think-alouds is a way for teachers to make their thinking "visible" to students. The teacher models the skill or strategy by verbalizing their thinking at each step" (Intel Teach Program, 2012, P.2). Subsequently, the teachers provided opportunities for self-assessment and peer-assessment using a checklist to evaluate notes (Jakeman & McDowell, 2008).

In the initial sessions, teachers also provided global feedback by sharing a model of notes. After the third week of implementation, participants did not require the teachers' modeling to approach the task anymore. Instead, they used the checklist to evaluate their own notes and their peers'. With time, the teachers started to control the time devoted to the note-taking strategy, to prepare students for the real computer-mediated exam.

Presentation Stage: Mobile Phones-Assisted Practice as a Test-Wise Strategy

At the same time, the presentation stage was implemented from the first intervention session. The modeling technique was also used to guide the procedure. Once the teacher and students evaluated and adjusted the notes as a whole group, the teacher provided a model of an oral answer to the task using the notes from the board. "Whenever a teacher demonstrates a concept for a student, that teacher is modeling" (Haston, 2007, para. 3). Subsequently, participants started recording their own answers using voice notes on their mobile phones. Participants were challenged to provide an answer framed within the range of time requested in the computer-mediated test.

Table 4. Stages of the pedagogical intervention

Academic week of class	Procedure
Week 2	· Diagnostic survey
Week 3	· Presentation of the study · Consent letter · Diagnostic test · First intervention session: Note-taking and modeling of mobile phones-based practice
Weeks 4 - 6	· Strategies practice once a week based on the thematic content of the first term · Note-taking and mobile phones-assisted practice modeled · Self-assessment of recordings
Week 7	· Strategies practice once a week based on the thematic content of the first term · Self- and peer- assessment of recordings
Weeks 8 – 9	· Strategies practice targeted the midterm computer-mediated exams · First oral computer-mediated exams
Weeks 10 – 15	· Strategies practice once a week based on the thematic content of the second term. · Self- and peer- assessment of recordings · Exit test
Week 16	· Strategies practice targeted the midterm computer-mediated exams · Final oral computer-mediated exams · Exit survey
Week 18	· Final exams feedback · Semi-structured interview

A peer-evaluation strategy was first considered for participants to provide constructive feedback about their performance. Sambell and McDowell (1998) affirmed that self-and peer-assessment are skills that develop autonomous, responsible and reflective individuals. However, the teachers noticed that, at first, participants were too reluctant to expose themselves with peers. Therefore, a self-assessment routine was first carried out, since self-assessment places students as active participants in their own learning (Boud, 1995). After a few weeks, participants were confident enough to address the challenge of providing peer-feedback by sharing with others their audio using voice recordings or WhatsApp audio messages. From then on, self- and peer-assessment techniques were used randomly. Sluijsmans, Dochy and Moerkerke (1998) affirmed that for self- and peer-assessment to foster meaningful learning it is important for participants to be aware of the formal requirements of the task; for this reason, participants were fitted with self-diagnosed and peer-assessment tools like checklists, "In implementation of student self and peer-assessment, rubrics should be used to minimize subjectivity thus maximize objectivity" (Gurbanov, 2016).

The study lasted 16 weeks and the pedagogical intervention 13, as shown in Table 4.

Data Analysis and Results

Data was stored, organized and analyzed in the light of the research question:

What is the effect of mobile phones-assisted practice in combination with note-taking, as test-wise and test-management strategies, on the speaking performance and learning process of learners of English as a foreign language?

For the information of a quantitative nature, a descriptive statistics summary was initially generated, obtaining key data such as mean, variance, absolute mean difference, among others, to measure the impact of the implemented strategies. Afterward, data was complemented including the Pearson Correlation Coefficient to measure if there was a correlation between variables, regarding the individual difference of the results obtained. Concerning the qualitative data, the Grounded Theory was implemented (Corbin & Strauss, 2015), which allowed the emersion of the categories that will be discussed in this section.

To find out the impact of the pedagogical intervention, the semi-structured interview data was analyzed using Grounded Theory, by comparing and generating codes that allowed the emersion of subcategories and categories (Corbin & Strauss, 2015). From the participants' passages, the following categories emerged:

1. Useful strategies to improve the speaking performance;
2. Impact on the learning process.

Useful Strategies to Improve the Speaking Performance

The first category, devoted to the strategies that participants identified as the most convenient, emerged from the codes and subcategories shown in Table 5.

