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Reza Dashtestani

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A CALL FOR RECONCILING EAP AND CALL

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The integration of technology in EAP courses is emphasized and recommended in previous research (Arno, 2012; Jarvis, 2009; Plastina, 2003). However, a closer look at the publications on CALL in recent years shows that only few studies have been directed towards the application of technology in EAP instruction. Research on ESP instruction and CALL is more common and popular among CALL and ESP researchers. At the same time, many EAP students across the world need to be socialized into their academic discourse communities, which demands interactions in electronic media. Nowadays, computer-mediated communication (CMC) tools occupy a pivotal role in integrating university students in online and traditional communities of practice. More importantly, the digital revolution has provided new options, discourses, genres, and communities of practice for EAP students (Kern, 2006). Depriving EAP students of using technology in learning academic English can restrict their academic literacy and digital literacy significantly.

As for the benefits of technology integration in EAP courses, Lawrence, Ahmed, Cole, and Johnston (2020) discuss that both learners and instructors can benefit from such integration. For students, technology-enhanced EAP instruction can expose students to digitalized and multimodal input, enhance the authenticity of interactions, pave the way for self-paced and personalized learning, and promote students' autonomy and critical digital literacy skills, which are necessary knowledge types that every higher education student should be equipped with in the contemporary educational systems.

EAP instructors can also introduce innovation to their teaching practices when digital tools are used in their instruction. As Kessler (2018) points out, the use of technology in EAP courses can enable instructors to use interactive teaching techniques and create a flexible and personalized environment for maximizing learning opportunities.

There exist several theoretical and pedagogical gaps with regards to the use of technology in EAP instruction. For instance, it is not clear how the emergence of online and digitalized genres has affected EAP students' and researchers' educational and research practices. Furthermore, the impact of EAP students' digital literacy on their academic literacy and academic English proficiency has been mostly under-researched. In the realm of EAP instruction, greater insight needs to be gained as regards the ways in which technology can be integrated into language teaching methodologies. The question that arises, thus, is whether we should consider findings of CALL research in general EFL contexts for EAP instruction as well? Various answers might be provided by different scholars, but there might be a consensus that the aims of general EFL courses and EAP courses are different. As Flowerdew and Peacock (2001, p. 8) argue, EAP instruction is "the teaching of English with the specific aim of helping learners to study, conduct research or teach in that language". These focuses, i.e. studying, carrying out research, and teaching, are not normally the aims of general EFL courses. Therefore, it is logical that in EAP instruction some specific and needs-based technologies be utilized.

Given the significance of EAP instruction for many countries in which English is regarded as a foreign language, we recommend that research on EAP and CALL should move more rapidly and be responsive to the ever-changing needs of EAP students across the world. EAP and technology should become an essential research line in our view. Considering the online learning movement which has changed the nature of education at colleges and universities, EAP instruction should keep abreast with the breakthroughs made in the field of educational technology. Otherwise, the exclusive transferring of the findings of CALL to EAP instruction may not be a wise and efficient decision due to the distinctive natures of EFL and EAP instruction.

Aiming at equipping students with language skills necessary for language performance in most typical university modes of work and genres (e.g., lectures, presentations, research articles or theses), English for Academic Purposes used to be viewed in terms of formal academic contexts. However, due to the changing face of the academia, university interactions are conducted more and more in the social media, less and less resembling traditional power-giving emailing. Judging how much university professors and their students interact on *Facebook*, *Twitter* or *Instagram*, the EAP contexts of today have largely changed their shape, becoming more open, more democratic and more spontaneous.

It is in particular the use of social media in English for Academic Purposes instruction that desires research interest (Chen, 2013; Khan, Ayaz and Faheem, 2016; Lin, Warschauer

and Blake, 2016). Communicating with students through the media they use for their own interactions, rather than forcing them to transfer to the "old" and "stifled" technologies such as emailing, in other words, transferring a part of instruction into the social media, might add the motivational aspect influencing effectiveness of language acquisition.

Another important area bringing the technology-enhanced EAP classroom much closer to the reality of prospective learners is mobile learning (Hwang, Lai and Wang, 2015; Lin & Yu, 2016; Stockwell, 2010). The move from computers and online platforms to mobiles and apps marked quite clearly the shift from CALL to MALL. Apparently, in many cases even inconveniences of mobile language learning such as small screen and typing constraints are much less important than the feeling of ownership and "domestication" of the device, so characteristic of many adolescent students these days.

Communication domains such as social media as well as devices such as mobile phones alone are not enough to bring about a qualitative change in the technology-enhanced English for Academic Purposes instruction. What is essential is innovative methodology, novel procedures and unique tasks which would give the language instruction its new dimension. Two such examples, more and more prominent in the classroom these days, are gamification (Buckley and Doyle, 2016; da Rocha Seixas, Gomez and de Melo Filjo, 2016; Deterding, 2012; Sanchez, Young and Jouneau-Sion, 2017) and flipped learning (Hsieh, Huang, Wu and Marek, 2017; Sung, 2015; Tucker, 2012). Applying scenarios, rules or points as assessment systems in group-based project work help accomplish the main tenets of the Communicative Approach while keeping the language instruction close to learners' everyday experience.

It goes without saying that this new face of English for Academic Purposes instruction, the transfer of the learning process into the technology-enhanced classroom, makes it much more challenging for the teacher in the technology-rich classroom (Chapelle and Hegelheimer, 2004; Compton, 2009; Hauck and Stickler, 2006). Teacher preparation gained during university education, often a number of years ago, even supplemented with the skills of teaching online gained in the CALL era quite recently, might not be sufficient to cope with the demands of technology-enhanced classroom of today or tomorrow. Hence, constant reflection is needed into teacher roles, most effective tricks, content presentation and integration techniques, in order to make instruction as effective as possible and to convince technophobic instructors to become enthusiastic or at least mildly positive supporters of computer-based EAP.

It is this wide range of issues that the special issue of *Teaching English with Technology* delivers to all the readers. Social media (**Espinoza-Celi** and **Morocho Pintado**), SMSs (**Arifani, Hidayat, Mulyadi** and **Wardhono**), Learning Management Systems like *Moodle* and other online tools and platforms (**Love**) are researched as the channels in which innovative EAP instruction can be designed. Cutting-edge methodologies using gamification and mobile betting (**Balula**, **Martins**, **Costa** and **Marques**) as well as mobile dictionary lookup (**Simanjutak**) are practical ways of how to use current technologies and media in curriculum and lesson planning. On top of these, the reflection on the role and shape of the teacher (**Dashtestani**) and the coursebook (**Nushi** and **Momeni**) in online EAP instruction is necessary for a complete picture of technology-enhanced methodology.

It is with this idea in mind that we present the current issue of *Teaching English with Technology* to our readers. We do hope that a range of topics, platforms, media, tools and tasks will enable many EAP teachers to find answers to their classroom problems or inspiration for new instructional procedures.

At that point, great thanks go to **Reza Dashtestani** for guest-editing the special issue, the team of authors for their willingness to share research with TEwT readership and the reviewers for efforts to ensure highest possible quality of the contributions.

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MOBILE BETTING – LEARNING BUSINESS ENGLISH TERMINOLOGY USING MALL

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Abstract

In the last decades, the focus of ESP teaching has been shifting from the grammatical analysis of technical texts to discourse analysis, and, more recently, to learner-centred approaches. This change is quite challenging and demanding for ESP teachers, in particular regarding the choice of effective teaching and learning methodologies and, consequently, the design of meaningful activities. Furthermore, it is also relevant to rethink educational processes to meet the students' needs, in particular given the unceasing digital transformation and its societal impact. In this scenario, the ubiquity of mobile-assisted language learning (MALL) was integrated in the design of a teaching and learning strategy, by using an Electronic Classroom Response System (CRS) within a game-based activity to learn Business English Terminology (BET). The activity was first tested in academic year 2014/15, with students enrolled in a Management undergraduate degree at ESTGA – University of Aveiro. Given the results of a preliminary study, the authors decided to undertake an empirical diachronic research (3 academic years), aiming at verifying if the game-based MALL strategy using a CRS promoted the students' learning success in what concerns i) the identification and use of business English (BE) acronyms and other abbreviations, and ii) the accurate integration of BET in written text. The teaching materials were validated by two former Management students and two specialists (one in ESP and another in English Didactics). A total of 67 students participated in this study and the results of the statistical data analysis – using Pearson's correlation coefficient and the Friedman test – confirm that the strategy supports the study of BE acronyms and other abbreviations, but their accurate integration in written text needs further study.

Keywords: business English terminology; English for Specific Purposes; mobile-assisted language learning; CRS; game-based MALL

1. Introduction

Nowadays, digital technologies are widely used for language learning in formal, non-formal and informal contexts. This promotes the intertwined development of language and digital competences, both identified by the European Commission as key in the promotion of lifelong learning, since their combination may boost (physical and virtual) mobility in a globalised

economy (Directorate-General for Education, Youth, Sport and Culture, 2018). Furthermore, these competences tend to promote employability because businesses increasingly require specialised professionals to be able to communicate and interact within international networks (Makowska, 2017).

The results of several studies (e.g. Kukulska-Hulme & Viberg, 2018; Wishart, 2018) indicate that the use of digital technology for learning may be advantageous "in terms of [learner] engagement, convenience, attainment and enjoyment" (Morris et al., 2016, p. 430) and most times requires minimal user support and training. This also applies to language learning with several authors pointing out favourable pedagogical implications for their use (Barcomb et al., 2017; Chang, 2018; Isbell et al., 2017; Kassem, 2018). As Sharifi et al. (2018) underline, "learners using computer-assisted tools in their English language courses generally demonstrated better learning performance than their peers who received only traditional face-to-face instruction" (p. 432).

Águeda School of Technology and Management – University of Aveiro (ESTGA) is a Portuguese Polytechnic Higher Education Institution whose mission is to prepare highly qualified professionals in technological, administrative and management areas. In order to ensure they have a solid foreign language proficiency that can support their future performance in highly-skilled, multilingual professional contexts, ESTGA's undergraduate degrees include courses of English for Specific Purposes (ESP). However, even though students are generally able to communicate in English, a considerable amount still struggles to use Business English Terminology (BET) accurately.

Based on these premises and scenario, in a previous study, a game-based activity using Electronic Classroom Response System (CRS) was designed and implemented, aiming at strengthening the students' in-depth learning of BET. Data concerning its operationalisation were collected and the results of an exploratory study unveiled that students perceive the use of mobile-assisted language learning (MALL) to learn English for Specific Purposes (ESP) as positive for the development of their language competence (Balula et al., 2015). Thus, the main objective of this paper is to verify if the data collected regarding the same strategy, over a timespan of three different academic years, confirm the results of the preliminary study.

2. Trends in ESP teaching

ESP emerged in the 1960s due to the development of world economy, technological development, and internationalization processes at various levels (Hutchinson & Waters, 1987). Richards and Schmidt (2010) define ESP as "a language course or program of instruction in

which the content and aims of the course are fixed by the specific needs of a particular group of learners" (p. 198). Consequently, in ESP teaching it is common to resort to methodologies and materials that are specific to the subject on which it focuses (Dudley-Evans & St John, 1998; Ramírez, 2015).

Historically, in the 1960s, approaches to ESP teaching were mainly grounded in the grammatical analysis of technical texts while in the 1970s – in discourse analysis. It was only in the 1980s that approaches started to be more learner-centred (Ramírez, 2015). The categorisation proposed by Hutchinson and Waters (1987) for the different approaches to teaching English (see Figure 1) has been often revisited, but still remains a reference today.

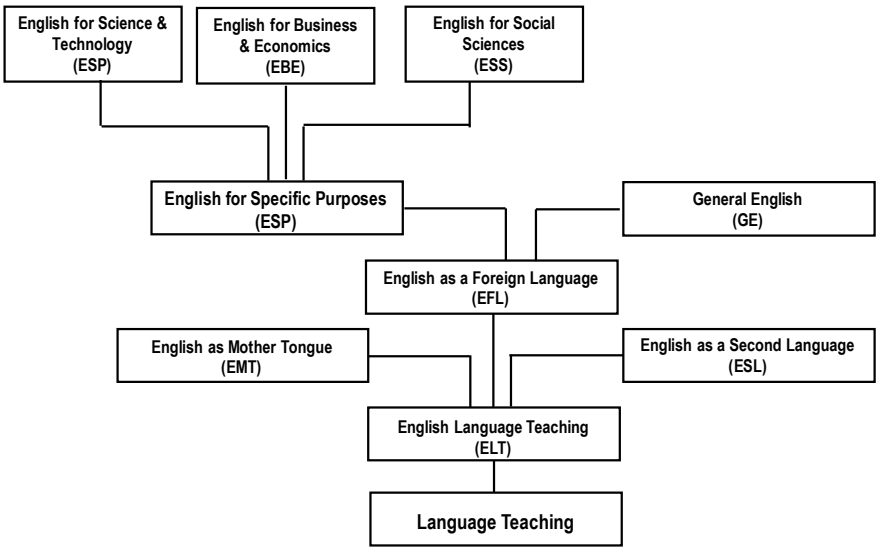

Figure 1. English Language Teaching Tree (Hutchinson & Waters, 1987, p. 17, adapted)

In addition to the categories presented in Figure 1, the authors also consider that each ESP branch should have two sub-categories added, namely English for Academic Purposes (EAP) and English for Occupational Purposes (EOP), with different specificities according to the area. Dudley-Evans and St John (1998) added a layer with the definition of the concept in terms of absolute and variable characteristics, as presented in Table 1.

Table 1. ESP characteristics (Dudley-Evans & St John, 1998)

ESP characteristics	
absolute	**variable**
• meets the specific needs of the learners; • makes use of the methodology and underlying	• the discipline is designed according to other specific disciplines;

activities of the discipline it serves; • focuses on the specific language needed to carry out these activities in terms of: grammar, lexicon, record, speech and genre.	• in teaching situations, you may use a different methodology from General English; • it may have several target audiences (adults, working professionals, secondary or tertiary learners, etc.), but with intermediate or advanced level in terms of language proficiency.

