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ASSESSING PRE-SERVICE EFL TEACHERS' PERCEPTIONS REGARDING AN ONLINE STUDENT RESPONSE SYSTEM

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ABSTRACT

Online Student Response Systems (OSRS) are web-based tools that can be used to collect and share language assessment data from students. Although they have been found to improve learner satisfaction, motivation, and learning, students' perceptions need to be taken into account when addressing the contextualized nature of OSRSs. Therefore, 23 pre-service EFL teachers studying at a private university in Santiago were asked to provide their perceptions regarding the Socrative OSRS in terms of its usability, its impact on learning, and its impact on engagement. Findings showed that students held positive perceptions towards the usability of the application, but remained neutral in relation to its impact on learning and engagement. This is explained in terms of the nature and the layout of the application.

Key Words: Online Student Response System, Socrative, pre-service teachers' perceptions

INTRODUCTION

Online Student Response Systems (OSRS) are web-based tools that can be used to collect and share language assessment data, and represent an effective way to provide immediate formative and summative feedback (Bruff, 2009, p. 1). Typically, an OSRS will show students a multiple-choice question that has been previously created by the teacher with the software, and addresses specific lesson aspects. Students then must select an answer, which can be used by the teacher to present overall results to the class and evaluate the answers as part of a formative or summative evaluation. The software tool provides useful information in the form of descriptive statistics and percentages, as well as individual responses. This

feedback provided by the OSRS tool can help teachers decide on situated pedagogical steps that are informed by the responses provided by students. For example, based on the overall number of correct responses for a specific question, the teacher can decide whether to continue with the lesson, to further explain an aspect of the content being taught, or to implement an activity to reinforce learning (Mork, 2014). There are many advantages that have been reported in the literature in relation to using OSRSs in formal educational settings. These systems have been found to improve students' attitudes towards classes (Barnett, 2006), increase attendance (Caldwell, 2007; Lantz, 2010), increase engagement with the course (El Shaban, 2017; Williams et al., 2011), improve teacher-student interaction through immediate feedback (Caldwell, 2007; Lantz, 2010; Draper & Brown, 2004), and ensure anonymity (Ohashi, 2015; Hoekstra, 2008). This technology has overcome the difficulties presented by Classroom Response Systems, which provide rapid access to students' responses (Bruff, 2009, p. 1) but require institutions to purchase 'clickers' for students to submit their responses and the software needed to implement the system (Ohashi, 2015; Mork, 2014).

Socrative is one of the several OSRSs available in the market (i.e. Kahoots, Zuvio, Verso) that can bypass the need for clickers. This type of software is described by Valiente, Cazevieille, and Jover (2016) as an application that allows teachers and practitioners to "ask questions about the topic being studied in class, or about necessary prerequisite knowledge, either orally or through predesigned questionnaires, individually or in groups, anonymously or identifying the respondents, as required" (p. 78). The instructor has access to the results immediately and can assess them to take an appropriate course of pedagogical action. Socrative can be launched by means of a web browser, so students can access it from desktop computers, laptops, and mobile devices. Once the teacher creates an account, an identification name is provided (either words or numbers). Students then write down the room name to enter the online room, where they can complete the quizzes or answer the questions set by the teacher. They enter their full names only if the teacher wants respondents to be identified. Socrative allows the teacher to receive output reports that can help organize scores and responses to questions. The type of questions that can be asked with Socrative are multiple choice, true or false, and short answers (where students must write a brief response). These items can be asked individually or as part of a full quiz.

Socrative can be beneficial in improving learners' perceptions

regarding grading. Most students do not feel motivated to prepare materials at home when they know that grading is not involved. Motivation towards preparing materials in advance is crucial to improve reading and listening comprehension skills, foster class discussion and, consequently, achieve the learning objectives set in the course programmes. The challenge is to find ways in which to engage students as they complete tasks that are not graded, i.e. formative assessment. Broadbent, Panadero, and Boud (2017) argue that "most students do not value, complete or even notice the presence of [ungraded] formative assessment tasks" (p. 308). Grading is undoubtedly a powerful resource to encourage student motivation. However, the marking of pen-and-paper assessments is usually time consuming and results are not immediately seen which, in the end, can also affect students' motivation and engagement.

The use of mobile devices in class, either for online formative or summative assessment, comes as a natural element to consider when prompting students' engagement. Students who engage behaviourally and cognitively with the material they are exposed to are more likely to recall information and achieve learning (Bonwell & Eison, 1991; Mayer, 2004; Cardoso, 2011). Furthermore, using online formative assessments such as Socrative and Kahoots, can increase achievement scores as well as promote self-regulation (McLaughlin & Yan, 2017). Anecdotal evidence from teachers suggest that mobile devices, particularly smartphones, are prevalent in higher education environments. In consequence, "it is time to rethink how instructors use smartphones in the language classroom due to the fact that [mobile] technologies are fundamentally changing the nature of learning" (Sprague, 2016, p. 994). The application Socrative, accessible from any kind of device, is then a 'perfect fit", as it offers the teacher the possibility of assessing reading and listening comprehension skills while engaging the students in a more ludic process through a medium they know very well and with which they feel comfortable. Furthermore, thanks to the application's practical features, the grading process is made simple, fast, and paperless. As Bruff (2009) states, classroom response systems can greatly benefit teachers because these tools can increase speed and efficiency when collecting, grading and evaluating learners' responses on quizzes and tests. It can be said, then, that Socrative offers multiple advantages: results are immediate, which lowers students' anxiety; engagement increases because of students' familiarity with the medium; and assessment – a component that is often constrained by the need for

teachers to produce numerical grades required by the university – is facilitated and simplified (Broadbent et al., 2017).