According to participants' responses, the most useful strategies to improve the speaking performance are:

- Mobile phones-Assisted Practice
- Preliminary Exam Approach
- Self and Collaborative Feedback
- Note-Taking

During interviews, mobile-phones assisted practice, note-taking and self- and collaborative feedback were reported as convenient strategies, as expressed in the following excerpts:

I used to speak without paying attention to what was required in the task, now I know a more effective way to organize my ideas by taking good notes. After that, when practicing, I could record my speech, listen to myself, identify my own mistakes, or be attentive to my classmates' feedback. (Excerpt 1, participant 22)
I used to be ashamed about speaking to the computer in front of others, the activities from the class help a lot to overcome that embarrassment. The fact that your classmates give you feedback, helps you to improve and also to get used to talk in front of others and not be ashamed. (Excerpt 2, Participant 8)

It is worth highlighting that the strategies related to collaborative feedback and preliminary exam approach depended on the assistance of mobile-phones; however, due to the great impact they had and the frequency with which they appeared in the data, self-and collaborative feedback and preliminary exam approach were considered as independent categories. Participant 6 emphasized how mobile phones-assisted practice was suitable as a mock exam:

Table 5. Mapping of codes leading to useful strategies to improve the speaking performance

Codes	Subcategories	Category
Time Management	Mobile Phones- Assisted Practice	Useful Strategies to Improve the Speaking Performance
Peer-assessment and self-assessment		
Mock Exams		
Keywords	Note-Taking	
Main ideas		
Organization of ideas		
Teachers' modeling	Preliminary Exam Approach	
Examples of the task		
Mock Exams		
Self-assessment	Self and Collaborative Feedback	
Peer-feedback		

This strategy helped me to increase my confidence levels because in the exam I have to speak to a computer, so speaking to a telephone is practically the same. (Excerpt 3, participant 6)

Also, participants highlighted the importance of a preliminary exam approach, as expressed in the following excerpt:

I am usually a nervous person; so, having clear what was expected from me, really helped me to make the most from the time given during exams. (Excerpt 4, participant 1)

These findings align with the results from the frequency analysis based on the exit survey where, through open-ended questions, participants were asked to list the factors that were helpful to their speaking competence and academic improvement during the course. Results were as displayed in Figure 4.

Results revealed that for students the most useful strategy was mobile phones-assisted practice, one of the two strategies implemented in this study; the other strategy applied, note-taking, was placed in fourth place. The second place of importance was given to other speaking related class activities, participants mentioned activities such as: speaking only English in class, debates, oral presentations, among other regular activities performed in class but not related to this study. In third place, students mentioned mock exams, which were implemented with the assistance of mobile phones. All in all, Mobile phones-assisted practice was acknowledged as the most effective strategy for improving speaking performance.

Impact on the Learning Process

The impact of the pedagogical intervention on the learning process was reflected in students' responses, categorized as follows:

- Gains in Language Use and Speaking Performance
- Autonomy and Metacognition

Figure 4. Frequency analysis of the most useful strategies to improve the speaking performance
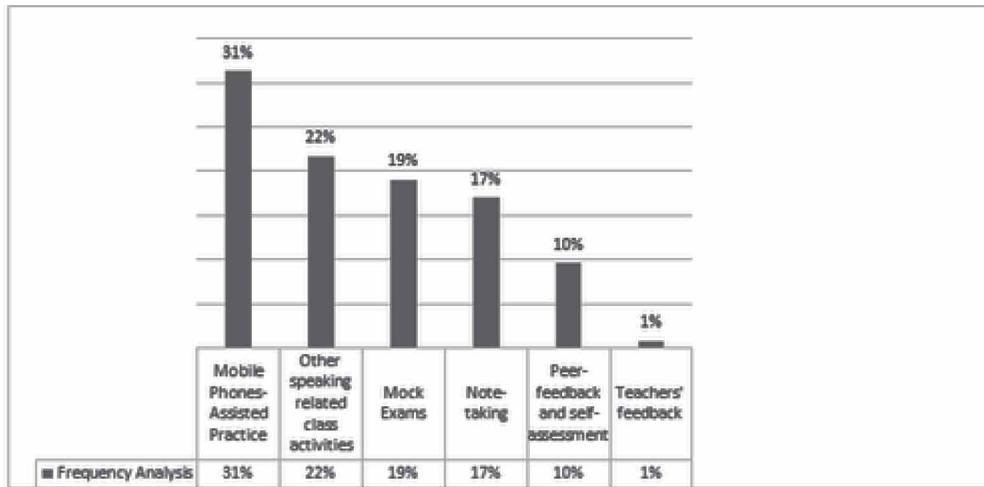
Regarding the gains in language use and speaking performance, the subcategory emerged from the codes shown in Table 6.