Similarly, in the last decades, several authors have developed the theoretical assumptions established by Hutchinson and Waters (1987), as well as their practical implications in various processes and contexts – e.g. Dudley-Evans and St. John (1998); Orr (2002); Belcher (2004); Richards and Schmidt (2010), Ramírez (2015); Haryati et al. (2019); Munir (2019); Lebedev et al. (2020). From a theoretical point of view, Belcher (2004) states that ESP teaching can fit into, or even intersect, three approaches:

- sociodiscoursal – in which the focus of pedagogical options is the textual gender theory (genre theory and genre-informed pedagogy), valuing the relationship between language, function and context;
- sociocultural – in which situated learning theories are emphasised, i.e. social interaction and collaboration, according to the culture and context of the proposed activities;
- sociopolitical – which fits into critical pedagogy, i.e. focuses on the development of critical awareness and thinking, taking into account social, economic, political, human and moral implications.

In either case, the pedagogical options associated with ESP teaching are quite challenging for the teacher. Thereof, it is important to stress that the role of teachers is highly demanding as it implies coordination with various interlocutors (Belcher, 2004; Haryati et al., 2019; Lebedev et al., 2020), in particular to:

1. undertake a needs analysis
2. organize the course

2.1. define pedagogical objectives and teaching/learning methodologies

2.2. design diversified activities

2.3. research/adapt/create materials that meet the needs of the area

2.4. define the process for evaluating the students' learning

Concerning the needs analysis, Haryati et al. (2019) stress that it is key to identify and assess the language forms that learners are expected to use whenever they are asked to understand and produce oral and written statements using ESP. It is from the results of this

process that the teacher can organise the whole curriculum unit, seeking to meet the present and future needs of learners.

As regards course organization, the results of the needs analysis should underpin the definition of the learning outcomes, teaching/learning methodologies, as well as activities and materials. Thus, ideally, their design/creation/selection should integrate/reuse elements of the teaching approaches of the discipline it serves. In this respect, studies also recall that ESP teachers should always assume themselves as specialists in the area of languages and linguistics, rather than the scientific area(s) in which they work (Lebedev et al., 2020). This implies that teachers have to be flexible to deal with different scientific areas, which are often unfamiliar to them at various levels (lexicon, record, speech, textual, genre, etc.). They also have to have good interaction and communication skills, for example: be able to ask for clarification from colleagues of other areas, to make a rapid response to change and to manage their interaction with new information, learners, colleagues, etc. (Haryati et al., 2019).

Concerning course resources, such authors as Munir (2015) recall that these should: i) allow for language to be worked on from a functional and contextualised perspective, ii) use realistic and authentic language, iii) promote the students' intentional use of language, orally and in writing, and iv) include different formats (text, image, video, audio, etc.), seeking to meet different learning profiles. Moreover, assessment of students should include both the learning process and the learning products through meaningful, diversified, context-based activities, i.e. take into consideration both their continuous improvement and their learning products (e.g. results in tests, oral presentations, etc.).

Rus (2019) underlines that there are advantages in using what he calls "authentic assessment and alternative assessment" (p. 371), as it enables learners' language competence to be assessed through activities very close to real scenarios. Some practical examples can encompass: portfolios, job interview simulations, oral presentations, technical reports, videos and interdisciplinary projects (Rus, 2019). Digital technology may also be an important means to create innovative teaching/learning/assessment resources to promote the interest of learners in the learning object(s), by opening up possibilities of contact with the real world. The integration of digital technology can thus enable the development of skills and the construction of new knowledge (individual and collective) in a more authentic, meaningful and sustainable way.

Moorhouse and Kohnke (2020) recognise that the "affordances and pedagogical benefits of technology in the English for Specific Purposes (ESP) and English for Academic Purposes (EAP) classrooms are widely acknowledged" (p. 1). Furthermore, Rus (2019) explains that the

use of digital technology may be paramount, since the use of multi-channel and multi-format resources can promote the students' motivation for learning. This assumption contributes to the proliferation of Computer-Assisted Language Learning (CALL), since it offers a multidisciplinary approach, crosscutting technology and pedagogy. In fact, the use of digital technology can enhance the needed proximity between ESP and other scientific areas in terms of teaching and learning strategies. These dynamics may have great impact on students' perception, especially as for the role of ESP within their future professional contexts, by contributing to raise their professional awareness and empowering them to be self-confident and to gain control over their performance in future real-life scenarios.

In the last decade, there has been a shift to Mobile-Assisted Language Learning (MALL), since it facilitates learning wherever and whenever one desires (Chang, 2018; Akayoğlu, 2019; Şad & Göktaş, 2014). The tendency is for most Higher Education students to own mobile devices and use them to access information and to communicate. Thus, the potential of mobile technology and Bring Your Own Device (BYOD) learning initiatives can contribute to reach an equilibrium between intrinsic and extrinsic motivation, i.e. between must-do and want-to-do (Bird, 2015). In what concerns classroom interaction, teachers often either direct questions to specific students or expect them to volunteer to answer them. In practice, this tends to imply that self-reliant, proficient students respond more spontaneously and promptly, whereas students that are less self-confident and skilled are 'put on the spot' (Moorhouse & Kohnke, 2020). In this respect, Akayoğlu (2019) states that "many studies in the field of CALL and MALL have reported on the effective nature of digital language learning environments for learner-centred language learning" (p. 22), by setting grounds to promote students' autonomy, active involvement, confidence and responsibility for their own (and, sometimes, collective) learning achievements, etc.

2.1. Game-based MALL

Nowadays, mobile solutions for language learning are being continuously developed and updated and their growing availability and user-friendliness has been translating into an increasing integration of MALL in educational contexts. Moreover, the results of several research studies underline educational advantages in its use, namely as to student's engagement, motivation and learning (Medina & Hurtado, 2017; Licorish et al., 2018; Blume, 2020; Chiang, 2020). Thus, the use of MALL can play an important part in the curiosity, focus and interest-generated engagement; the drive to engage and interact with learning (motivation)

and "the knowledge and skills that students attain that are directly attributed to their involvement and participation in the course" (learning) (Licorish et al., 2018, p. 7).

In some educational scenarios, MALL is also employed to explore "pedagogical approaches in which games are used to achieve educational outcomes through incidental learning" (Licorish et al., 2018, p. 2), i.e. game-based learning. In fact, the results of several research studies indicate that the key elements underpinning game-based teaching and learning strategies (e.g. playfulness and just-in-time feedback) tend to maximise the students' focus and sense of control (Plump & LaRosa, 2017; Licorish et al., 2018). Wichadee and Pattanapichet (2018) even emphasise that "the application of digital games can transform any contents that are boring or difficult like aspects of grammar or vocabulary to be interesting and easier to understand" (p. 89). Nonetheless, the effectiveness of game-based learning seems to depend on the students' perceptions of its attractiveness, accessibility, usefulness and quality (Medina & Hurtado, 2017; Plump & LaRosa, 2017; Licorish et al., 2018).

MALL implies the use of predetermined online teaching/learning materials and/or authoring programs, which frequently offer a do-it-yourself approach. Nowadays, teachers who have no knowledge of computer programming can already use them to generate pre-set activities for learners and most of them run on mobile devices. CRSs belong to this type of software and usually enable teachers to use a single platform to put forth learning materials, launch questions and discussions, poll students, provide student feedback, track attendance and automate grading. Some examples of CRSs are: *The Answer Pad* (https://app.theanswerpad.com/homepage.html), *Socrative* (https://socrative.com/), *Top Hat* (https://tophat.com/), *Quizizz* (https://quizizz.com/) and *Kahoot*! (https://kahoot.com/).

In a literature review undertaken by Fies and Marshall (2006), several authors report the benefits and shortcomings of CRSs "in terms of instructor and learner attitudes, instructor sensitivity to learner understanding, and learning outcomes" (p. 103). Wichadee and Pattanapichet (2018) as well as Plump and LaRosa (2017) underline that CRSs do not require extensive training and tend to be user-friendly. Kay and LeSage (2009) also emphasise that their use may enable the design of creative, interactive activities to boost student motivation through BYOD teaching and learning initiatives. The possibility of having anonymous or private participation may also be an advantage, once teachers can follow the students' progress without exposing them and they "are free to provide input without the fear of possible public humiliation, and without having to worry about more vocal students dominating the discussion" (Fies & Marshall, 2006, p. 106). Notwithstanding, other studies (e.g. Marklund & Alklind,

2016; Wichadee & Pattanapichet, 2018) state that a clear definition of the participants' role and tasks is paramount for the success of every teaching and learning strategy.

Finally, it is important to underline that CRSs by themselves are no more than tools and innovative teaching and learning processes result from overall pedagogical approaches (Nicol & Boyle, 2003; Fies & Marshall, 2006). Thus, the next section starts with a brief description of the teaching and learning strategy used – especially in what concerns the activities defined for the students – in which group-based approaches are combined with individual CRS use.

2.2. ESP teaching/learning: strategy design

The scope of activities that can be included in an ESP teaching and learning strategy is wide; nonetheless, the selected activities should articulate to achieve the defined learning outcomes, in this case, the development of in-depth understanding and (consequent) proficient use of BET. The strategy presented to the students is divided into three different types of activities, seen as complementary, namely:

- **activity 1** (in group) – the analysis of real, up-to-date, business-related news articles, resorting to online collaborative concept-mapping (using *CmapTools* – https://cmap.ihmc.us/);
- **activity 2** (individual and in group) – the discussion (orally and in writing) of BE online case studies (see http://businesscasestudies.co.uk/case-studies/by-topic/);
- **activity 3** (individual) – the identification and use of specific, technical terms and phrases in the scope of BE (using the CRS *Socrative* – https://socrative.com/).

As aforementioned, ESP teaching implies a close interaction with other scientific areas. Moreover, particularly in Higher Education, teaching and learning activities tend to be more effective when they encompass multifaceted, realistic challenges (Johnson et al., 2015). Hence, activity 1 results from the close articulation between the courses of Economics and ESP, in which the development of competences that crosscut both courses is articulated. As depicted by Melo and Balula (2015), in activity 1 students were organised in groups to develop different types of competences in the scope of both courses: cognitive competences (by using conceptual knowledge), functional competences (by putting into practice technical know-how) and personal competences (by developing their soft skills). In practical terms, the activity subdivides into three tasks, in which students are asked to:

1. select a recent news article from an English newspaper or magazine in the area of Economics;

2. write a report in Portuguese comprising a critical analysis of the news article, integrating the contents of Economics;
3. present and discuss the report orally in English (before both teachers) using an online collaborative concept-mapping tool (*CmapTools*) – which would include a) the selection of the news article; b) a brief summary of the news article; c) an analysis of the BET used; d) a critical analysis of the news article's content, focused on the theoretical framework studied in Economics.

In short, students were asked to develop tasks that implied the integration of high-level competences (in ESP and Economics) by operating on authentic, real-life cases, in which complexity is added through the need to articulate manifold theoretical concepts, information resources, as well as different languages. Furthermore, on the one hand, it was an effective way to prevent plagiarism, since the study object is 'fresh news' and the probability of having works that can be copied by students from the internet is very low (or even non-existent). On the other hand, it concurs to the development of students' critical thinking and analytic competences, focused on up-to-date events in their field of study.

In what concerns activity 2, several BE online case studies were selected in articulation with the Economics teacher to introduce and apply BET in context during classes. This was crucial to empower students to communicate accurately (conveying information, interacting/discussing) using ESP at various levels (lexicon, speech, textual genre, etc.).

This study focusses on activity 3, which operates upon a selection of BET, taken from business case studies and business documents (invoices, orders, quotations, etc.) in the areas of Economics, Marketing and Logistics. This clearly added value to the teaching and learning process, since it allowed students to contact directly with several online information sources in their field of study. It is important to underline that the BET addressed was selected based on the results of the needs analysis undertaken with colleagues from the different areas and was validated in terms of content and structure by two former Management students and two specialists – one in ESP and another in English Didactics.

3. Methodology

The teaching and learning activity presented above (activity 3) was first tested in academic year 2014/15 (2nd semester), with 1st year students enrolled in a Management undergraduate degree at ESTGA – University of Aveiro. Given the encouraging preliminary results of an initial exploratory study (see Balula et al., 2016), the authors decided to undertake an empirical diachronic research, for which a research timespan of three editions of the course was defined.

Hence, the main goal of this paper is to confirm the initial findings, i.e. to test the following hypotheses:

H1 The students' motivation to learn BET using a CRS, promotes their learning success in what concerns the identification and use of BE acronyms and other abbreviations.

H2 The students' motivation to learn BET using a CRS, has a significant impact on the students' accurate integration of BET when producing written texts.

3.1. Research design

The empirical study of this research was divided into three different phases – Familiarization, Use and Evaluation (Balula et al., 2015), as presented in Table 2.

Table 2. Phases of the empirical study

Phases	Description
1 – Familiarisation	a) Understanding how to use the CRS (app installation, etc.)
	b) Testing the CRS (test quiz)
	c) Understanding feedback tools
2 – Use	Quizzes (8 weeks – Q1 to Q8)
3 – Evaluation	Evaluation questionnaire

In *Phase 1 – Familiarisation*, the teacher provided instructions regarding the app's installation and use, as well as presented the tools' functionalities. This took place in a face-to-face session, and, in the end, the teacher demonstrated how their global performance would be analysed. *Phase 2 – Use* (see Table 2) encompassed answering 8 online quizzes, which aimed at the identification and use of BE acronyms and abbreviations, as well as the use of BE terms and phrases in context. The quizzes included 2 multiple-choice and 2 short-answer questions of increasing complexity (from Q1 to Q4), and were answered by the students following a game-based approach. The BET included in the quizzes answered throughout the semester was never repeated, i.e. the idea was not to adopt a 'drill and practice' strategy, but to motivate students to develop their own learning and consolidate their BET learning. It was also crucial to define, from the beginning, a fixed schedule to answer the quizzes, since it allowed students to answer them anywhere (in class or not). The CRS used was *Socrative*, in particular because its free version includes game-based elements (i.e. *Space race*) and it allows for downloading the students' answers.