OSRSs and Foreign/Second Language Learning

Research on the impact of OSRSs in the EFL/ESL language classroom has reported the benefits of OSRSs in relation to learner satisfaction (Hung, 2017), vocabulary development (Yu, 2014), and motivation (Yu & Yu, 2016). In line with this, studies such as Cardoso (2010) showed that OSRSs can increase second language learner and teacher motivation, engage students in active participation and self-assessment, and increase perceived learning improvement. Furthermore, Cardoso (2011) argued that student response systems can have a positive effect on the attitudes that second language learners hold towards this technology and learning in general. Indeed, deeper cognitive processes are at play when learners are actively engaging with class materials (Mork, 2014; Mayer, 2004). Cardoso (2011) also argues that these online response tools are attractive for second language learners, as they appreciate the novelty of the activity and react positively to frequent use of structured questions that yield immediate, explicit feedback. Similar findings are provided by Kent (2019), who assessed the efficacy of the OSRS Plickers in the EFL classroom for formative assessment. Kent concluded that when the OSRS is supported by teacher-interaction and peer-interaction techniques, it can provide an interactive and active learning environment where learners are able to highlight their knowledge gaps, focus their attention, and feel engaged.

Liu, Sands-Meyer, and Audran (2019) used the OSRS Peardeck to assess its impact in a "flipped" class where EFL learners mainly learn by themselves from online materials and are encouraged to ask questions about their own weaknesses in class. Thus, the OSRS was used to organise activities in an experimental group, while a control group was taught with conventional methods. Results showed that the experimental group increased their learning motivation and self-efficacy in learning English grammar. These learners also increased their participation and engagement as part of a flipped classroom environment. However, learners did not make significant gains in actual grammar learning. The authors explain this by arguing that learners need more time to become familiarised with an approach that makes use of OSRS. There may also be variables such as first language, language learning ability, and novelty of

the tool that can impact the attitudes of learners towards these online tools, as well as their actual learning development. It becomes necessary, then, to assess the impact of these technological devices in a situated context, taking into account learners' situated perspectives. Therefore, the present research project sought to evaluate students' perceptions regarding the use of a specific OSRS tool, namely, Socrative. The selection of this OSRS was made taking into account the type of software that was being used in the institution at the time, and the potential benefits of the software in relation to usability, learning, and engagement. Students' perceptions were analysed in terms of the application's usability, its impact on learning, and its impact on engagement. To this end, data were collected through an online survey, and focus group interviews.

METHODOLOGY

The project aimed to answer the following guiding research question: What is the impact of Socrative on the perceptions of learners regarding its usability, its impact on learning, and its impact on engagement?

Participants and Research Context

Quantitative and qualitative data were gathered from a group of 23 pre-service EFL teachers who were part of a language course in a Pedagogy in English programme at a private university in Santiago, Chile. The language course spans over five years and focuses on developing communicative competence and fostering the four language skills. The sample displays a wide range of socio-economic levels, and they attended public, subsidised, or private high schools. In listening and reading, most students fall within the B2-C1 bands. In the case of Use of English, the majority of students are B1 (as measured by a First Cambridge English Test).

Socrative was used seven times for online assessments (quizzes), which took place at approximately regular intervals over the semester. Socrative offers a variety of combinations for quick questions: multiple choice, true/false, and short answers. Out of the seven quizzes, four of them included a combination of multiple choice and true/false questions and the other three were the short answer type. No previous training on the use of the app was provided, though only for the first quiz, there was no time limit set for learners to complete the quiz. For the rest of the

quizzes, time was allotted by the teacher researcher depending on the number of questions and the degree of difficulty, and it ranged between 10 to 15 minutes. All the quizzes were given at the beginning of the lessons. Feedback was provided immediately after the quizzes were completed, checking right and wrong answers, as a class discussion. The main purpose of the quizzes was to present the lesson's central topic and prompt students to participate in the class discussion. They were also graded, and results were accounted for under "Reading" and "Listening," two of the four grades included in the Language course, which weigh 40% of the final course grade. Even though these quizzes did not focus on speaking or writing skills, the impact of Socrative on these learners' perceptions was assessed from the more general perspectives of usability, learning, and engagement with the software. Figure 1 below displays a sample of a listening quiz completed by the learners.