In the semi-structured interview, participants mentioned that their speaking performance is perceived now to be more organized, confident, coherent, focused and fluid, as expressed in the following excerpts:

When I practice in the voice notes I do not worry anymore about filling the time with isolated words, but I can give more content to my answers. (Excerpt 5, Participant 10)
Knowing how to take notes gives me the calm to organize ideas, this influences a lot the results. Since I am used to recording my answers and to listen to myself, I know my responses are not redundant any more, I give answers with a clear structure. (Excerpt 6, Participant 16)

Similarly, participants mentioned that their pronunciation was enhanced, vocabulary enriched and that the new linguistic code was more assimilated due to the intervention.

I feel that, every week, my brain gets more used to speaking the new language. (Excerpt 7, participant 7)

Table 6. Mapping of codes leading to gains in language use and speaking performance

Codes	Subcategories	Category
More confident responses	Gains in Language Use and Speaking Performance	Impact on the Learning Process
More coherent responses		
More focused responses		
More organized ideas		
More fluent responses		
Better pronunciation		
New linguistic code assimilation		
Vocabulary gain		

Table 7. Descriptive statistics summary table

	Diagnostic	**Exit Test**
Mean	23,92	33,96
Variance	64,16	60,70666667
Number of data	25	25
Pearson correlation coefficient Absolute mean difference Degrees of freedom t-statistic P(T<=t) one-tailed T critical value (one-tailed)	0,657565991 10,04 24 -7,674190468 3,26768E-08 1,71088208	

Likewise, as evidence of the gains in language use and speaking performance, the analysis of students' diagnostic test vs. exit tests, revealed that there was a significant improvement in students' overall oral performances after the implementation of the aforementioned strategies, as expounded in the summary Table 7. The test was conducted on a sample of 25 participants, chosen randomly, who took similar tests at the beginning and at the end of the course.

Besides, a pairwise t-test comparison of the mean difference between the scores of students in the exit and diagnostic tests was carried out to observe whether there was any improvement in the level of students' oral performance after the implementation. The test compares the differences of the score obtained for each student independently from the rest of students, then calculating whether an average student is capable of improving his oral performance by estimating the significance of the mean value for such improvement compared to the individual difference obtained, as in Figure 5. There were only two students whose last scores got reduced considerably compared to the results obtained in the diagnostic test (placed below 0 line) Furthermore, there were only two students whose scores did not change considerably, showing any significant improvement in their process (placed over the 0 line). Significantly, most of the participants' scores (21 students) placed above the zero line appear scattered within a variety of scores (most of them with 10 or 20 points higher) showing consistent progress through the course.

According to the obtained result, there was a clear improvement in the students' overall performances. In this sense, the mean difference between the scores obtained in both tests (10.04) represents an improvement of the average score by 41.97%. Moreover, the test demonstrates that 84% of the students improved their grades after following the intervention, as indicated by the low p-value obtained (3.26*10^-8) meaning that there is stronger evidence in favor of the probability of the occurrence of an expected event (students' improvement). According to such results, most of the randomly selected students, following the proposed training strategies, substantially increased their oral performance as stated by the Pearson correlation coefficient, as shown in Figure 6.

In Figure 6, there is perhaps an underlying assumption that compared to the 'diagnostic test' scores obtained, the students' overall results (exit test) improved significantly in response to a set of implemented strategies. It can be perceived from the scatter plot that the points are reasonably closely scattered about an underlying straight line, indicating the reasonableness of assuming a linear and positive association between both variables (diagnostic vs. exit tests) and that the strength of association between the variables is very high (r = 0,6575). In brief, the scatter plot implies that there is a positive linear relationship between the diagnostic score obtained and a consistent students' improvement post strategies implementation (exit test).