Finally, in *Phase 3 – Evaluation* (see Table 2), participants answered a short questionnaire, which included questions focusing on usability, usefulness and motivation issues, as to their experience with game-based MALL to learn BET.

3.2. Participants

The participants of this study were first-year students enrolled in the ESP course of a Management undergraduate degree at ESTGA – University of Aveiro. From the total of 67 students that participated in this study, 42% (n=28) were male and 58% (n=39) were female. They were between 18 and 30 years old and 13% (n=9) were working-students. Participation was not mandatory and data collected were anonymised.

3.3. Data collection and analysis

Socrative allows for dynamic reporting on students' performance over time and regarding different topics. This functionality – *Socrative reports* (.xls files) – was used to export data for the three academic years included in this study. Afterwards, data were treated externally by means of descriptive statistical analysis and the Pearson coefficient was also analysed. The latter was the statistical method used to determine the degree of linear-correlation between the variables considered, i.e. how well the line regression (trend line) represented the data (using *Microsoft Excel*).

In the first analysis, the Pearson correlation coefficient was computed and the non-response statistical significance was assessed in order to measure the strength of the linear association between percentages of non-responses and the order of quizzes. In the second stage, to test the validity of H1 and H2, the Friedman test was used to compare the correct answer rates between consecutive years, to detect differences in correlated samples. Finally, the simple linear regression was used to measure the strength of linear association between the rates of (in)correct answers collected in the eighth-quiz sequence per academic year.

4. Findings and discussion

As aforementioned, the first analysis undertaken regarded the correlation between the non-response rate and the increasing complexity of questions for which the Pearson correlation coefficient was computed. Notice that the Pearson coefficient was adopted instead of the Spearman coefficient since normality was not rejected in all samples considering a 0.05 level of significance. Every Pearson correlation coefficient found for both the quiz response datasets

(i.e. the identification and use of BE acronyms and other abbreviations – from now on referred to in this paper as *Memory-dataset* – and the students' accurate integration of BET when producing written text – from now on referred to as *Meaning-dataset*) are not statistically significant ($p>0.05$). This shows that the non-response rates did not vary significantly in any of the analysed academic years (Y), and, thereof, the strategy does not seem to have a direct impact on the participants' non-responses. In other words, the non-response rate does not seem to be determined by the quizzes themselves, which may indicate that they tended to match the students' expectations in terms of structure, content and difficulty level. This is very important, since it underpins the liability of the results of the procedures undertaken to test the hypotheses defined. Moreover, the analysis of the data collected in Phase 3 (Evaluation) also shows that 100% of the participants also considered the *Socrative* platform user-friendly.

In order to assess hypotheses H1 and H2, after applying the Friedman test the first conclusion reached was that the correct answer rates in the 8 quizzes have different patterns across the three academic years, only as to the use and identification of BE acronyms and other abbreviations (memory $p=0.008<0.05$). The results of this test unveiled that, statistically, there are clear differences in the three matched samples concerning the *Memory-dataset*. In this case, a *post hoc* Wilcoxon signed-rank test was conducted, applying a Bonferroni correction, which revealed a significance level of $p<0.017$. There were no significant differences between Y1 and Y2 ($p=0.711$); however, there was a statistically significant increase in the correct answer rate from Y1 to Y3 ($p=0.008$) and from Y2 to Y3 ($p=0.016$).

An analysis of the evolution of the correct answer rates from Quiz 1 to Quiz 8 by academic year was undertaken using the simple linear regression model in order to identify and quantify the quiz-to-quiz evolution of the correct answers in each academic year. Table 3 presents the regression modelling results for the *Memory-dataset* scenario.

Table 3. Simple regression modelling results – Memory-dataset

Academic year (AY)	Slope (p-value)	Determination coefficient
1	0.051*** (0.009)	70.9%
2	0.056** (0.012)	67.8%
3	0.050** (0.012)	67.8%

*** statistically significant at a level of 0.01; ** statistically significant at a level of 0.05

As to the *Memory-dataset*, the regression model is statistically significant in the three academic years. In other words, in Y1 there was an increase of 5.1 percentage points in the rate of correct answers between consecutive quizzes ($r^2=70.9\%$); in Y2 the rise was about 5.6

percentage points between quizzes (r^2=67.8%); finally, in Y3 there was a growth of 5.0 percentage points (r^2=67.8%), as depicted in Table 3.

As regards H1 (*Memory-dataset*), the results of individual tests undertaken for each academic year point out that the participants improved their performance from Quiz 1 to Quiz 8, i.e. the correct answer rates increase was statistically significant. Thus, there seems to be evidence that the use of CRSs is efficient and effective to cement the students' learning as to the use and identification of BE acronyms and other abbreviations. Furthermore, in Phase 3 (Evaluation) a great majority of the participants considered the strategy useful, especially for learning BET – i.e. 96% (n=22) in Y1, 91% (n=21) in Y2 and 100% (n=21) in AY3 edition. Besides, most of the participants also considered the strategy galvanising, once they felt more motivated to review the topics studied throughout the semester – i.e. 65% (n=15) in Y1, 87% (n=20) in Y2 and 90% (n=19) in Y3.

Concerning H2 (*Meaning-dataset)*, the results of the Friedman test were not similar to those found for the *Memory-dataset*, since no statistical differences were detected (p=0.355>0.05). Nonetheless, an analysis of the evolution of the correct answer rates from Quiz 1 to Quiz 8, by academic year was also undertaken using the simple linear regression model. The regression modelling results for *Meaning-dataset* scenario are displayed in Table 4.

Table 4. Simple regression modelling results – Meaning-dataset

Academic year (AY)	Slope (p-value)	Determination coefficient
2014/15	-0.029 (0.286)	18.6%
2015/16	0.044** (0.031)	56.6%
2016/17	0.008 (0.741)	2.0%

** statistically significant at a level of 0.05

As presented in Table 4, as regards the *Meaning-dataset*, the results of the regression model are statistically significant only in AY2. In fact, in Y1 and Y3 the slope parameter is not statistically significant (p=0.286 and p=0.741, respectively) with very low determination coefficients (r^2=18.6% and r^2=2.0%, respectively). In Y2 the increase in the correct answer rate was estimated at 4.4 percentage points between quizzes (r^2=56.6%). Although there is a positive evolution throughout Y2 in a quiz-to-quiz analysis, the increase is lower than the values estimated for the *Memory-dataset*.

Regarding the results of the procedures used to test H2, they do not justify the claim that the students' motivation to study BET using a CRS has a significant impact on the students'

accurate integration of BET when producing a written text, since the correct answer rates' increase was not statistically significant (from Quiz 1 to Quiz 8).

Summing up, the results of this study confirm the preliminary results of the exploratory study developed for the 2014/15 academic year (Balula et al., 2016). In other words, they confirm that the students' motivation to learn BET with the use of a CRS promotes their learning success in what concerns the identification and use of BE acronyms and other abbreviations. However, the activity does not prove to be effective in students' accurate integration of BET when producing written texts. This is reinforced by the students' results in their final written test, since in the years before implementing the activity the classes' correct answer rate concerning BET identification and use was, on average, 34%, and since then it was between 66% and 79%.

7. Conclusion and implications for future

Digital transformation is impacting learning processes worldwide and mobile devices are bound to stay, not only for informal learning, but also for formal education. For the particular case of ESP teaching and learning, there are already manifold digital tools to support, for instance, multilingual translation; nonetheless, these are only instrumental and do not fully replace or address teaching/learning. There are also many studies that focus on different tools used to assist the teaching and learning process, however, few provide evidence as regards the impact of their use in the language learning process. Furthermore, when designing teaching/learning strategies, it is crucial to put forward authentic and attractive activities so as to successfully bridge in-class and out-of-class learning. To achieve that, it is essential to provide just-in-time, meaningful feedback to learners, to promote continuous learning, as these are of utmost importance in the development of foreign language competence.

The use of MALL to approach BET makes it possible to poll students, track attendance, provide formative and summative feedback as well as grade results, in real time and online. The strategy used also promoted the participation of working-students and other regular students that could not attend classes and showed that having real-time classroom analytics has a positive impact on the students' learning. Besides, the activity was not considered time-consuming – neither for the teacher nor the students – and it promoted the students' intrinsic motivation to study the subject matter. Additionally, because the activity was assumed as a game, it fostered positive competition among students. Students sometimes even called the teacher's attention to the fact that it was 'time to BET', clearly assuming it as a moment to take action promoting active learning.

Finally, the results of this study provided clear evidence that approaching BET using a game-based MALL approach can actually facilitate foreign language learning, especially when it comes to terminology. Nonetheless, the use of a CRS to promote students' language competence with the aim of the integration of BET in written text still requires further research. For this purpose, and also to address the students' listening and speaking skills, the integration of audio and video functionalities are to be considered in future studies.

In what concerns limitations of the present study, even though this was a diachronic study, it involved a reduced amount of participants, all from the same degree and Higher Education institution. Besides, one of the researchers was the students' teacher, which somehow may have influenced the students' performance. Thus, further research with a wider group of students (from different institutions and/or with different teachers) is needed to confirm whether the results of this work may be generalised.

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ONLINE ENGLISH FOR ACADEMIC PURPOSES INSTRUCTION IN THE CONTEXT OF IRAN: EXPLORING THE INSTRUCTOR ELEMENT

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Abstract

Online learning has become a highly effective tool for many language learning institutions and educational environments. However, very limited attention has been directed towards the teacher element in online learning environments in ESP/EAP instruction. To fill this gap, this study investigated the attitudes of 91 Iranian EAP instructors towards the implementation of online EAP instruction. A mixed-methods design was employed in this study, with both semi-structured interviews and questionnaires used to examine the participants' perspectives. The findings of the study revealed that the majority of the participants hold positive attitudes towards the implementation of online EAP instruction while they are fully aware of the challenges and obstacles to the implementation of online EAP instruction in the Iranian context. Several limitations, including the lack of online EAP teacher training, the lack of facilities for online learning implementation, low digital literacy levels of instructors and students, and the lack of online instruction infrastructures were identified and reported. The participants also pointed out several practical measures and suggestions in order to pave the way for incorporating online EAP instruction which can be considered by EAP policy-makers and course designers. The study can have practical and theoretical implications for the renewal of EAP instruction in Iran and in other countries.

Keywords: attitudes; challenges; digital literacy; EAP; EAP instructors; online instruction

1. Introduction

The extensive use of technology in educational contexts and environments has attracted the attention of a great number of educational experts and researchers (Ames, 2017; Choy & Ng, 2015; Davis, Lavin, & Korte, 2009; Molebash, 2004; Pepe, 2016; Williamson & Muckle, 2018). Likewise, a plethora of studies have been directed towards the attitudes of students and teachers towards the use of technology in education as well as its challenges and pedagogical opportunities (Lowerison, Sclater, Schmid, & Abrami, 2006; Olusakin, 2008; Parai, Shenoy, & Loh, 2015; Shuell & Farber, 2001; Tamim, Lowerison, Schmid, Bernard, Abrami, & Dehler, 2008). Thus, "educational technology is the act of systematically transforming scientific

knowledge into application" (Fidan, 1986, p.179), which "includes planning, designing, developing and implementing learning-teaching processes" (Alkan, 1997, p.14).

Similarly, the use of technology for language learning has become an interesting area of research (Gómez Flórez, Pineda, & Marín García, 2012; Kourieos & Evripidou, 2013; Kung & Chuo, 2002; Liton, 2015; Mollaei, & Riasati, 2013). Furthermore, there has been a growing interest in the implementation of Computer-Assisted Language Learning (CALL) and the use of technology in English for Academic Purposes (EAP) courses (Alavi, Borzabadi, & Dashtestani, 2014; Arn´o, 2012; Dashtestani & Stoikovic, 2016; Jarvis, 2009; Plastina, 2003). In the same vein, the use of technology in EAP instruction has opened tremendous opportunities for the inclusion and development of new and efficient learning resources (Butler-Pascoe, 2009). The inclusion of online learning in the EAP/EAP curriculum has attracted the attention of many EAP/EAP researchers and scholars (Sanz & Sáez, 2016). More specifically, online learning would offer a wide range of considerable benefits and merits for EAP learning, including opportunities for autonomous learning, students' control over their own language learning developmental process, the possibility of self-monitoring, and control over learning styles (Sanz & Sáez, 2016).

Nowadays, online learning is a popular instructional approach and there has been a tendency to implement it among learners and instructors (Dashtestani, 2014: Dawley, 2007; Fish & Gill, 2009). Moreover, language teaching experts have shown a positive attitude towards online learning of English as a foreign language (EFL) due to the benefits and affordances that online learning has provided for EFL learning and teaching contexts (Shin & Son, 2007). Therefore, the implementation of online learning courses would enhance the learning process for students and provide considerable pedagogical options and benefits for EFL instructors.

The present study attempted to provide insights into Iranian EAP instructors' attitudes towards and acceptance of online EAP courses. Furthermore, the perceived challenges and limitations of the implemention of online EAP instruction were explored and discussed. Based on the suggestions provided by the EAP instructors, the study aimed to propose a couple of measures in order to facilitate the integration of online EAP instruction in the context of Iran.

2. Literature review

In particular, numerous benefits of online learning for EFL and ESP/EAP contexts have been reported in previous studies. For example, Sanz & Sáez (2016) reported that EAP students had a high level of satisfaction with the content of an online EAP course. The students showed an

improvement in the learning of the content and technical vocabulary through the online medium of the EAP course. In another study, Chen (2017) investigated the attitudes of EAP learners towards online academic English tutoring. The majority of the participants showed positive attitudes towards online support and believed that the online support was more effective than traditional techniques of learning. Tuomainen (2016) conducted a study of EAP students' perceptions of a blended learning course of academic writing and presentation skills. It was revealed that the EAP students held positive attitudes towards the flexibility and convenience of the blended learning EAP course. Based on the results of that study, recommendations and suggestions on how to include blended learning in EAP instruction were presented and discussed. In her study Ene (2015) analysed the online learning needs of Chinese EAP students. She reported that the EAP students needed more interactive and collaborative approaches to EAP online instruction. It was also suggested that the students needed more technical and cultural scaffolding in order to be involved in the process of learning academic writing.