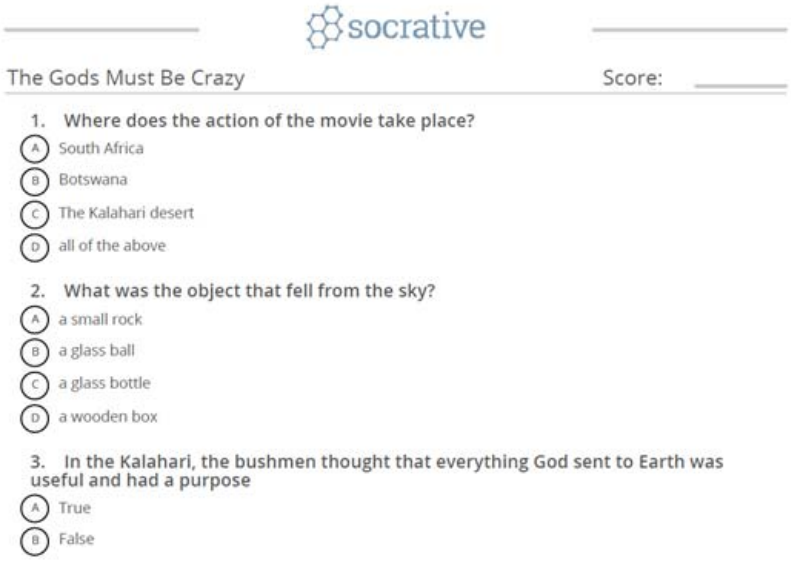

Figure 1. Listening comprehension quiz sample

Instruments for Data Analysis

CRiSP questionnaire

A version of the classroom response system perceptions (CRiSP) questionnaire developed by Richardson et al. (2015) was utilized in this project. This survey assesses OSRSs on three subcomponents: usability, the impact on student learning, and the impact on student engagement. The instrument was adapted so that items that were not relevant to OSRSs were eliminated. For example, as clickers (devices that students can use to provide responses) were not used by students, items addressing their use were deleted. The final version of the questionnaire was translated into Spanish and items were discussed with other researchers. The instrument contains 23 Likert-scale questions that were sought to gather perceptions regarding the aforementioned subcomponents. Following Dunn et al. (2013), data were presented by means of net percent agreement (NPA), which refers to the total percentage of students agreeing or strongly agreeing with a particular statement, minus the total percentage of students disagreeing or totally disagreeing with the statement. This provides a better measure of assessment in relation to students' opinions, as it takes into account negative responses.

Focus group interview

Focus group interviews are often used in educational contexts to evaluate a programme or assess the effectiveness of a particular course or pedagogical approach (Dörnyei, 2007). Thus, once data from the CRiSP questionnaire were collected, a focus group interview was carried out to gather more contextualized perceptions regarding the application Socrative. Six students with specific CRiSP profiles were selected for the focus group interview. This was done in the following manner. The three students with the highest CRiSP questionnaire total mean scores and the three students with the lowest total mean scores were asked to participate in the interview. This way, students holding different perspectives were included in the interview in order to explore their perceptions regarding their CRiSP questionnaire scores. The questions were asked in the participants' mother tongue, and participants were asked to answer in the same manner, so as to prevent the second language from influencing their understanding of the questions or the delivery of the answers. The questions broadly addressed aspects of usability, learning, and

engagement in relation to Socrative. A focus group protocol was created, and the interview lasted 50 minutes. Data were fully transcribed and codes and themes were identified for analysis.

Method of Analysis

Analysis of data focused on quantitative and qualitative aspects. Quantitative analysis presents descriptive statistics regarding the CRiSP questionnaire, which included frequency tables on the outcome variables, namely, the three components being assessed (usability, learning, and engagement). All the percentages displayed in the analysis are also NPA. Some of the items were reverse-coded in order to calculate the total score means for each component (Table 1). Qualitative data analysis reported learner perceptions as part of the focus group interview conducted by the teacher researcher through the semester. The interview data were transcribed and analysed by means of qualitative content analysis. This analytic approach provides research tools to present a subjective interpretation of text data that is done by systematically coding and identifying themes or patterns (Hsieh, & Shannon, 2005).

Results

Quantitative Data: Survey Results

Means for each subcomponent (reverse coded)

Table 1

Descriptive Statistics for Each Subcomponent

	USAMean	ENGMean	LEAMean
N	22	22	22
Mean	3.78	3.28	3.36

Note. USA: Usability. ENG: Engagement. LEA: Learning.

Overall, descriptive statistics displayed in Table 1 suggest positive perceptions, with a higher Usability (USA) mean over Engagement (ENG) and Learning (LEA) means. This implies that students did not have major

issues with using the application. Familiarity with technology may be one of the reasons, an aspect that was explored by means of the interview data. The means for Engagement and Learning are similar, which suggests that learners did not hold negative perceptions towards Socrative in terms of its impact on their motivation to use it or its potential in enhancing learning. However, this quantitative finding shows that students tend to remain neutral in their opinions regarding these two components.

Impact on usability

Perceptions regarding usability were assessed by means of four items. Table 2 presents the mean scores for each question item and the NPA. Students held strong opinions towards the idea that Socrative was easy to use (72.7%), which implies that training students to use Socrative may not be necessary. Students also tended to disagree with the idea that there were technical issues whilst using Socrative (-36.5%). Interestingly, 10 students in this item neither agreed nor disagreed with the statement, which suggests that they did not encounter technical issues that were too disruptive. Finally, more students agreed than disagreed with the idea that they did not know what was expected of them whilst using Socrative (18.2%). Insights on opinions regarding usability can be seen in section 3.2.1.