Furthermore, in the same category concerning the impact of the implementation on the learning process, data lead to the emersion of another subcategory dealing with autonomy and metacognition, which is justified in Table 8.

Figure 5. Pairwise t-test comparison of the mean difference between tests scores
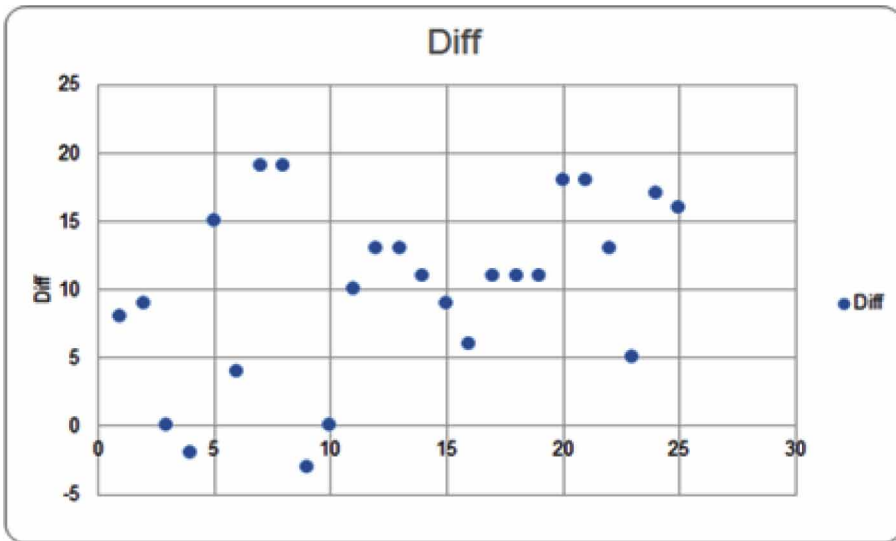
Participants stressed autonomous behaviors, such as self-efficacy; they expressed more confidence in their skills and perceived the task as achievable. The following excerpts show confidence, self-reflection and metacognition, such as giving importance to learning from mistakes and controlling time.

A big problem, we as students face, is that we doubt too much of our skills. Practicing with the cell-phones is an opportunity to correct my own mistakes, so I feel like more prepared during exams. (Excerpt 8, participant 28)
Having strategies brings too much calm about what to say during exams, now I can manage my time better and there is even extra time to be more conscious about what you have just said. (Excerpt 9, participant 16)

In the same vein, regarding self-efficacy, the results from the exit survey showed more confidence to face a computer-mediated test, as shown in Figure 7.

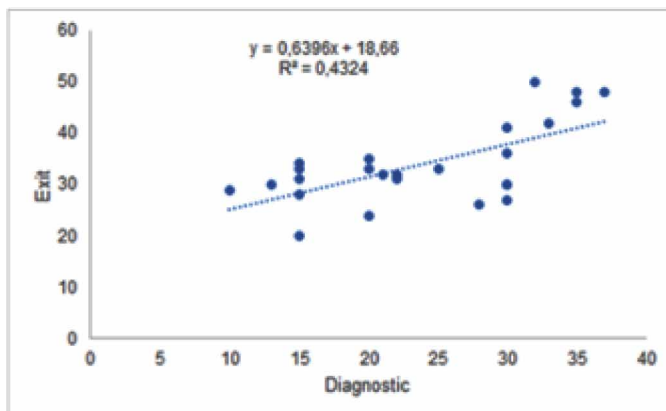**Figure 6. Pearson correlation coefficient scatter dots diagram**

Table 8. Mapping of codes leading to autonomy and metacognition

Codes	Subcategories	Category
Learning from mistakes	Autonomy and Metacognition	Impact on the Learning Process
Strategies to study autonomously		
Strategies to self-assess		
Self-readiness		
Self-efficacy		
Self-reflection		
Self-awareness about the task and the responses given		

Students' answers in Figure 7 were analyzed as their perceptions regarding their improvement of their competences in the speaking skills necessary to face computer-mediated exams. Results show that slightly more than half of the participants (53%) reported feeling more confident at the end of the intervention with no doubts. Nevertheless, 11% of students expressed feeling still very insecure. At the halfway point, 36% of participants reported a neutral response. The following excerpt from the semi-structured interview provides a neutral response regarding exams, but positive concerning self-efficacy levels:

Exams don't get easier, but I think now I know better how to handle them. (Excerpt 10, participant 3)

Besides, results from the semi-structured interview revealed a great emphasis on having tools, as mobile phones, to practice speeches in the foreign language and to self-assess oral production, as evidenced in the following excerpts.