Even though there are some studies investigating the attitudes of EAP instructors towards online learning (Benson, Anderson, & Ooms, 2011; Dashtestani, 2014; Koo, 2008; Puteh, Semarak, & Lumpur, 2002), EAP instructors' attitudes towards online learning of EAP have not been researched in a systematic way so far. The results of the studies into EFL instructors' attitudes towards online learning have shown the generally positive attitudes of the majority of instructors in spite of the presence of some challenges such as instructors' low levels of digital literacy or a lack of high-quality online learning facilities (Dashtestani, 2014). In the EFL context, Dashtestani (2014) assessed Iranian EAP instructors' attitudes towards online EAP instruction. The majority of Iranian EFL instructors had positive attitudes towards online learning and they mostly favored the implementation of blended learning. Several limitations and challenges, including instructors' low online teaching expertise, low-quality online learning facilities and equipment, as well as cultural resistances to online learning, were also reported.

EAP is "the teaching of English with the specific aim of helping learners to study, conduct research or teach in that language" (Flowerdew & Peacock, 2001, p. 8). As argued previously, online learning can be a beneficial learning and teaching mode for both instructors and learners in EFL and EAP contexts. Despite the abundance of research on students' attitudes towards online learning in EFL and EAP contexts, very limited research has been directed towards EAP instructors' attitudes towards online instruction both in Iran and other countries. Therefore, this study is an attempt to fill in this gap and pave the way for a more

comprehensive understanding of online learning and teaching from the perspectives of EAP instructors.

3. Methodology

3.1. Research questions

To achieve the aims of the study, the following research questions were formulated:

1. What are Iranian EAP instructors' attitudes towards the online instruction of EAP?
2. What are Iranian EAP instructors' perspectives of the limitations of online instruction of EAP?
3. What are Iranian EAP instructors' perspectives of measures to be taken to include online EAP instruction in Iranian universities?

Since the aim of the study was to investigate the perceptions of Iranian EAP instructors of the challenges and merits of online EAP instruction, a triangulation of methods and instruments, including interviews and questionnaires, was considered in order to collect qualitative and quantitative data. Triangulation is a common technique of data collection in EAP research methodology which enables the researcher to cross-check the data and confirm or reject part of the data based on constant comparison and contrast.

3.2. Participants

A total of 91 EAP instructors participated in this study. The participants were chosen from 10 universities from three provinces of Iran, including Tehran, the capital city. Cluster sampling was employed in order to enrich the representativeness of the study. More specifically, 29 instructors were chosen from the engineering faculty, 41 participants were from the social sciences faculty, 11 instructors were from the faculty of medicine, and 10 instructors were recruited from the faculty of arts. 56 EAP instructors held a master's degree and the rest (35) were Ph.D. holders. The instructors had an average of 8.4 years of teaching EFL and an average of 5.1 years of teaching EAP. The average age of the participants was 43.3. All the instructors participating in the study had an experience of teaching in online courses prior to the study and were aware of the features of online learning. For the interviews, the instructors were invited to take part in the interviews and a total of 32 EAP instructors accepted the invitation to participate in the interview phase of the study.

3.3. Instrumentation and data processing

The first instrument of the study is an adapted version of a questionnaire which was used in Dashtestani (2014). The questionnaire was designed to assess Iranian EAP instructors' attitudes towards the implementation of online learning. It included 31 items and three sections. The first section of the adapted questionnaire assessed Iranian EAP instructors' attitudes towards the online instruction of EAP, the second section elicited Iranian EAP instructors' perspectives of the limitations of online instruction of EAP, and the last section dealt with EAP instructors' perspectives of measures to be taken to include online EAP instruction in Iranian universities. A high range of Cronbach's Alpha coefficients (0.87-0.92) was reported, which indicates reliability of the tool. Moreover, exploratory factor analysis was run to estimate the construct validity of the questionnaire and an acceptable construct validity rate was reported (Dashtestani, 2014). For the purposes of this study, the questionnaire was piloted with 10 EAP instructors before conducting the study and it was revealed that the questionnaire was suitable for the context of EAP. The content of the questionnaire was revalidated by a panel of three professors of TEFL who were all well-known experts and researchers of EAP/EAP.

The second instrument of the study was a semi-structured interview. The questions of the interview were adapted from Dashtestani (2014). The same panel of three professors of TEFL who were all experts and researchers of EAP/EAP commented on the suitability of the questions for the ESP/EAP context and established the content validity of the interview questions. Each interview took 30-45 minutes. The questions asked were also piloted with five EAP instructors prior to the study. More specifically, the questions of the interview were in line with the aims of the questionnaire in order to provide triangulated results. The questions of the interview dealt with such issues as the instructors' attitudes towards the benefits and limitation of online EAP instruction, strategies to adopt in order to implement online EAP courses, and EAP instructors' awareness of their level of online teaching skills.

As for the ethical considerations of the study, consent forms were distributed among the participants and extreme caution was exercised to ask the participants to take part in the study on a voluntary basis. Moreover, the participants were ensured that they would remain anonymous in all stages of study conduction and writing the report of the study. Issues regarding confidentiality were also taken into account.

The data of the questionnaire were analyzed and shown in terms of the mean and standard deviation for each item. SPSS version 16 was used for the analysis of the data. All the interviews were tape recorded with the permission of the participants. The data of the interviews were transcribed and a thematic content analysis was performed by two coders

based on a coding scheme. The frequent themes were chosen and reported afterwards. As for the ethical considerations of the study, issues related to anonymity and confidentiality of the data were explained to the participants. Also, consent forms were utilized for each participant of the study.

3.4. Results

3.4.1. Iranian EAP instructors' attitudes towards the online instruction of EAP

Questionnaire findings

The first section of the questionnaire dealt with the Iranian EAP instructors' attitudes towards the online instruction of EAP. This section was based on five-point Likert items from strongly disagree to strongly agree. As Table 1 illustrates, some perceived benefits of online EAP instruction include access to up-dated materials, autonomy of students, students' motivation, time efficiency of online courses, the use of authentic materials, opportunities for international communication, accessibility for students, learner-centeredness, and the use of different types of materials.

Table 1. Iranian EAP instructors' attitudes towards the online instruction of EAP

	Mean	SD
Updated materials can be used in online EAP courses	4.27	1
Students will be more autonomous in online EAP courses	4.08	0.86
Online EAP courses enhance students' motivation	4.18	0.81
Online EAP courses are time-efficient	4.69	0.97
Authentic materials are used in online EAP courses	4.04	0.99
Learners can communicate internationally in online EAP courses	4.22	1.1
Online EAP courses are based on learner-centered approaches to teaching	4.18	0.79
Online EAP courses are easily accessible to students	4.01	1.12
Multimedia can be used in online EAP courses	3.76	0.90
Various types of materials can be used in online EAP courses	4.38	0.8
Online EAP courses are cost-effective	3.16	1.2
Online EAP courses will promote students' and instructors' computer competence	3.01	0.7

Online EAP courses are in line with experiential approaches to learning	2.56	0.67
Online EAP courses provide equal opportunities for learners to learn English	2.77	1.02
Online EAP courses promote collaboration among students	2.98	1
Expansive feedback can be provided for students in online EAP courses	3.1	0.77
Online EAP courses are easy to be implemented	3.4	1.1
Online EAP courses are more interactive than traditional courses	2.2	1.31

Interview findings

As for the interview results, Table 2 shows that the EAP instructors perceived some benefits of online EAP instruction as important. These perceived benefits include socialization of students into international academic communities, time-efficiency, student autonomy and responsibility, ease of teaching, opportunities for the use of electronic resources, and fostering instructors' digital literacy. In general the results of the interviews are in line with the results of the questionnaires.

Table 2. Iranian EAP instructors' attitudes towards the online instruction of EAP

Themes	Frequency of the Theme (%)
Theme 1: Online EAP courses can motivate students to join international academic communities	68.75
Theme 2: Online EAP instruction is time-efficient for EAP students who are very busy	87.5
Theme 3: Online EAP can make EAP students autonomous and responsible for their learning	81.25
Theme 4: Online EAP courses are easier to be taught for EAP instructors	62.5
Theme 5: Electronic resources can be more easily used in online EAP courses	84.38
Theme 6: EAP instructors can improve their digital literacy in online courses	65.63

3.4.2. Iranian EAP instructors' perspectives of the limitations of online instruction of EAP

Questionnaire findings

The second section of the questionnaire examined Iranian EAP instructors' perspectives of the limitations of online instruction of EAP. This section was based on five-point Likert items from strongly disagree to strongly agree. The EAP instructors pointed out some limitations of EAP instruction such as a lack of online facilities in EAP courses and students' lack of necessary Internet-based skills (Table 3).

Table 3. Iranian EAP instructors' perspectives of the limitations of online instruction of EAP

	Mean	SD
There is a lack of online facilities in EAP courses	4.87	0.7
Students lack the necessary Internet-based skills to participate in online ELT courses	4.35	0.93
There are cultural resistances to the implementation of online EAP teaching	2.84	0.82
There is a lack of interaction in online EAP courses	3.02	1
Students do not have positive attitudes towards online EAP courses	2.2	0.8
Online EAP courses are just appropriate for autonomous students	2.51	0.94
There is not much instructor supervision over students in online EAP courses	3.00	1.1
Online EAP courses are not responsive to students' needs	1.78	0.76
Online EAP teaching is costly to be implemented in EAP contexts	1.2	0.92
Online EAP courses place a lot of demands on EAP instructors	1.61	0.9
Online EAP courses are not motivating for students	1.12	0.79

Interview findings

In interviews, the EAP instructors reported several limitations and challenges to the implementation of online EAP instruction in Iran. These limitations include EAP instructors' lack of online teaching skills to teach in online EAP courses, EAP instructors' low levels of digital literacy, a lack of attention of EAP curriculum planners to include online instruction,

a lack of teacher training for online EAP instruction, the absence of technological facilities for online instruction, and a lack of long-term educational planning for EAP instruction (Table 4).

Table 4. Iranian EAP instructors' perspectives of the limitations of online instruction of EAP

Themes	Frequency of the Theme (%)
Theme 1: EAP instructors' lack of online teaching skills to teach in online EAP courses	90.63
Theme 2: EAP instructors' low levels of digital literacy	84.38
Theme 3: Lack of attention of EAP curriculum planners to include online instruction	93.75
Theme 4: Lack of teacher training for online EAP instruction	81.25
Theme 5: Absence of technological facilities for online instruction	96.87
Theme 6: Lack of long-term educational planning for EAP instruction	75

3.4.3. Iranian EAP instructors' perspectives of measures to be taken to include online EAP instruction in Iranian universities

Questionnaire findings

The third section of the questionnaire assessed Iranian EAP instructors' perspectives of measures to be taken to include online EAP instruction in Iranian universities. This section was based on five-point Likert items from 'strongly disagree' to 'strongly agree'. The participants strongly agreed or agreed on a couple of measures, including that computer-based and online facilities should be improved in EAP courses, students and teachers should receive training on online computer literacy skills, online EAP courses should be combined with face-to-face EAP courses, EAP teachers should receive training on online EAP teaching methodologies and principles, and online EAP courses should replace traditional EAP courses (Table 5).

Table 5. Iranian EAP instructors' perspectives of measures to be taken to include online EAP instruction in Iranian universities

	Mean	SD
Computer-based and online facilities should be improved in EAP courses	4.81	0.9
Students and teachers should receive training on online computer literacy skills	4.78	0.73
Online EAP courses should be combined with face-to-face EAP courses	4.2	0.95
EAP teachers should receive training on online EAP teaching methodologies and principles	4.4	1
Online EAP courses should replace traditional EAP courses	4.00	0.79

Interview results

The interview results revealed some strategies and measures proposed by instructors for online EAP teaching. The EAP instructors referred to some techniques, including the use of online EAP learning teacher training courses for EAP teachers, fostering EAP teachers' online teaching skills, raising EAP students' awareness about the benefits of online learning of EAP, holding digital literacy training courses for EAP students and teachers, preparing the infrastructures of online instruction by EAP decision-makers and course designers, and the inclusion of high-quality online learning facilities for EAP teachers and students (Table 6).

Table 6. Iranian EAP instructors' perspectives of the limitations of online instruction of EAP

Themes	Frequency of the Theme (%)
Theme 1: Inclusion of online EAP learning teacher training courses for EAP teachers	84.38
Theme 2: Fostering EAP teachers' online teaching skills	78.13
Theme 3: Raising EAP students' awareness about the benefits of online learning of EAP	71.88
Theme 4: Holding digital literacy training courses for EAP students	62.5
Theme 5: Holding digital literacy training courses for EAP students	68.75
Theme 6: Preparing the infrastructures of online instruction by EAP decision-makers and course designers	75

Theme 7: Inclusion of high-quality online learning facilities for EAP teachers and students	87.5

4. Discussion

This study was an attempt to evaluate the possibility of implementing online EAP instruction from the perspectives of EAP instructors. Several challenges and proposed measures have been provided by the EAP instructors which can be used by decision-makers and course designers of EAP to offer more flexible and efficient modes of learning. The results of this study showed that Iranian EAP instructors hold positive attitudes towards online EAP instruction. This finding is in line with the previous research which reported the positive reactions of EFL teachers towards the implementation of online instruction (Benson, Anderson, & Ooms, 2011; Dashtestani, 2014; Koo, 2008; Puteh, Semarak, & Lumpur, 2002). This finding would imply that Iranian EAP decision-makers are not fully aware of the attitudes, needs, and preferences of EAP instructors. Including online learning features and options in EAP courses can enhance the quality of pedagogical practices of EAP teachers and result in a more needs-based approach to EAP course design. EAP course designing is dependent on the needs, styles, and preferences of the learners and teachers. It is recommended that more precise and rigorous needs analysis projects on the topic of online EAP instruction be conducted in order to have a more comprehensive and transparent picture of the needs and requirements of all Iranian EAP stakeholders.