Table 2

Perceptions Regarding the Usability of Socrative

	TD	D	N	A	TA	NPA	Mean score
Too difficult to use*	11	6	4	1	0	-72.8%	1.77
Too many technical problems*	7	3	10	1	1	-36.5%	2.36
Easy to use	1	1	2	9	9	72.7%	4.09
Expectations too hard*	3	4	4	5	6	18.2%	3.32

*These items were reverse coded to calculate total score means for each component (Table 1).
TD: Totally disagree. D: Disagree. N: Neither agree nor disagree. A: Agree. TA: Totally agree.

Impact on learning

Students' perceptions regarding learning were assessed by means of 12 Likert-scale questions (see Table 3 below). Results suggest that learners had mixed feelings regarding the impact of Socrative on their learning. Students did not report that Socrative enhanced their learning (-0.1%), with most students remaining neutral towards this statement. A similar outcome is found when students provide their opinions regarding whether or not Socrative helped them understand new concepts (22.7%), and whether or not Socrative helped them think more deeply (27.3%). Students did not think that Socrative increased their peer awareness (-31.9%) and were inconclusive regarding how much the application helped them gain control over their learning (4.6%). However, a more positive opinion was given towards Socrative allowing for more teacher-learner interaction (40.9%). These findings may be explained in terms of the manner in which the application was used; although Socrative was introduced and utilized as a tool that provided summative and formative assessment, the teacher researcher did not focus on teaching new material with the application. Many students received immediate feedback on the correct answers (45.5%) and thought that the teacher used those results to check comprehension (45.5%). While these results suggest that students regarded the application as a means for the teacher to evaluate their actual

level of knowledge with respect to content that was already taught, it is not clear whether the tool was used by learners to acquire new knowledge.

Most students were indecisive regarding the idea that Socrative increased the overall value of the class (9.1%). However, they did not think that they wasted too much time on the application (-59.1%), and many would recommend its use (45.4%). Finally, students' responses were not conclusive in terms of the way in which they respond to questions in Socrative, as the statement on selecting a response without understanding reported very polarising answers (-9.1%).

Table 3

Perceptions Regarding Impact on Learning

	TD	D	N	A	TA	NPA	Mean score
Instructors used results	1	2	6	4	9	45.5%	3.80
Increases overall value of class	1	2	14	4	1	9.1%	3.09
teacher/learner Interaction effective	0	4	5	6	7	40.9%	3.73
Enhanced my learning	2	2	14	3	1	-0.1%	2.95
Helped me understand concepts	1	1	13	4	3	22.7%	3.30
Wasted too much time*	7	8	5	2	0	-59.1%	2.09
Recommend use	0	2	8	5	7	45.4%	3.77
Helped me think more deeply	2	2	8	8	2	27.3%	3.27
Correct but not understand*	6	5	2	5	4	-9.1%	2.82
Increased my peer awareness	5	5	9	1	2	-31.9%	2.55
Gave me control over my learning	1	4	11	2	4	4.6%	3.18
Obtained instant feedback	2	2	4	8	6	45.5%	3.64

*These items were reverse coded to calculate total score means for each component (Table 1)
TD: Totally disagree. D: Disagree. N: Neither agree nor disagree. A: Agree. TA: Totally agree.

Impact on engagement

Students' perceptions of the impact of Socrative on their engagement were assessed by means of seven Likert-scale questions (see Table 4 below). Students did not feel that Socrative motivated them to learn (9%), and most students displayed neutral attitudes towards this. A similar response layout was given to the statement asking whether Socrative helped students be active in class (13.6%). Most students did not agree with the idea that Socrative encouraged them to attend class (-27.3%), and some students thought that Socrative increased their enjoyment of class (27.3%). Due to the type of activities that were carried out with Socrative during the semester (i.e. quiz assessment), some of these perceptions were expected. Although results in this component do not display a high NPA regarding particular statements, students do not disagree with the statements either, evidencing neutrality towards the statements.

Table 4

Perceptions Regarding Impact on Engagement

	TD	D	N	A	TA	NPA	Mean score
Motivated me to learn	1	3	12	3	3	9%	3.18
Increased enjoyment of class	2	3	6	8	3	27.3%	3.32
Helped me pay attention in class	1	2	7	6	6	41%	3.64
Helped me being active in class	1	3	11	4	3	13.6%	3.23
Encouraged me to attend class	5	5	8	2	2	-27.3%	2.59
More confident to participate	2	1	6	9	4	45.5%	3.55
Helped me concentrate in class	0	4	8	6	4	27.3%	3.45

TD: Totally disagree. D: Disagree. N: Neither agree nor disagree. A: Agree. TA: Totally agree.

Qualitative Data

Data from the focus group interviews were included in this section.

Analysis focused on the three aspects that the CRiSP questionnaire addressed, namely, usability, learning, and engagement. Therefore, discussion will address specific qualitative findings that expand on the quantitative ones. Data were gathered in the participants' first language (Spanish), so a translation into English is provided for each extract. Overall, the qualitative findings reported by the six students matched their responses in the CRiSP questionnaire, and their responses in the interview provided further insights on their rationale behind their perceptions as reported in the quantitative instrument.