I think I have improved pronunciation. After I recorded the voice notes I could listen to my mistakes and search for the correct pronunciation to learn it. (Excerpt 11, participant 4)

Figure 7. Participants' reported confidence levels to face computer-mediated exams after the intervention
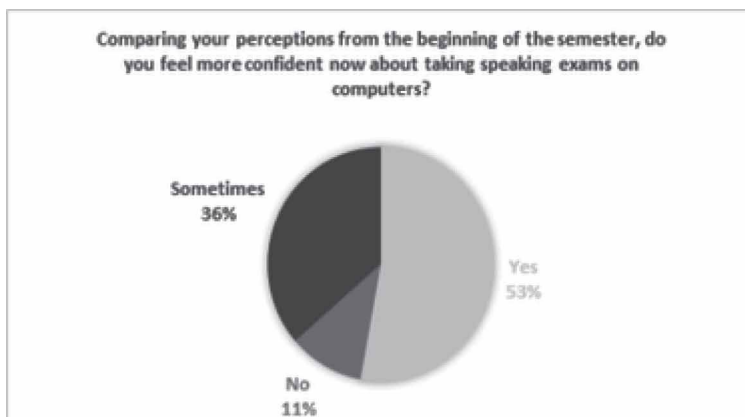
Having the opinion of my classmate helped me to improve, sometimes you do not notice your own mistakes when you talk, you need to listen to the recording or to your classmates' feedback. (Excerpt 12, participant 8)

These findings, dealing with autonomy, align with the results from the frequency analysis on Figure 4 above, in the frequency analysis of the most useful strategies to improve the speaking performance, where teachers' feedback was mentioned by a minority (1%), while self-assessment and peer-feedback (10%), were the most acceptable forms to receive feedback.

LIMITATIONS

There are four main limitations of this study that could be addressed in future research. First, when it comes to data collection, this study focused initially on gathering students' perceptions about their feelings and emotions while taking the speaking exam, without considering in-depth variables such as anxiety and self-efficacy that could have constituted a more consistent input to conduct a thorough analysis of the results. Bearing this in mind, a more significant and psychological data-driven research should be conducted regarding the psychological impact derived from the implementation in terms of the reduction of the students' levels of anxiety. So, a more longitudinal and systematic psychometric study in this regard is needed to complement the study results.

Secondly, the conditions concerning the diagnostic vs. the exit exam difficulted the procedures to guarantee consistent data from those instruments. As the sample of students was chosen randomly from different levels, different tasks were applied according to each of the participants' proficiency levels; so, the data collected for the quantitative analysis was very heterogeneous. Likewise, since participants belong to an EFL proficiency course, the implementation of this study was not the only speaking strategy performed in class, which impeded measuring the impact of the target strategies as an isolated phenomenon.

Furthermore, during the intervention, the teachers reported students having a reluctant attitude towards peer-feedback. Gurbanov (2016) found out that when dealing with reliability, grading, and objectivity; both, students and teachers are rather skeptical. However, data from the present study suggests that with time, students started to trust their peers' feedback and valued it as a useful strategy to learn. It is worth emphasizing that in this implementation peer-grading was not involved. Finally, a reflection on the context of intervention should be provided. This study was conducted in an institution of higher education with young adults. Studies with younger participants should account with the consent of parents and stakeholders; and align with the school policies. As in the case of Colombian schools, where a statute was suggested to the national government to forbid the use of mobile phones from pre-school to ninth grade (El Espectador, 2019).