More specifically, the EAP instructors participating in this study reported the benefits of online EAP instruction such as access to up-dated materials, autonomy of students, students' motivation, time efficiency of online courses, the use of authentic materials, opportunities for international communication, accessibility for students, learner-centeredness, and the use of different types of materials. This issue suggests that despite the fact that EAP instruction in Iran is based on traditional and conventional approaches to language teaching, the majority of instructors are well-aware of the merits and advantages that technology use can provide for them. Teachers play a pivotal role in all curriculum planning and development activities. In order to follow a bottom-up or interactive curriculum development and listen to the voice of teachers, who are actively involved with the realities of EAP students' learning, policy makers and course designers should take the perceptions and beliefs of EAP teachers into account and plan EAP courses based on the realities of the EAP context of Iran.

Even though the participants' attitudes were generally positive, there exist several impeding factors which might disappoint and discourage Iranian EAP instructors from echoing

their voices and expressing their online EAP instruction perspectives. One important obstacle is the lack of online EAP instruction facilities at Iranian universities. A serious lack of facilities for the implementation of online language learning was also reported in another study based in the context of Iran (Dashtestani, 2014). Given the rapid speed of technology inclusion in a wide range of educational institutions and universities of other countries, it is highly important to remove pragmatic obstacles and provide the required infrastructures for successful implementation of online EAP instruction in the Iranian EAP context. Normally, teachers should not become nervous or disappointed due to the absence of relevant technological equipment in computer-assisted language learning and online learning courses.

The other significant challenge which was perceived by the majority of EAP instructors was the need for online EAP learning teacher training. It was very interesting that the instructors were aware that their pedagogical skills were not at an acceptable level for dealing with the challenges of online EAP courses. The inclusion of any technology means that pertinent pedagogical, assessment, and technical skills should be taught by means of teacher training courses. Participating in online EAP teacher training courses can improve Iranian EAP instructors' confidence and knowledge of teaching online EAP courses. These courses can have a direct influence on the attitudes of EAP instructors and help them understand the benefits and challenges of online instruction more effectively and comprehensively.

Similarly, the participants pointed out that both EAP instructors and students need to enhance their digital literacy levels if online EAP courses are going to be incorporated in the future. Digital literacy plays a remarkable role in preparing students and teachers for the appropriate use of technology. Apparently, future research can deal with online learning and teaching skills and competencies which are required and essential in the EAP context of Iran. After identifying these online learning and teaching skills, specific digital literacy courses based on the demands of online EAP courses in Iran should be planned and considered by educational planners and course designers of EAP.

5. Conclusion

The study offered some suggestions and measures to be considered to implement online EAP instruction in the context of Iran. The strategies proposed by the participants seem to be appropriate to eliminate the limitations and obstacles reported previously. It is essential that EAP supervisors and course planners pay specific attention to the comments and expert recommendations of EAP instructors. Without resorting to EAP teachers and students, it is not possible to design tailored EAP courses at the university level. Most teachers have a sound

understanding of the problems, challenges, and opportunities regarding learning and thus considering their role in the course design process can be very promising and fruitful. Therefore, it is suggested that EAP course designers establish more effective communication with EAP teachers in order to perceive EAP educational and instructional realities.

The study also paves the way for future studies examining the digital literacy levels of EAP students and teachers. Furthermore, the pragmatic challenges and barriers need to be investigated and accommodated in the future. Research should also be directed towards investigating other EAP stakeholders' attitudes and perceptions of online EAP instruction. Policy-makers, course designers, educational supervisors, and all individuals who are involved in the implementation and planning of EAP courses can provide insightful and valuable information regarding the current challenges and potentials of online EAP instruction in Iran. The results of this study might be of importance to many other similar contexts in other countries. Online EAP instruction is a highly interesting area of investigation, however very limited research has been carried out to identify the relevant opportunities and challenges.

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HOW EFL TEACHER TRAINEES IN A TESOL GRADUATE PROGRAM INTEGRATE TOOLS AND PLATFORMS INTO TEACHING EAP

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Abstract

This project attempts to measure how teachers in a TESOL graduate program practically employ technology to teach English for Academic Purposes (EAP). Determining how teachers in training employ technology in teaching is difficult as one first needs to determine an instrument that can track evidence of how teachers envision combining technology with teaching EAP concepts in their teaching environments. A teacher training activity that can also be used as an instrument to measure how teacher trainees use or envision using technology to teach is student generated teaching suggestions (SGTSs), an activity that asks teacher trainees to develop and post teaching suggestions related to weekly course readings to a Moodle forum. If the SGTSs relate to technology, this activity can also be used to develop and measure technological, pedagogical, and content knowledge (TPACK). Utilizing a longitudinal research design, SGTSs that employed technology to teach EAP posted in a number of master's in TESOL courses over a three-year period are presented and analyzed to determine how teacher trainees envisioned implementing technology in their teaching, the value of asking teachers to make SGTSs related to teaching with technology, the implications of their suggestions concerning teaching EAP with technology, and ways to improve the activity to better develop TPACK in student teachers.

Keywords: digital learning; English for Academic Purposes; student-centered learning; teacher training; TPACK

1. Introduction

Teachers' incorporation of technology into English for academic purposes courses (EAP) courses is fraught with complexity. Successful implementation of technology requires teachers to be knowledgeable of the technology they wish to employ (technological knowledge), the EAP content they wish to teach (content knowledge), as well as the productive ways to convey EAP concepts in their given teaching environments (pedagogical knowledge), otherwise known as technological, pedagogical and content knowledge (TPACK; Mishra & Koehler, 2006). Given the complexity of the task, it is not surprising that teacher trainees have reported a difficulty in adapting technology to language teaching (Mei et al., 2017; Tseng & Yeh, 2019)

and that they felt inadequately prepared by teaching training programs to implement technology in teaching (Hismanoglu, 2012). A common approach taken to gauge teachers' incorporation of technology is to examine their acceptance of technology (e.g., Baz et al., 2019; Bozorgian, 2018; Huang et al., 2019; Liu et al., 2018; Mei, 2019). What is less often examined is how teacher trainees employ, or envision employing, technology to teach EAP, notable exceptions being Tseng and Yeh (2019) as well as Zhong and Shen (2002).

2. Literature review

2.1. Investigating technology incorporation in teaching EAP

There are fewer reports on how teachers envision using technology in their classroom than on their acceptance of technology or attitudes towards incorporating technology (Mei et al., 2017), principally due to the difficulty of determining how teachers employ, or envision employing, technology in real-world settings. Some scholars have attempted to solve this problem by calling for more qualitative approaches that analyze prospective teachers' implementation of technology in their teaching or teaching plans (Hismanaglo, 2012; Huang et al., 2019; Li et al., 2019; Tseng & Yeh, 2019). One of the biggest difficulties in employing technology to teach EAP is transferring academic content (the content of textbooks or scholarly articles) into a locally appropriate pedagogy, a fundamental skill in the development of TPACK. Having teacher trainees engage in projects has been proposed as one way to develop TPACK (Kohler et al., 2013) as CALL projects encapsulate "a learning-by doing practice in which teachers acquire knowledge through the design of usable artifacts such as lesson plans" (Tseng & Yeh, 2019, p. 95).

A smaller scale approach than a lesson plan that has been used to measure how teachers situate knowledge in their local teaching environments, albeit not specifically related to the implementation of technology, is to ask teacher trainees to make student generated teaching suggestions (SGTSs; Love, 2019). Making SGTSs is an approach that combines Canagarajah's (1999) approach to appropriation, or appropriating materials from readings or culture for one's teaching purposes; Lave and Wenger's (1991) concept of situated learning; and Johnson's (2009) notion of dialogic mediation, or learning through class discussion (of readings). The term *student generated teaching suggestions* comes from an article in which pre- and in-service teacher trainees were *students* in a teacher training program (Love, 2019), so the term *teacher trainee generated teaching suggestions* is equally apt, but this article will continue to use the term SGTS as it is extant in the literature. When employing SGTSs in teacher training, course

participants are asked to combine ideas garnered from readings with their local craft (Kennedy, 1999) or experiential knowledge (Johnson, 2009), a knowledge of how to teach effectively in the local environment, to make a weekly teaching suggestion applicable to any teaching venue or class they work in or imagine working in. Teacher trainees post this weekly teaching suggestion to a learning management system forum and discuss that suggestion in class, a form of dialogic mediation (Johnson, 2009) or collaborative learning (see Love, 2019). It is hoped that asking students to reflect on how to employ the content of readings to teach in their local environments will help teacher trainees to develop skills in bridging the theory/practice divide (Clarke, 1994) as they reflect on what adaptations need to be made to the content of course readings to render the concepts readily applicable in their local teaching environments. By regularly making teaching suggestions, teacher trainees gain practice in considering how to apply the material from readings in their local context, otherwise known as practice in situating knowledge in local teaching contexts (Pederson, 2012).

Koehler et al.'s (2013) description of how experienced teachers effectively employ TPACK includes the importance of a teacher's ability to localize content through technology for specific locales and groups:

> By simultaneously integrating knowledge of technology, pedagogy, content, and the contexts within which they function, expert teachers bring TPACK into play any time they teach. Each situation presented to teachers is a unique combination of these three factors, and, accordingly, there is no single technological solution that applies for every teacher, every course, or every view of teaching. Rather, solutions lie in the ability of a teacher to flexibly navigate the spaces defined by the three elements of content, pedagogy, and technology, and the complex interactions among these elements in specific contexts. (p. 17)

Generating teaching suggestions is a process that can be used to develop TPACK in students as both approaches (employing TPACK and making SGTSs) are concerned with moving content into practice, both approaches are heavily concerned with pedagogical applications, and both approaches draw heavily from a teacher's experiential knowledge of how to effectively situate content in the local teaching environment. In essence, a SGTS that employs technology to implement a teaching point developed from the readings (content) of a course displays the TPACK of the student teacher who made that suggestion as it is evidence of how that student teacher considers combining EAP content with technology while considering the local teaching environment and students.

Over years of leading teacher training courses that used SGTSs, the author noticed that many SGTSs contain suggestions for employing a wide range of technologies to teach a variety

of EAP concepts, including computer-mediated communication, digital games, emerging digital literacies, learning management systems, mobile-assisted language learning, online/blended/ distance learning, online resources, and Web 2.0 tools. As SGTSs that employ technology can be seen as traces of teachers' TPACK knowledge, examining SGTSs that incorporate technology should allow one to analyze how student teachers are using technology to situate ideas contained in course readings (Love, 2019) when they teach EAP, the question that began this discussion.

3. Methodology

3.1. The aim of the study

This study aims to examine the usefulness of using SGTSs as a teacher training tool. Three research questions guide the analysis of SGTSs:

1. How do teacher trainees incorporate technology into their EAP teaching suggestions?
2. What do teacher trainees' incorporations of technology as displayed in their SGTSs reveal about their TPACK knowledge?
3. What can be learned from analyzing SGTSs that incorporate technology to teach EAP that would improve deploying them as a teacher training tool for teaching with technology?

To achieve these goals, SGTSs that included suggestions for using technology for teaching EAP posted to a number of master's in TESOL courses were gathered for analysis.

3.2. Participants and the research context

This project was conducted in a Master's TESOL program in a provincial university in a periphery country (South Korea) that offers a dual degree program with a state university in the United States. The nine participants whose data are cited in this article come from diverse countries (seven are from Inner Circle countries, two from Expanding Circle countries), have differing levels of teaching certification (one is a certified teacher in South Africa, two have TESOL certificates), and have teaching experience ranging from 0 to 11 years in a wide variety of teaching contexts (private language institute, public school, and university), though only one participant had no teaching experience (see Appendix A). As the terms 'pre-' and 'in-service' are generally used to refer to teachers preparing for or working in the public school system (only two of these teachers have worked in the public school system) and most of the teachers who enter this graduate school TESOL program do so to be eligible to teach as an EFL

instructor in local universities, these teachers will be referred to using the general terms of 'teacher trainees' and 'student teachers'. All names are pseudonyms and informed consent to use this data was obtained from all participants.

3.3. Design, procedure, and data collection tools

Taking a longitudinal (Love, 2019), practitioner research approach to data collection (Mahboob et al., 2016; Richards, 2003), SGTSs that used technology to teach EAP posted in the courses Cultural Studies in Teaching English as a Foreign/Second Language, Literature and Film in TESOL Education, Methods in Teaching English as a Second/Foreign Language, and Globalization, World Englishes, Social Justice and English Language Teaching from the years 2017–2019 were collected and analyzed (see Appendix B for course topics). These teacher training courses focused on how to situate content knowledge (Shulman, 1987) in teaching environments according to a TESOL teacher's (personal) pedagogy and knowledge of the local community, culture, and students (Canagarajah, 1999; Johnson, 2009; Kumaravadivelu, 2003, 2012; Tanghe, 2014). In each course, participants were asked to make one teaching suggestion (SGTS) related to the set readings each week, were free to be as creative as they wished, were graded solely on completion of the activity and not on quality, and were not required to incorporate technology into their suggestions (requirements for making SGTSs are described in Appendix C). Course participants also posted comments on the course readings each week to Moodle forums (see Love, 2012), many of which contained teaching suggestions that incorporated technology.

3.4. Procedure

The teaching suggestions made in the courses were targeted at a wide level of target classes and venues, and many did not relate to technology or EAP. As such, the data (SGTSs and weekly comments on course readings that also contained teaching suggestions) were first filtered or reduced (Brown, 2001; Huberman & Miles, 1994) into suggestions that dealt with employing technology while teaching EAP. In considering teaching suggestions for inclusion, EAP was conceived of broadly to include academic vocabulary (Charles, 2012), (multimodal) academic genres (Johns, 2008; Molle & Prior, 2008; Wingate, 2012), advertising (Hobbs et al., 2015), anti-oppressive approaches to education (Badenhorst, 2020; Kumashiro, 2000), critical race theory (Kubota & Lin, 2010), cultural criticism of music (Lee, 2004), disciplinary approaches (Dafouz et al., 2018; Wood & Head, 2004; Woodrow, 2018), discourse (Planken, 2005),

intercultural communicative competence (Holliday et al., 2004, Huang et al., 2019; Wang & Coleman, 2009), (critical) media literacy of newspaper articles (Park, 2011), multimedia artefacts (Love, 2017), (development of) multimodal skills (Early et al., 2015; Darvin, 2015, Hafner, 2014), networking sites (Prichard, 2013); and rhetorical strategies (Koutsantoni, 2006).