Impact on usability

Familiarity with technology

The finding that most of students had positive opinions regarding the usability of the application in the questionnaire was also reflected in the interview:

> Participant 2: "It allows us to stay in a medium that most of us technically handle, ... It is something more natural, although it sounds strange that technology is more natural, for the generation that was born with a phone in their hands, it is something that belongs to us, or something I am knowledgeable about."
> Participant 4: "It was easy (Socrative)…easy to understand."
> Participant 5: "It is super basic to use."

These comments highlight the perceptions of these students regarding the advantages in terms of the usability of Socrative. Other studies have reported that students are able to adopt these technological devices when they are introduced in the classroom (Valiente et al., 2016). However, specific technical issues may interfere with an efficient use of the application.

Technical issues: internet connection

Even though students had positive perceptions regarding the overall use of the application, specific technical issues were identified. In line with Valiente et al. (2016), these technical issues were mainly related to lack of internet connection, which caused increasing screen loading times.

> Participant 6: "When many students tried to connect at the same time, it took them longer to load the page, either due to internet failures or for a weak signal (…) Or, they had some problems and the application closed, or the page closed."

Students underscored the importance of having access to adequate internet connection, as a lack of online access may negatively impact the usability of the application. Furthermore, time may be lost as students struggle to connect to the institution's wi-fi, which requires a series of steps to be completed before the application can be used:

> Participant 1: "What happens is that the website through which we have to connect to the internet is like tedious because you... connect to the Wi-Fi, and then you have to open an external link, log in, and then close that ... and only then you can use the internet. It's not like you connect and, all of a sudden, internet is available... There are specific areas of buildings where the internet is very bad, or very good."

> Participant 3: "Personally, for example, I try to avoid connecting to the university's Wi-Fi for the same reason, because in the end, in these cases, when you have to do a test, you waste a lot of time trying to do that, because sometimes it does not load… Then, you waste 10 minutes trying to connect to the internet to just get into Socrative. So, in the end, what I do is to use my own mobile internet."

The difficulties that arise as students try to access an online system were also reported by Ohashi (2015). Ohashi reasons that the impact of this issue can be reduced if teachers prompt students to create a habit out of logging in at the start of every lesson.

Technical issues: Input format

Another important aspect in terms of usability is the type of input format that is used with Socrative. Learners are asked to leave the common approach to completing an assessment task, which involves writing answers by hand. In addition, the application can be used in phones and also in desktop/laptop computers, so the way in which the writing is done (i.e. typewriting in a laptop vs "texting" answers in a mobile phone) may also affect perceptions on Socrative. Participant 5 recalls his difficulties with using the phone to write full paragraphs:

> "When you need to write ... it is much more complicated because ... well, [the teacher] asked us to bring the computer and we forgot, because formal writing is hard for me, writing on the phone at least... In the computer I can, but not on the phone."

Participant 1 highlights the different input formats as an advantage of the application, as it provides two platforms to complete the tasks (mobile phone and laptop). The length of the task might be a factor when deciding whether the mobile phone or the laptop should be used:

> "I would also add the difference in size between written pieces. For example, if it is a very long and dense text, I think that on the phone it is a bit more exhausting because obviously we use only the thumbs. But as you can also do it in a computer it is faster for me, to write more in a computer than on the phone ... long texts."

Participant 1 goes on to identify the lack of a physical copy of the task as a difficulty, as he is used to highlighting phrases and paragraphs, and expects the physical copy back from a teacher, who will provide feedback:

> "I believe that the impact of not having it back (the physical copy), not having the physical results ... In the tests ... I have the tendency to write things, eh hmmm, highlight ... Sometimes ... when we have the test back, we can realize the mistakes. "Oh ... I was wrong about this, I could have done it this way." But in this platform, you answer and then it's like the answers go away."

Interestingly, Participant 1's perceptions regarding the lack of feedback provided by the application (arguably a usability issue) impacts his ability to learn from feedback (a learning issue). The teacher's pedagogical approach towards feedback, and the way in which the application provides the feedback are prominent aspects in these students' perceptions.

Participant 3 discusses the reasons why using a phone to complete assessment tasks may hinder a learner's performance. She reasons that learners need to be introduced to these changes before tertiary education so that they know how to navigate these types of assessment:

> "I think this happens to us because we are used to that evaluation

> system. Since childhood, we have been accustomed to a paper evaluation system, with images, with the possibility of highlighting, etc. … I believe that students should start in 10th grade, using this application, so that when they arrive at the university, it is normal for them."

These comments suggest that although Socrative is a technological device that is not difficult to use, students may struggle with it when it forces them to rethink the way in which they complete quizzes and tasks. They are prevented from having access to paper sheets and all the rituals that they go through as they provide answers (highlighting, writing side notes, and so on). Students are used to working with paper, as they have done this throughout their entire education. Participant 5 proposes that more options should be given to students in terms of access to paper versions of the quizzes and texts, and that teachers should identify students who have trouble completing an assignment:

> "I find it is like a super ... a good platform to show what I have learned, but only if there are more options. Because, for example, as a teacher, I would not like to have some students who could not do the test well because they do not have the option to highlight ... If there is a text that I must read, analyse, I should have access to the (printed) text and the (paper test) (...) considering everyone's skills."