CONCLUSION AND DISCUSSION

This study inquired about the effects of mobile phones-assisted practice, in combination with note-taking, as test-wise and test-management strategies, on the oral performance of learners of English as a foreign language, who had reported facing challenges when taking speaking computer-mediated tests. Findings revealed that the selected tool (mobile phones) impacted participants' learning process in several ways. Mobile phones-assisted practice was chosen by participants as the most effective strategy to improve speaking performance. It facilitated audio recordings, storage and sharing, as a test wise-strategy, as well as mock exams, self-assessment, peer-assessment, speaking performance, autonomy and metacognition. It is worth remarking that teachers' feedback was not mentioned in the interviews at all, and only in a minimum percentage (1%) in the frequency analysis. This finding provides great emphasis on the levels of autonomy gained through the pedagogical intervention

and aligns with Hazaea and Alzubi's study (2018), which found out that when using mobile-phones (WhatsApp and search engines), students need to self-manage and, make choices and decisions, which lead to autonomy. Besides, students' responses show self-awareness on the task, their own learning process and strategy usage; according to Lee and Oxford (2008), strategy awareness is "the best predictor of strategy use"; which might have been demonstrated in the exit test, where 84% of participants showed substantial improvement in the overall speaking performance.

In a similar vein, data suggested that the intervention had a positive impact on students' beliefs towards the difficulty of the oral tasks. Results showed that half of the students reported feeling more confident after the implementation; from the other half, the vast majority took a neutral position. It is worth emphasizing that it is common that testing brings anxiety levels; nevertheless, the study implied that the value of the selected strategies goes beyond testing. Data also implied that self-evaluation and peer-evaluation are golden strategies for boosting metacognition and should be implemented not only for testing purposes. Additionally, learners emphasized the benefits of mobile phones-assisted practice and note-taking in other oral class activities, not related to this study. Similarly, note-taking comprises metacognitive strategies like pre-evaluation processes, pre-planning, self-assessment, monitoring and evaluating; as well as post-evaluation stages and self-performance analysis, among others (Cohen, Weaver & Li, 1996). Therefore, these types of cognitive and metacognitive strategies play a determinant role in the way students deal with test tasks and impacts directly on their own perception of "self-efficacy", since they become aware of their capabilities to produce certain levels of expected performance, "determining how they feel, think, motivate themselves and behave" (Bandura, 1994).

Bearing these findings in mind, it is apparent that there is a need for more studies that validate the importance of well-integrated and assembled in-class strategy batteries, to foster second language learning and assessment processes, as the aim of this current study. Mobile-Assisted Language Learning has advantages that could be explored in other tasks, other skills and in combination with other approaches. An accurate implementation of mobile phone-assisted practice and note-taking yielded results of high importance for this study and the research field, considering the increasing level of anxiety students have to deal with while taking exams, even more when speaking in front of a computer, a class or an academic authority; and more importantly, considering the gains achieved in the fields of learning processes: language use, speaking performance, autonomy and metacognition.

Corresponding Author:

Correspondence should be addressed to Diana Durán-Bautista, diana.duran2@unisabana.edu.co

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Diana C. Durán-Bautista is an assistant professor at the Department of Foreign Languages and Cultures, Universidad de La Sabana; where she is also the head of the foreign languages area and a co-director of the CALL research line. She teaches a Self-Access Materials design course in the Master in English Language Teaching-Autonomous Learning Environments and teaches English as a Foreign Language (EFL) to undergraduate students. She has also acted as a research director and counselor of graduate students´ theses, and as one of the English academic level coordinators in the EFL program. Diana holds a MA degree in English Language Teaching for Self-Directed Learning from Universidad de La Sabana, a graduate diploma of arts in Teaching English to Students of Other Languages (TESOL) from Anaheim University, and a BA degree in English Language Teaching from Universidad Industrial de Santander. Her research interests include instructional technology, curriculum design, learner autonomy, and professional development.

Sandra Patricia Huertas-Malagón belongs to the teaching staff of the Department of Foreign Languages and Cultures at Universidad de La Sabana. She holds a Master's Degree in Education and ICT (e-learning) from the Universitat Oberta of Catalunya, a TEFL Assessment certification from the University of Arizona, and a BA degree in Philology and Languages from the National University of Colombia. She is currently an ESL teacher and the Assessment Coordinator for the foreign language programs at La Sabana. She has participated in the design and execution of professional development and e-learning projects and has offered academic consulting and advisory services.