The filtered teaching suggestions were then focused coded, which entails sorting "examples that are comparable on one dimension or that differ on some dimension and hence constitute contrasting cases or variations" (Emerson et al., 1995, p. 161) into emergent categories.

When constructing these emergent categories, Liu et al.'s (2018) injunctions were formative:

> teacher educators and professional-training specialists need to give greater consideration to academic subject content when designing courses and training aimed at facilitating technology integration. In other words, instead of providing one-size-fits-all technology training aimed at transmitting knowledge of how to operate hardware or software, professional teaching and training need to relate much more closely to the academic content of what is going to be taught, if the trainees' perceptions of the usefulness and ease of use of technology are to improve. (p. 410)

With these injunctions in mind, data were first grouped into four general categories:

1. general suggestions related to teaching EAP, composed of suggestions that could be applied to any EAP course;
2. EAP Skills, composed of suggestions that deal principally with traditional EAP skills, such as skimming and scanning;
3. EAP content, composed of suggestions for teaching specific academic concepts, such as critical language awareness;
4. and EAP skills and content, a liminal category containing teaching suggestions that deal with both categories, such as asking students to conduct a media ethnography, a content skill, to develop their abilities to summarize, an EAP skill.

Within each category, teaching suggestions are presented below according to the EAP skill or content skill developed as well the form of technology employed to implement each teaching suggestion. When multiple teaching suggestions relate to a specific category, they are discussed collectively.

To allow the reader to determine for her/himself the value of asking student teachers to make SGTSs related to technology as well as how the suggestions localize content, a few representative samples of each type of suggestion are provided below. A brief explanation of

the course materials that inspired the suggestions is also included so that the reader can see how these teacher trainees are adapting the content of course materials to achieve their own specific teaching goals via technology (Appendices D and E contain samples of condensed teaching suggestions). Put otherwise, the course materials that inspired an idea to employ technology to teach EAP are provided so that readers can judge for themselves how teachers are developing TPACK knowledge through making SGTSs.

Two stages of analysis are provided below. In the first stage, a discussion is offered after each SGTS presented in the findings section to (a) draw out unstated implications related to the teaching of EAP or teaching with technology, (b) investigate the implications of the suggestion for more general teaching environments, (c) relate that suggestion to the literature, and (d) discuss strengths and weaknesses of a particular suggestion as well as possible improvements. In the second stage of analysis, the discussion section will analyze the value of making SGTSs specifically for teaching with technology, the intervention that is the focus of this inquiry.

4. Findings and discussion

Each section below begins with a SGTS followed by a discussion of that SGTS and other related teaching suggestions when applicable.

4.1. General suggestions related to teaching EAP

4.1.1. Encouraging the use of locally popular technology (imo, KakaoTalk, QQ, Telegram, and WeChat vs. Facebook)

> Using a popular local technology is far more successful than trying to use one that you may know well. For example, I've found that students here [in South Korea] are far more willing to work with KakaoTalk [a Korean messaging app] than Facebook, even though almost all of them have Facebook ID's and Facebook is as easy to use as KakaoTalk. (Dwayne)

Dwayne's teaching suggestion for the Methods in Teaching English as a Second/Foreign Language course reminds other teachers of the need to relate to students when choosing technologies to employ in the EAP classroom. As *Kakaotalk* is widely used to distribute messages among groups of all ages in Korea, it is the default messaging app. Privacy concerns may play a role as Korean users may not mind sharing *Kakaotalk* details, as *Kakaotalk* is used primarily for messaging, but may be reluctant to share *Facebook* account details with teachers and even classmates with whom they are not close. A preference for local forms of technology was not limited to Korea: Helen recommended using activities that incorporate *QQ* or *WeChat*

with students in China, and Stuart mentioned that in Uzbekistan *Telegram* is used for sending messages and files and *Imo* for video calls due to the limited speed of internet connections. While teachers may like to introduce students to a commonly used app or service, such as *Facebook*, employing popular local technology when possible may aid teachers best in designing their lesson plans as teachers are likely to find students more willing to participate in class activities.

4.2. EAP skills

4.2.1. Using YouTube to find authentic target language and generate ideas for lessons

> Sometimes if I'm stuck for an idea for a lesson I'll just tap the target language phrase into YouTube and see what I can find. An example of this is a lesson I taught this week covering 'How long does it take…?' I found a video which was asking 'How long does it take to get to Mars?' and asking people on the street to guess. It was a perfect way to cover the target language and the various possible answers (two months / five years etc.). This then gave me the idea to do a section of the lesson based on the movie 'The Martian', which seemed to go down well.
>
> So I like using YouTube or other authentic sources as a way to generate ideas. But more importantly, the voices the students hear speaking English are natural, so it's always extra satisfying for them (and me!) when they can answer listening exercise questions I set based on these authentic sources. (Dennis)

Dennis's suggestion for a class in the Methods in Teaching English as a Second/Foreign Language course that dealt with exposure to authentic materials is noteworthy for (a) offering a way to quickly find target language authentic listening materials (see Gilmore, 2007) to model language and (b) demonstrating how such a search may generate further ideas to develop a lesson. While a teacher who employs this approach will then need to develop questions based on the materials discovered by searching *YouTube* or another media site, the model suggested offers a spontaneous way to develop a lesson that keeps the lesson integrated around the target language while also maintaining student interest when appropriate sources are selected.

4.2.2. Teaching skimming/scanning using patch notes (Overwatch)

> Reading comes in all kinds of forms. I want to make use of the kinds of readings… relevant to my students and use those kinds of readings to demonstrate the importance of scanning. Something that a lot of students… are interested in is computer games. Games with a competitive scene usually have a lot of balance changes to keep the game fair or fresh. Whenever a company makes changes they have to update (patch) their game and release the

> changes to the public (patch notes)…. Patch notes have a lot of useless information that the majority of people don't care about and never ever read. For example, a variety of bug fixes for things that they didn't know were bugged in the first place. However, there are also very high interest sections to patch notes that are must reads for anyone interested in a game. For example, changes to the heroes in Overwatch. In order to find this information, the reader has to scan through a variety of different headings to find what they are looking for. Then they may have to scan further to find a more specific detail that they want to know about.
>
> There are a variety of post-reading tasks that could be designed using patch notes as well. Students could discuss the changes and whether or not they agree with them (people get really passionate when their character was one that was changed). They could also make suggestions to how they would balance the game if they were the game designer. Students could make implications about the changes and the meta-game as well. All of these kinds of activities are 100% meaningful and done by players of the games all the time, so there is a lot of relevance to the tasks. There are also new words that can't be looked up in a dictionary within patch notes, so explaining the meanings of abilities could be fun too…. patch notes for Overwatch (https://playoverwatch.com/en-us/game/patch-notes/pc/). (Jason)

Jason's suggestion for a class on teaching reading (Grabbe, 2002; Janzen, 2002) and providing social relevance (Kumaravadivelu, 2003) posted in the Methods in Teaching English as a Second/Foreign Language course introduces contemporary relevance to EAP activities, thereby demonstrating to students that EAP skills have utility beyond the university. Patch notes, containing both useful and useless information that must be sifted through to find pertinent information, are an especially à propos source to teach scanning skills. Post-scanning tasks related to patch notes further develop EAP skills as they ask students to (a) discuss differences in game play, opinions about those differences, and changes in game balance that result from game modifications; (b) suggest changes that would produce a better game even if only for a player's character(s); (c) state implications about how changes relate to the meta-game, that is, how changes relate to all of the other characters and game play; and (d) explain the meaning of new terminology (defining terms). This simple suggestion asks students to engage in a variety of EAP skills, but the true strength of the suggestion lies in its deft manner of teaching a wide variety of critical EAP skills while seamlessly working them into meaningful discussions that improve students' real-world gameplay.

4.2.3. Teaching EAP with podcasts (SoundCloud)

> Have students listen to a selection of podcasts and pick a topic that they're passionate about or just something to their liking (https://soundcloud.com/the_intercept). Students can work in pairs for this project as they should try to pair with another student of an opposing view of the same

> subject they wish to discuss. Students can bring their podcast to life and personalize it by recording themselves talking and adding sound bytes or music….
> This class can be researched inside and outside of class time depending on available time and a reasonable completion date. Students should research first and make sure they credit their sources/quotes etc.
> Once students have rehearsed and made their final recording which can be done in their own time - somewhere quiet! Students will then present their podcast or share it on social media….
> Students must write a small review paragraph about each other's podcasts and then vote for the best one based according to certain criteria covered.
>
> - Well researched and presented
> - Clearly communicated opinion and points - a strong voice
> - Fact checked accordingly
> - Sourced and credited accordingly
> - Good flow of conversation between partners - equal voices heard
> - Well concluded with both parties points being clearly represented and understood/addressed
>
> Students have to prepare and rehearse a written script….
> Creating an account will allow students to operate in an authentic environment with genuine followers and will force them to prepare accordingly. (Becky)

Becky's suggestion for the Literature and Film in TESOL Education course, inspired by Hafner's (2015) article on remix culture, involves students practicing a wide range of EAP skills: listening to podcasts to choose a topic, researching a topic, writing a script, presenting that script, crediting sources, presenting opinions, writing a conclusion, dealing with questions, working with a partner, and even evaluating a podcast as they must ensure their own presentation fulfils the evaluation criteria listed, thereby teaching evaluation in reverse. Becky's proposal to have students operate their podcasts as a way to "force them to prepare" is a clever way to circumvent plagiarism.

4.3. EAP skills and content

4.3.1. Media ethnography of online communities (SNSs, *Facebook*) and video games

> If time allowed, I would really like my students to become involved in some kind of English speaking online community. They would be allowed to choose their own community, provided they had to speak English, or a mixture of English and another language, as the main means of communication. I would like to do this over about the course of 3 months. Students would be provided with a journal, and would have to record details of their online interactions each week, and a summary of their experiences at the end of the project. (Richard)

Richard's suggestion that students become involved in an online community, keep a journal of their online experiences, and write a summary at the end, is a form of media ethnography (Beach, 2007; Storey, 2010) that involves EAP skills related to researching, analyzing, and summarizing. The activity also encourages the development of students' English communication skills while they are involved in the online community in various ways. Other participants suggested conducting media ethnographies to encourage critical thinking about the represented cultures, economies, and ethics of video games (Becky), an approach that is especially effective in unveiling the values and biases of video game designers (see Appendix E).

4.4. EAP content

4.4.1. Teaching (critical) EAP with internet search engines (Baidu, Google, Naver)

> It isn't hard to find examples of representation and its tendency to other. Doing a quick image search about something will provide ample opportunity to discuss what the general view about something is. Then, there can be discussion about if it is accurate or not. Asking critical questions about the images or list of images could help students become aware of the essentialism that is taking place.
>
> For example, do a Google search about Korean Culture, and analyze the images that appear. Most of the images show very traditional things. Ask the students if this is an accurate representation of what Korean culture is. Ask the students why these kinds of images came up with the search. Ask the students that if a person had no experience of Korea except for the images they found on Google, what would they expect to see if they came to Korea. Ask them what kinds of images they think would hope to see to represent Korean culture. (Jason)

Jason's suggestion for teaching about representation, media, and sociolinguistics, inspired by readings in the Cultural Studies in Teaching English as a Foreign/Second Language course (Beach, 2007; Lee & Moody, 2012), offers his students a method they can use to critique the unstated assumptions of the internet as it betrays the assumptions of Google's search engine's algorithms: the returned search items may display evidence of othering and essentializing, thereby offering an opportunity to critique the algorithms employed. Asking students why these images arise when conducting an image search as well as what individuals with no experience of Korea would think of Korea based on these images is a powerful, sophisticated approach to teaching how otherization is manifested by search engine algorithms. Witnessing otherization in a returned search result is a strong challenge to an individual's cultural identity that may provoke that student to reflect on how search engine algorithms depict her/his culture and why

they do so. The final portion of this suggestion, which asks students how they wish their culture to be depicted, extends the activity in a positive way.

Blake's suggestion in the same course extends the academic investigation of search engines to consider them from a multinational perspective:

> My idea is to have the students search key words in Google, Naver and Baidu. My goal is for the students to see the differences in how media is controlled. We could search subjects like "political unrest" "government failure" etc. I also thought it might be interesting to see how different cultures report murder. My personal belief is that the U.S. over publicizes murder. I was wondering how other countries handle reporting on murder. Many other topics could be explored. (Blake)

While Blake, from the United States, may have been unaware of the broader implications of his teaching suggestion when he posted this suggestion, it offers a research method that could be used to study a wide variety of topics (e.g., media control of local search engines), which could easily be combined with Jason's suggestion above and extended to investigate how search engines' algorithms (e.g., Naver or Daum in Korea, Baidu in China, or Google in America) other (verb) foreign cultures. As intercultural understanding is always two-way, this approach to analyzing algorithms could be used productively to engage in developing intercultural understanding. Investigating any contemporary topic using this approach asks students to incorporate simple research skills (using multiple search engines).

A weakness both Jason's and Blake's suggestions share is that they do not state what to do with the results of inquiries conducted on search engines, but both imply that they will encourage students to work together to both research subjects and discuss the results. Many more student investigations could be developed based on these teaching suggestions, such as asking students to examine the bias of search engines vis-à-vis certain topics and using their results to produce assignments, such as presentations, term papers, or even research articles. Unstated but implied in both Jason's and Blake's teaching suggestions is that their SGTSs will teach students to analyze the assumptions of search engines, an extremely valuable contemporary digital literacy that deserves more attention in scholarly literature.

4.4.2. Teaching EAP in a post-truth world by critiquing online websites and communities (*Wikipedia, Twitter*)

> Exploring the ideas of a post-truth world and the positionality of texts would be well suited to upper-intermediate and advanced level L2 teaching. One could use this approach with any number of text-types.