Issues with instructions

Students reported a number of issues that were related to the manner in which instructions were provided in Socrative. Difficulties in understanding the instructions were mainly related to their layout and their clarity in the application. Participant 4 argued that the font size and colour used in the instructions section was misleading:

> "I feel that the instructions are extremely small and that the color does not attract your attention. I, at least, did not read the instructions. I just read the question."

The way in which instructions are displayed in the application can have an effect on how students understand the type of item they must complete and the conditions that must be met. For example, Participant 5 reported that he was not able to complete an assessment task appropriately

because the instructions were not clear enough regarding the options that he had with a multiple-choice item, which may have been caused by his failure to acknowledge poorly-presented instructions:

> "I did not know that you could select two or three (answers) and, of course, I later found my answer was wrong... It was wrong because I did not read the instructions, but I did not see them either, the instructions were not in plain sight."

These comments highlight the importance of providing instructions that can be understood and can contain a layout that is easily identifiable by students. Similarly, students believe that enough time should be given to them so that they can become acquainted with how Socrative presents the instructions. Participant 1 reports the need to practice with the application in order to notice and understand its functions:

> "It's not something like 'oh that's hard' but when it's new, you don't know what to do and where to do it. So, with the first experience, you will always be like 'ok, but is this the one? Or is it the other?' So, you need some guidance to know (what to do) and then, in the following one, it is like saying "ah ok! "and you can do it autonomously."

Students also pointed out that there was no period of supervised practice before Socrative was used for actual assessment:

> Participant 2: "No, I couldn't say…there was (a trial period)."
> Participant 3: "The first time was ... it was the first assessment, yes ... I remember that of course, one day the teacher arrived and said something like 'guys, let's do something new ... take your phones...' and we all looked like ... 'What?'"

Thus, it can be stated that some of the issues with instructions that were experienced by these students may be due to the lack of a practice period in which they could familiarise themselves with the layout of the instructions and the way in which questions are displayed in the application. The fact that some students did not know what was expected of them when using Socrative may be explained to some extent in terms of the difficulties in answering some of the questions in the quizzes that are provided by Socrative. Participant 4, for example, had difficulties

foreseeing what the application was going to display, which affected her concentration:

> "For example, in a (traditional) test, you know what is coming. In Socrative, you do not know what they are going to ask; you do not know if they're going to be super specific or not. They don't explain ahead of time ... But you don't really know if there will be super exact questions ... So that's why I never knew what was expected of me. Should I analyse? Or should I focus on the specific?"

Participant 4's difficulties in understanding what the application would require her to do affected her concentration, as she wanted to know the type of items that would appear in the application. Thus, whilst Socrative was not problematic in terms of major technical issues affecting learner use, the manner in which the items are included in the application may affect the type and quality of response given by learners. Indeed, students should be allowed enough time to be exposed to the application and understand what is required of them before engaging in summative assessment. Participant 2 highlights the importance of allocating this time for students:

> "First of all, to introduce this, I would do a small course. Take ... I do not know, about 20 minutes to explain all the features the application has and how to use them, to do a sample test, simply to advance in the application use, without good or bad answers, but getting used to how it works and all that."

Impact on learning

Survey results showed that learners had mixed feelings regarding the impact of Socrative on their learning. One of the reasons for this is that the teacher researcher utilised the application for summative assessment purposes. However, even though the reported goal of the teacher was to assess students' answers, opportunities for learning can be maximised when instances for discussion can be incorporated into assessment steps. A crucial step towards achieving this may be to provide students with their original answers in the quizzes as they review correct answers in the feedback session. This aspect of feedback was frequently reported by students, as they were of the opinion that the application could benefit from including a correct answer in multiple-choice items when the

feedback session is taking place. By having access to their original responses as the teacher is providing feedback, students are able to remember them and compare their mistakes against that feedback. Participants reported the aforementioned issues with the application and the feedback sessions:

> Participant 1: "In this platform, you give the answer and then it is like the answers go away … Sometimes memory is not efficient (to recall the answers) ... It (the platform) does not have something as direct feedback, or for example something that I can re-check by myself, the same with the correct or incorrect answers."
>
> Participant 4: "You forget to think about your analysis, like what you thought and then what the teacher thinks, for example: 'this is not the one, it was this one in fact' and you say like "ahh, yes, it can be" But ... when I selected it, I thought this ... then ... it would help (including the students' original answers in the feedback sessions)."
>
> Participant 5: "It's kind of complicated not to be able to see the answers. It has happened to me that I forget things at any moment, I'm very forgetful."

As can be gathered from these responses, this type of feedback is seen by students as a chance to engage in discussion sessions that can address the topic being tested in the quiz, which can enhance learning. Participant 1 expands on his account in relation to the impact that Socrative's issues with feedback can have on learning, and reports how the absence of direct feedback can negatively impact his recall and his ability to learn from it. These perceptions are mirrored by participants 4 and 5. Overall, the comments highlight the idea that there is room for the teacher to improve the feedback provided through the application and the discussion sessions held after the assessment instrument is administered. In particular, students agree on the fact that not having access to their original answers may hinder the way they approach the discussion sessions, as they want to remember their answers and compare them against the correct ones. These adjustments could also help improve the rather neutral opinions reported by students (Table 3) regarding the overall value provided by Socrative (9.1%). Students may look at quizzes under a different light if feedback sessions included discussion on what students thought while

providing their answers, which can also modify their perceptions of the impact of the application on their learning.

Impact on engagement

Application layout and engagement

As was mentioned in the quantitative results section, most students' perceptions regarding their engagement with the application was neutral. While they did not think that Socrative encouraged them to attend class (-27.3%) and did not think that it increased their enjoyment of the class (27.3%), they do not particularly disagree with the statements either. In the focus group interviews, participants referred to the application's layout, and its impact on their engagement. For example, Participant 6 argued that the lack of colour in the instructions may have impacted on his enjoyment of the assessment process:

> "Maybe a little more color. I know they are small details but it is always more appealing when you have more color .... for example, in the application, gray and white is tedious, at least for me. It generates a bit of insecurity. But if I see something that ... I don't know ... it's red, and it's flashy and it's even fun maybe, maybe it motivates people to use it more."

Participant 2 comments on the lack of images included in the application and the positive effect they could have on his engagement with the items:

> "I don't know what the limitations of the application are but, so far, I haven't seen a single image. I would like the app to include… I don't know ... an image of the text we are seeing. Something that stimulates my mind and makes me remember things. Those things are done in regular tests, so it's like updating regular tests using the cell phone."

The inclusion of these changes may help change neutral opinions regarding the enjoyment experienced with the application. Regarding students' participation in class, most students reported that with Socrative they felt more confident to participate in class (45.5%). This could be explained in terms of students' experience with technology and their ability to use Socrative in the way that the teacher intended. In this respect,

students believe that Socrative helps them be more confident in completing a task that is part of the work done in the classroom:

> Participant 2: "To the vast majority of us who are accustomed to writing, it can also increase our confidence because it is something more personal."

> Participant 3: "To have the phone ... I think it's like your comfort zone where ... you do not get nervous when writing a paragraph, but just the opposite."

Participants also believe that an assessment that is carried out by means of online response systems such as Socrative can lower anxiety levels in students, as they are more familiarised with using their mobile phones:

> Participant 1: "It (Socrative) sort of liberates us psychologically from the burden a test can be. It calms us down somehow and for example we release the anxiety that can block us from remembering the content that we know."

> Participant 5: "I think it decreases a little the anxiety of writing a giant paragraph in paper, ... or facing a three-pages long test with 30 multiple choice questions of uh ..., it's better I believe ... and in fact it is much more inexpensive and eco-friendlier."

A different perspective is reported by Participant 3, who expressed that her anxiety levels are always high and do not change when she uses the mobile phone to complete quizzes:

> "Personally, I feel that anxiety is always there. At least in my case, I'm always anxious when I'm going to have a test. And in terms of learning, I feel that it was not ... as I said at the beginning ..., I feel that it was not beneficial to me, I would say that it even harmed me a little because ... I need to underline and everything."

Participant 3's account suggests that teachers should identify students who experience emotions such as distress and anxiety when using the application, as these issues may not be directly related to the OSRS.

Nonetheless, clearer instructions and a more engaging interface are aspects mentioned by students that can help reduce problematic experiences with Socrative. It must be noted that even though anxiety levels seem to be a relevant issue for some students, the teacher reported that when they were offered two options to take a quiz, either by using the application or by using pen and paper, most of them chose the former over the latter. This suggests a strong general preference towards using the OSRS, aspect that is confirmed by the CRiSP questionnaire's findings on usability.

Time management

Another positive perception that is related to engagement is the idea that Socrative takes less time to complete than typical paper-based assessment instruments, which makes the process more appealing to students:

> Participant 2: "It (Socrative) speeds up the process a lot and allows us to stay in a medium that most of us technically handle. I don't have to follow certain formalities, like filling out a document which is technically what the standardized test is, but I will arrive and I will do something quick, and that will simply evaluate if I remember what I had to do, if I did my job."

> Participant 6: "The first time, it was weird to enter a platform and do ... something that we normally wouldn't categorise as a test; what would usually take us about half an hour, was done by most of us in five minutes. So, I think that Socrative is quite impressive in terms of the ease of use for students and the fact that we won't be spending an hour answering multiple choice questions."

The reduction in time spent on summative assessment has also an indirect impact on learning, because students have more time to focus on other content during the lesson:

> Participant 2: "One of the positive things that Socrative has that indirectly influences our learning is that as the test does not take the whole class time. It allows you to take advantage of the rest of the class time and advance the course plan. So, technically, we learn more because the test is no longer an annoying experience both for the

student and the teacher."

The management of time is thus another aspect that is perceived by students as contributing to their engagement and consequently their learning. Figure 1 below summarises the perceptions gathered by the students in relation to the three subcomponents being researched. These factors were found to impact learners' opinions on Socrative.