> Materials/Resources: news broadcasts from various networks (on a similar story), literature (fables, folktales, canon literature), advertising, poetry etc.
> Even having students think about and critique sites like Wikipedia - online communities that collaborate to create 'information'- and Twitter. (Adele)

Adele's suggestion for a class focused on teaching literary and film genres, one which included Janks (2018) suggestion to encourage student teachers to consider literacy broadly, proposes an extremely developed version of teaching literacy and genre, one which demands teachers consider the (inter)positionality of readers, viewers and texts. Suggesting that teachers include news broadcasts from various networks without stating which resource to use demonstrates that contemporary teachers assume other teachers possess the digital literacy skills to use internet resources to find a variety of viewpoints on similar genres, such as fables, folktales, news, poetry, and advertising (Adele's inclusion of advertising as a genre is also a novel way to teach canonical approaches as advertising is not a traditional literary genre). Asking students to critique online websites and communities such as *Wikipedia* and *Twitter* to examine how they create and disseminate information is very relevant to contemporary media practices.

4.5. General suggestion related to teaching EAP

4.5.1. Extending procedural rhetoric (video game theory) to EAP processes

> I think understanding typical EFL procedural rhetoric might point out some strengths and weaknesses which take place down a long line of established and mechanical classroom routines and imposed rules that we might not ordinarily be aware of, it might also facilitate in holding EFL instructors responsible for their subtle delivery mechanisms of lessons and help to erase some negative or limiting factors. There are often subtle strategies and unobserved messages used in the classroom context that can be deliberate or there without any real purpose, some signals can be overlooked easily, and analysis of this would also help examine these unspoken rules and better explain how certain/different teaching styles work with the aim to limit any lost learning opportunities or negative messages. (Becky)

Becky's comment, designed more to develop fellow teachers' awareness rather than their students' skills, was suggested for a class in the Cultural Studies in Teaching English as a Foreign/Second Language. This particular class read about and discussed procedural rhetoric, Bogost's (2008) notion that every individual action taken while engaging in a process or activity combines to create an agglutinative message that exceeds the message conveyed by each of the individual steps or actions performed in the process, an approach more commonly used in videogame analysis. Her suggestion that understanding typical EFL procedural rhetoric could display strengths and weaknesses of classroom procedures suggests the beginning of a

methodology that could be used to study EFL teaching as few EFL teachers consider, or are even aware of, the procedural rhetoric that is occurring in the agglutination of classroom activities in which they engage. The concept of "typical EFL procedural rhetorical" could inspire a multitude of discussions in teacher training classrooms, observation activities, and research papers, as Becky's suggestion to hold teachers responsible for their "subtle delivery mechanisms," "unobserved messages used in the classroom context," and "mechanical classroom routines" could be expanded as teacher trainers ask teacher trainees to consider each of these aspects in their own teaching routines. It is possible that some teachers may be reluctant to pursue this line of inquiry as it may expose contradictions between their stated teaching goals and the message that their procedural rhetoric sends. To counter such resistance, and make teachers more aware of their own procedural rhetoric, a category of procedural rhetoric could be added to classroom observations and evaluations to encourage instructors, and performance evaluators, to reflect more on the global message(s) being sent by the conglomeration of activities conducted during a class.

5. Discussion

The teaching suggestions discussed above incorporated computer-mediated communication tools, mobile applications, popular websites, search engines, and video games, technologies related to the goals of this special issue on teaching EAP through technology. General teaching suggestions posted on the *Moodle* related to using popular local technology (*Kakaotalk, Telegram, IMO, QQ, WeChat*) as well as using the concept of procedural rhetoric to examine one's teaching. Concerning specific concrete EAP skills, teachers suggested ways to incorporate technology in giving and supporting reasons, presenting similarities and differences, skimming, describing, analyzing, using online resources, conducting research, critiquing, and learning vocabulary using *Google, Youtube, Pinterest*, podcasts (*SoundCloud*), patch notes (*Overwatch*), and other SNS media (Appendix D). Many of the teaching suggestions dealt with teaching academic content skills, such as studying local linguistic landscapes, conducting media ethnographies, analyzing the representation of groups and issues, analyzing symbolism and the variety of devices that are used to convey meaning in films (camera angles, camera movement, focus, etc.), and examining media in a post-truth world using technologies such as *Baidu, Facebook Groups, Google, Naver, Wikipedia,* and *Twitter* (Appendix E). A close reading of the suggestions demonstrates how arbitrary the EAP skills/content division is as many of those that relate to skills also involve content and vice-versa: it is impossible to teach skills without some content (Garner & Borg, 2005).

One of the stated goals of this issue was to analyze emerging digital literacies for EAP instruction. The teaching suggestions analyzed here show the components of TPACK (Koehler et all, 2013; Mei et al., 2017) are constantly evolving. While incorporating online sites for instruction may have been viewed as a specialty skill as few as ten years ago, now it is viewed as a basic skill. The suggestions above show that experienced teachers assume other teachers can readily understand how to teach concepts or skills employing a wide variety of common technology provided that the teachers understand the basic concept or skill, such as authentic materials, identity, post-truth media, procedural rhetoric, representation, and skimming/scanning. As the set readings in the courses discussed above had already covered these concepts and skills, participants felt that they could convey to other teachers an understanding of how to teach a concept or skill with only a brief mention of a website or an app and a suggestion of how to use that technology to teach the concept. These circumstances may be the result of mainstream technology being ubiquitous today, so much so that little instruction is needed to teach teachers how to incorporate common sites such as *YouTube* and *Google* as most people use these sites often. As users nowadays are required to download a new app or navigate a new site regularly in their daily life, teachers assume that users of unfamiliar sites, such as *SoundCloud* or *FilmGrab*, can quickly grasp both how to use the site or app and adapt the content contained in such sites and apps in their teaching. Teachers' ability to use this technology fairly easily demonstrates that a basic digital literacy has become commonplace, a digital literacy that includes the critical skills more commonly attributed to media literacy (Koltay, 2011), as evidenced by the SGTSs that used technology to encourage students to engage in critique of videogames, search engines, advertising, and online news sites. Though teachers are adept at incorporating common new technology to design general educational tasks, many of the SGTSs presented above do not extensively model how they will scaffold the language in their SGTS, a tendency that led Mei (2019) to suggest that though teacher trainees are skilled at using technology, many need more training to use technology specifically for language teaching. This point will be further discussed below.

The examples offered above demonstrate that some student teachers integrate mainstream technology into their teaching suggestions to perform tasks rather unobtrusively as their teaching goals clearly determined the choice of technology employed, a characteristic of fairly experienced teachers and evidence of TPACK (Koehler et al., 2013; Tseng & Yeh, 2019). None of the suggestions employed a technology unsuited for the proposed task, a finding that stands in opposition to a number of studies that found teacher trainees had problems integrating technology into language teaching (Hismanoglu, 2012; Mei et al., 2017; Tseng & Yeh, 2019).

On the contrary, the suggestions above usually begin by presenting a technology to teach a skill (e.g., skimming) or a content issue (e.g., representation) and then allow the suggestion to snowball with further teaching ideas based on that technology, such as Jason's suggestion to use *Overwatch* patch notes to teach skimming and scanning, which led to occasionally passionate post-reading discussions. In essence, the selection of technology and a task associated with it took on a life of its own in these teachers as it merged with their craft knowledge to uncover a variety of teaching possibilities. Perhaps this is the strength of a content-based approach to teaching how to integrate technology in teaching, as described by Koehler et al (2013):

> how can teachers integrate technology into their teaching? What is needed is an approach that treats teaching as an interaction between what teachers know and how they apply this knowledge in the unique circumstances or contexts within their classrooms. There is no "one best way" to integrate technology into curriculum. Rather, integration efforts should be creatively designed or structured for particular subject matter ideas in specific classroom contexts. (p. 14)

The findings presented above suggest that asking teacher trainees to produce SGTSs is one approach that aids teachers in integrating technology into their lessons. If current teachers assume they can readily utilize technology if they understand the content and already have positive (or accepting) attitudes towards technology, perhaps teacher educators/trainers should revise how they teach TPACK skills and begin with particular subject matter ideas rather than with the technology as the teaching suggestions above clearly show that starting with an academic concept or skill to teach and then allowing students the freedom to employ any technology of their choice to teach that concept or skill does produce some strong teaching suggestions.

The process of asking teachers to generate teaching suggestions is not flawless. Many of the teaching suggestions above asked students to employ technology while working with a partner, in groups, or as a full class, class groupings that are justified by theories of collaborative and constructivist learning (Mei et al., 2018). The underlying assumption of such group activity is that students will absorb the necessary language to conduct the activities by looking at the websites or apps suggested and/or talking in groups, after which they will be able to actively produce the language in a manner much like native speakers of a language learn, an assumption of second language learning that is likely to be grossly overoptimistic. Such a general approach to language learning is accounted for in the literature as it mirrors an English-as-a-medium-of-instruction approach (Pecorari & Malmström, 2018) as well as theories related to partial (Beglar & Hunt, 2002) and staged learning (Richards, 2002) that suggest students

partially acquire language through encountering language items multiple times and gradually develop a deeper understanding of language. The reality of second language learning likely falls somewhere in-between an experiential, English-as-a-medium-of-instruction approach and a more direct, scaffolded approach to language learning. Employing both approaches is likely to result in the most effective learning. The greatest strength of the teaching suggestions discussed above was their fluid, experiential stance on language learning. One weakness of the suggestions discussed above was that most of the suggestions contained few instructions concerning how to scaffold language when teaching EAP skills (e.g., the language needed to summarize or compare) or content skills (e.g., the collocations or patterns involved when writing sentences that involve discussions of essentializing or othering). As such, from a scaffolded learning approach, the teaching suggestions lack a certain structure concerning language teaching as the teachers appeared to assume that other teachers would know how to scaffold learning for their own students, an assumption that may or may not be true depending on the individual class participants and likely to not be true with less experienced teacher trainees.

A number of authors have noted that even though teachers may now be familiar with various technologies and even with using them for educational purposes, they still have problems using them specifically for language teaching (Li et al., 2019; Mei, 2019; Tseng & Yeh, 2019). On a more general level, Ryshina-Pankova (2016) discusses the limits of a literacy as sociocultural practice approach, such as that used by many of the teaching suggestions above:

> the use of a literacy-oriented approach presents educators with the following challenges in FL instruction: the problem of defining the principles of content selection, the problem of content and language sequencing, and the problem of a language- and content-integrating pedagogical approach that would lead to literacy. (p. 52)

There are a number of ways to encourage teachers to integrate language and content, such as introducing courses, modules or lessons in content-based learning (Snow & Brinton, 2017) or Content and Language Integrated Learning (Ball et al., 2015) in teacher-training programs. Within such courses, teacher-trainers could require teacher-trainees to explicitly state how they will scaffold language learning in their teaching suggestions and encourage them to include concepts such as noticing language (Kumaravadivelu, 2003; Richards, 2002) and other activities related to content and language integrated learning (Dale & Tanner, 2012). Teacher trainers could also encourage course participants to specifically point out lexis and patterns commonly used to achieve a task and to provide a website that describes lexis and patterns,

such as *Academic Phrasebank* (http://www.phrasebank.manchester.ac.uk/) or *FluentU* (https://www.fluentu.com/blog/english/talk-about-music-in-english/#) for more field specific language. Asking teacher trainees to instruct students in how to use sites to improve their language skills while engaging in class activities would significantly strengthen the teaching suggestions as such instructions would provide specific examples of scaffolded language instruction, thereby improving the formal structure of SGTSs. At the same time, requiring teacher trainees to consider how both the language and content will be taught or reinforced throughout any activities they propose would also only result in stronger teaching suggestions.

6. Conclusion

The examples provided above and in the appendices show that asking teachers to generate teaching suggestions based on course readings is a productive approach that regularly produces strong results related to teaching with technology. SGTSs inherently carry recommendations concerning processes to use in implementing technology to teach EAP, which is a boon of using them as a tool for both teaching and analysis. SGTSs provide examples of technology that can be employed to teach English and processes that can be used to utilize that technology, as seen in the examples above with the use of processes most clearly displayed in the examples of teaching EAP with internet search engines and extending procedural rhetoric to evaluate EAP classes. While asking students to generate SGTSs is clearly beneficial, there are some steps that could be taken to improve their employment in teacher training courses. The first step would be to ask students to deliberately include technology in their suggestions as in the examples listed above it was voluntary. That the SGTSs above report voluntary uses of technology demonstrates that some student teachers now integrate technology without being required to do so and genuinely feel that technology adds to their teaching of EAP content and skills. The second step would be to ask student teachers to explain how they will scaffold language and content development in their teaching suggestions and, more specifically, how that scaffolding will employ technology and language learning skills. At the very least, teachers could teach students skills that help them notice the language they will encounter before students perform a task that involves looking at a number of sites on a topic or theme. Perhaps the teaching of noticing language as well as a variety of activities that can be used to do so should become a more prominent theme for teaching with technology as more and more teaching suggestions concerning teaching with technology will involve students working on their own with technological resources. A final suggestion is to have teachers consider the procedural rhetoric inherent in any activity they develop as it may help them better understand their own classroom

processes. The goal is for student teachers to create structured teaching suggestions that scaffold the teaching of academic skills, content, technology, and language learning strategies while their students are engaged in learning. It is a lofty goal, but perhaps just making teachers aware of this goal will improve the process of generating SGTSs. It is hoped that teacher trainers who see the multitude of creative student generated suggestions incorporating technology in the teaching suggestions presented above will consider incorporating using SGTSs to encourage their own students to regularly situate the content of course readings in their local teaching situations.

A major limitation of this study is that the teaching suggestions chosen to examine were produced by students who voluntarily integrated technology into their lesson plans, indicating that they were produced by student teachers who already had positive views about integrating technology into their lessons and were confident in doing so. It is very possible that the general teaching populace might be less adept at integrating technology into their teaching suggestions. Future studies could examine whether asking groups of teacher trainees, or in-service teachers, to integrate technology into teaching suggestions produces similar results. Other studies could quantitatively and qualitatively analyse whether including explicit scaffolding in teaching suggestions produces more effective results. Another limitation of this study is that the participants' opinions about the process were not surveyed as to whether it helped them to develop their TPACK or not. A future study could conduct quantitative and/or qualitative inquiry into teacher trainees' perceptions of the process. Despite these limitations, the quality of the teaching suggestions presented above indicates that SGTSs are a useful tool to add to a teacher trainers' repertoire of training activities.