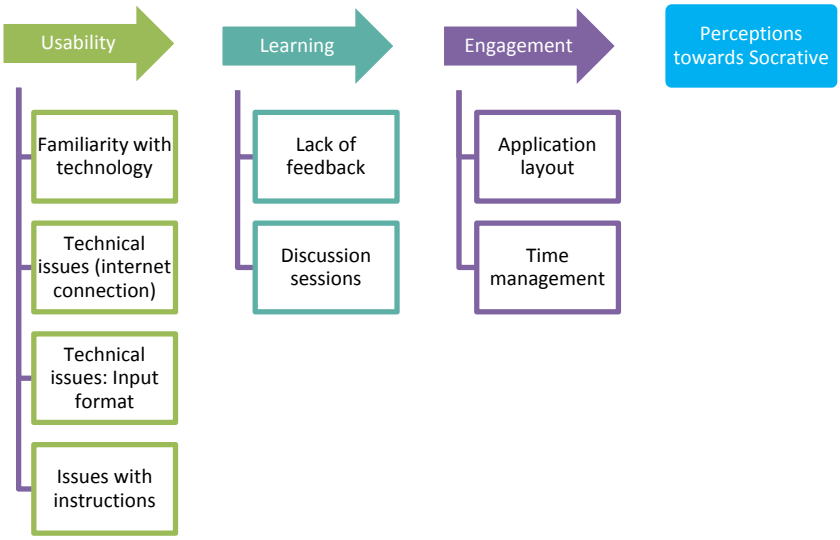

Figure 2. Factors influencing students' perceptions towards Socrative

CONCLUSION

Before addressing the conclusions drawn from the data, it should be noted that the present study sought to explore the perceptions of these learners in relation to the OSRS Socrative. Thus, while usability, learning, and engagement perceptions towards the application were gathered and discussed, actual language development was not assessed. A quasi-

experimental design that includes a control group may be able to yield results in this respect. However, any study that seeks to assess actual learning outcomes should account for the many variables that may cause spurious results, such as proficiency level, amount of class time devoted to the OSRS, and out of class study hours (Chui, Martin, & Pike, 2013). Nonetheless, a larger sample in the present study could have helped identify more nuances in the findings reported below.

The quantitative data presented showed that students held positive perceptions towards the usability of the application, which is in line with Valiente et al.'s (2016) findings. This finding was not unexpected, and is in line with Cardoso (2011), who reported that OSRSs can improve the attitudes that second language learners hold towards technology and learning in general, as they are usually familiarised with using mobile phones. Regarding the impact of Socrative on learning, students remained neutral towards viewing the application as a device that increases learning. These findings are in line with Liu et al. (2019), who did not find that EFL learners made actual learning gains after engaging in OSRS activities. As has been mentioned, the teacher's goal for the application was to introduce an instrument that could address summative assessment and lighten the burden of creating and marking tests and quizzes. Because of this, the focus of the application was to produce numerical scores, and not to prompt learning. This focus also had an effect on the way that students' answers were handled in the feedback sessions following the use of Socrative. If students' original answers are not provided to them, little discussion will take place when the teacher provides the correct answers. When students have access to their original answers, they will likely be able to connect them to the correct answers and discuss their choices, thus increasing learning. This, in turn, can have a positive impact on engagement levels. Engagement levels were low, results that contrast with the findings reported by Yu and Yu (2016) and Liu et al. (2019). This suggests that Socrative needs to be used in ways that can prompt learners to participate more as they complete formative and summative assessments, and in the feedback sessions after Socrative, as was discussed in the focus group interviews.

Qualitative data tended to confirm what was found in the descriptive analysis in terms of usability. That is, learners reported their familiarity with using mobile phones and applications in general. They mentioned technical issues with internet connection and identified differences in relation to the type of input format that is used when accessing the

application. Interestingly, they reported that although they knew how to use technology, the assessment that is carried out in universities is typically done by means of pen and paper. It is important to introduce learners to new assessment tools since the start of the programme, as this will help them deal with the differences between formats and adapt to new strategies that are adopted to complete an online quiz or test. Indeed, transition from paper to online media may take some time in institutions that have not adopted online response systems as part of their assessment strategies. The layout of the instructions may also impact learners' perceptions of usability, as they reported difficulties in understanding what was asked of them. A mock session that allows students to use the application and ask questions can address these issues before learners are asked to complete official tests.

In relation to the impact of Socrative on learning, the interview data suggested that the feedback sessions conducted after Socrative was used can benefit from improving the discussion that is created between the teacher and the students while correct answers are checked. If students have access to their original responses, they will be able to engage in cognitive processes as they compare the answers given by them with the correct ones, which can stimulate learning processes. The teacher can prompt these discussions as students challenge specific correct answers. This process can also increase students' positive perceptions regarding the knowledge they possess when they complete a Socrative quiz, as discussion sessions can tackle the reasons why a particular answer is right or wrong.

Finally, the neutrality displayed by students with respect to engagement was not in line with previous studies (El Shaban, 2017; Williams et al., 2011). This was explained by students in the interviews in terms of the layout of the application. The addition of images and colourful layouts can increase engagement levels as students use the application. The fact that students are more confident to participate in class as they use the application should be used to create more instances where Socrative can be a source for learning, which can in turn generate engagement towards the application. Furthermore, Socrative is regarded as a time-saving device by learners and teachers, as assessment time is perceived to be reduced in comparison to traditional approaches. Clearly, the positive perceptions of usability reported by these students should be taken as a platform from which learning and engagement can be further increased.

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