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Appendices

Appendix A. Participant Data

Name (Pseudonym)	Nation of origin	Gender	Age	Teaching experience	Teaching certification
Adele	South Africa	F	43	2 years at Korean private language institutes (K-9)	PGCE, SACE
Becky	United Kingdom	F	40	3 years at Korean private language institutes (K-9)	
Blake	United States	M	38	11 years at Korean private language teaching institutes (K-12)	
Dennis	United Kingdom	M	46	4 years at a Korean public middle school	CELTA
Dwayne	Australia	M	50	5 years at a Korean university; 2 years at a Korean public middle school	
Helen	China	F	24	None	
Jason	Canada	M	29	7 years at Korean private language institutes (middle school, intermediate to advanced)	
Richard	Ireland	M	34	7 years at Korean private language institutes (elementary and middle school students, intermediate to advanced)	Online TEFL certification
Stuart	Uzbekistan	M	26	2 years at an Uzbek private language institute (students aged 14-30)	

Appendix B. Sample of Topics Covered in Courses Related to Teaching EAP [a]

Course	Sample of topics covered
Cultural Studies in Teaching English as a Foreign/Second Language	advertising, code meshing in popular music in EFL countries (K-pop), culture, code meshing in the media, critical media awareness, digital literacies (including video projects), gender, identity formation, globalization and ELT, intercultural communication, intercultural identity, internet communities linguistic landscapes, linguistic hybridization, media ethnography, media literacy, media studies, news and critical media literacy, online literacies, otherization, the politics of EFL/ESL learning, racialized discourse, representation, rhetoric (including the rhetoric of videogames), social network sites, sports, sociolinguistics (of local and foreign languages), teaching culture, television studies, videogame analysis, visual culture
Literature and Film in TESOL Education	analyzing media, assessing learning of literature and/or film, authenticity and EFL/ESL learning, children's literature, critical viewing, drama and (multimodal) performance as interpretation, film genres, film representation, film studies (e.g., camera techniques, lighting, movement, sound), lenses of literary analysis (e.g., gender, perspectival, post-colonialism, reader response), literary analysis, literature discussions, literary genres, multimodality, out of school learning with media sources, producing media, remix culture, screenplays, storyboarding, using local literature in translation in the EFL classroom, using literature in EFL/ESL, the canon, young adult literature
Methods in Teaching English as a	(alternative) assessment, content-based instruction/content and language integrated learning, classroom management, cooperative learning, course and lesson planning,

Second/Foreign Language	designing courses/lesson plans/syllabi, discussion skills, error correction, focus on form, grammar, language learning strategies, lexis, listening, mixed level classes, phonology, post-method pedagogy, project work, pronunciation, reading, speaking, task-based language teaching, teaching EAP and ESP, (process) writing, teaching unplugged
Globalization, World Englishes, Social Justice and ELT	affect theory, anti-oppressive education, critical discourse analysis, critical language awareness, decolonialism, emotions and ELT, foreign language identity, globalization and ELT, interdisciplinary teaching, performative competence, posthumanist applied linguistics, post-transmission approaches to teaching, plurilingualism, social justice, sociolinguistics and politics of English use in EFL contexts, translanguaging and translingual practices, visual analysis

a The word "Teaching" could be inserted before any of these categories as teaching each of these aspects is a central component of class discussions and assignments.

Appendix C. Instructions for Weekly Moodle Forum Contributions

Teaching Suggestions. Each week, post a teaching suggestion to the weekly forum that relates in some way to the topics covered in that week's readings. The best teaching suggestions incorporate material from the readings to develop a new teaching idea, preferably a few readings, but it is also fine to suggest an activity that you regularly use to teach. For example, if you have a task you frequently do with your students that is quite successful that relates to the weekly readings, you can post this during a week that deals with task-based learning. A paragraph or two explaining the lesson is ideal, though some posts are only a few sentences long.

Moodle Forum Questions and Comments. This course will follow a seminar format. As such, I will not lecture on the readings, but I expect every student to do every reading before class and come to class prepared to discuss the readings as a significant part of class time will be spent discussing the readings. To ensure that students do the readings, every student must post 10 questions or comments about the readings on the Moodle before class (marks may be lost for posting late, for not making comments on all of the readings, or if too many comments are off-topic, but marks will not be deducted for grammar as students will be given the opportunity to clarify any unclear statements in class when comments are discussed). The idea behind these questions is to get discussion going among the class or to clarify aspects of the readings that are not understood. If you don't completely understand the readings, that is fine—comprehension questions about the reading can be included among questions submitted as well as comments on the readings.

Appendix D. Sample of Academic Skills Covered by Teaching Suggestions

Academic skill	**Teaching suggestions**
Giving and supporting reasons	Have students make a soundtrack for their daily lives and provide reasons for their selection of songs
Discussing similarities and differences	Make sharable playlists of world music using Youtube, Soundcloud, or Band Camp, share them, discuss them and their impact on their lives, and then compare similarities and differences in their playlists with local music. Students can also discuss the issues raised in lyrics and the meanings of songs with the suggestion of using FluentU (https://www.fluentu.com/blog/english/talk-about-music-in-english/#) for scaffolding the language used to talk about music
Writing descriptions	Examine movie stills from the site FILMGRAB (https://film-grab.com/) in order to practice purely describing films without using evaluative or expressive language and to employ the vocabulary of film studies in the descriptions. Have students do a video game show and tell presentation during which the presenter must introduce the game by explaining its background, its rules, the story it tells [if it tells one], the possibility space, what is allowed in a game, its visual rhetoric, its procedural rhetoric, its ideology, and its target audience. Presentations may incorporate both English and Korean but should be at least 50% in English.
Conducting an analysis and/or critique	Use Google image searches to analyze representation of culture(s) and proceed to analyze and critique the search results. Use FILMGRAB (https://film-grab.com/) to teach students interpretive skills by asking them to analyze and interpret imagery and symbolism of films, including that of colour and the role of colour in film. Have students use Pinterest to research literature and film genres. Exploring truth in a post-truth world and the positionality of texts in a multitude of genres with a focus on critiquing online sites' (e.g., Wikipedia, Twitter) treatment of truth (discussed in-text above), but also expanding the investigation of post-truth claims to the realms of advertising and poetry. Coming up with counter-arguments to opinion podcasts and presenting their findings to the class.
Conducting discussions	To encourage regular discussions outside of class, in groups, students choose an area of interest they share and then create a FaceBook group (private or public) that relates to their shared interest. Once the group is created, they will collect information related to their topic and regularly share posts with their group with the teacher acting as a moderator who should regularly prompt other members of the group to encourage participation. Discuss the game rules of a videogame world and what is and is not allowed, including ways to work around the game rules.
Teaching target language	Generating ideas for lessons by typing target language into YouTube
Skimming/scanning	Get students to read patch notes of computer games to encourage both the development of skimming/scanning skills and to stimulate discussion of the changes to the game.

Appendix E. Sample of Academic Content Skills Covered by Teaching Suggestions

Academic content skill	**Teaching suggestions**
Media ethnography	Students were asked to create ethnographies of digital games and the game world depicted within them including architecture and non-player character (NPC) roles as a way to improve students' critical thinking, especially as it relates to ethics. Students should join an English online community of their choice and record their dealings with that community both weekly and at the end of a three month period.
Analyzing symbolism	Analyze the symbolism of film shots at FILMGRAB (https://film-grab.com/).
Analyzing procedural rhetoric	Ask students to analyze the message that popular games are telling them through procedural rhetoric and whether they agree or disagree with it, especially in consideration of the game ethics and their own. In class, discuss the rules of a video game world as to what is and is not allowed and how this relates to the games' procedural rhetoric including ways to work around the game rules as well. Analyze the procedural rhetoric of normal EFL classroom procedures, including classroom routines and imposed rules to make teachers more aware of how the way they deliver content may deliver messages that are as strong as their official statements of what is to be learned in the lesson.
Investigating media bias	Search a term in class using Google, Naver and Baidu to see differences in search results and discuss the results.
Localization issues	Use local SNSs, such as KakaoTalk in Korea or QQ and WeChat in China rather than Facebook as students are more likely to participate. Use SNSs to encourage participation and develop fluency rather than for developing formal skills, such as writing or grammar, because writing and grammar activities often require correction, which is uncomfortable when done in public and especially uncomfortable on social medial platforms. Teachers should first provide examples when teaching blogs or wikis. Also, blogs and wikis are especially useful as they can be used to teach any point related to grammar or writing.

EDUCATIONAL TECHNOLOGIES IN TEXTBOOKS: THE CASE OF IRANIAN EAP CONTEXT

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Abstract

Technological developments have been changing the English for Academic Purposes (EAP) instruction. Although there is a wide literature on (the effects of) application of various educational technologies in EAP courses, there is scarcely any literature on the inclusion of such technologies in EAP textbooks. This study addresses that gap and investigates whether and how educational technologies have been introduced or applied in the EAP textbooks used in Iranian universities. Moreover, it tries to elicit the reasons why the authors of those textbooks included or excluded such technologies. To achieve the first objective, 94 EAP textbooks from four disciplines, namely Arts, Engineering, Humanities, and Medicine, were selected and analyzed to find out whether and how these textbooks treat educational technologies. To fulfil the second objective, a semi-structured interview was conducted with 18 of the EAP textbook writers to discover their justifications regarding the inclusion or exclusion of educational technologies in the books. The results indicated that the textbooks were largely devoid of educational technologies, with the authors citing a number of reasons for not including such technologies in the books, the most important of which was their own lack of educational technology know-how. Since EAP courses are usually implemented in universities, this study suggests that introduction and incorporation of affordances provided by educational technologies in EAP textbooks can contribute to university teachers' efficacy and students' academic development.

Keywords: English for Academic Purposes (EAP); educational technologies; authors; textbooks

1. Introduction

Innovations in educational technologies have revolutionized second language (L2) learning and teaching (Otto, 2017; Salaberry, 2001; Wang & Winstead, 2016). It would not be an overstatement to say that nowadays there is a technological tool to support every aspect of L2 learning and teaching (Nushi & Eqbali, 2018). The fast-growing technological innovations have enabled L2 teachers and learners to extend learning opportunities beyond the confines of the physical classrooms, design and engage in creative and collaborative activities, bring authenticity into classrooms by incorporating materials from outside world, as well as provide

and receive (synchronous and a synchronous) multimodal feedback (see Dressman, 2020; Elola & Oskoz, 2016; Stanley, 2013). New educational technologies have also helped educators better cater for learners with special learning needs and disabilities (Roblyer & Doering, 2010).

Although there is a wide literature on the effects of utilizing technology on English as a second language (ESL) or English as a foreign (EFL) language teaching and learning (see Golonka, Bowles, Frank, Richardson & Freynik, 2014; Ürün, 2015; Wu, 2014 for a review), there are few, if any, studies that have investigated the (effects) of incorporation of educational technologies in the design of English for General Purposes (EGP) textbooks. The lack of such studies becomes even more evident when one considers English for Specific/Academic Purposes (ESP/EAP) textbooks. To the best of the researchers' knowledge, there is almost no study that investigates incorporation of such technologies in the design of ESP/EAP textbooks. Since ESP/EAP courses are usually implemented in universities, incorporation of affordances provided by educational technologies in such coursers and in the materials developed for such courses can contribute to university teachers' efficacy (e.g., Barton & Dexter, 2019; Tweed, 2013), students' academic and professional development (AlAmmary, 2012; Arno, 2012; García Laborda & Litzler, 2017; Jarvis & Pastuszka, 2008) and motivation to learn the language (Yundayani, Kardijan, Herawan, 2019).

This paper, therefore, intends to explore if and how technological technologies have been included in the texts and tasks of the EAP[1] textbooks used in Iranian university contexts. Moreover, a semi-interview will be conducted with 18 writers of those EAP textbooks to discover their justifications for including or ignoring educational technologies in their books.

2. Literature review

Application of educational technologies in the ESP/EAP context is a major line of research and a great number of studies have been carried out to investigate the effects of applying such technologies in ESP/EAP pedagogy. Dashtestani and Stojković (2016), for instance, conducted a comprehensive review of the studies that examined the effectiveness of application and integration of technologies in ESP/EAP courses. Fifty-five empirical studies published in peer-reviewed journals and books were analyzed via the technology typology developed by Golonka et. al., 2014). The authors argue that the research findings on the application of educational technologies in ESP/EAP instruction are different from those identified in the literature on using such technologies in EGP instruction. The results also showed that there would be many benefits if educational technologies (e.g., course/learning management systems, corpora and wikis) are incorporated in such courses: course/learning management systems can increase the

quality of ESP/EAP instruction and improve students' listening comprehension, the utilization of corpora in ESP courses can expand students' knowledge of specialized vocabulary and collocations, and academic communicative abilities, while application of wikis can lead to an increase in the knowledge of academic writing. They add that these technological tools could foster students' collaborative and group learning, improve their reading fluency and provide more opportunity for reflection and interaction in the part of students. Khosravani and Khoshsima (2017) conducted a study which investigated the EAP stakeholders' (i.e., instructors and students) attitudes toward using the Internet in EAP curriculum. To achieve that objective, the researchers administered questionnaires to both EAP instructors and students at a state university in Iran. The results showed that most of the students and instructors held positive views toward utilizing the Internet as one of the main instructional tools in EAP courses. There were, however, a number of teachers who did not believe that Internet applications in the classroom would make learning interesting for all students. For their disagreement, the teachers' cited reasons such as their unfamiliarity with the online resources that could best serve their instructional purposes, the difficulty of keeping track of the enormous information that are being made available on the Internet every day, and their uncertainty as how to use these resources in the classroom context. The researchers add that the teachers' unsuccessful previous experiences with the Internet applications could also have played a role in forming those negative attitudes. The results of this study indicate the importance of training EAP teachers in how to use the Internet-based technologies and providing them with pleasant experiences when using those technologies.

Ramachandran (2004) explored two ways of integrating technology into an EAP curriculum that focused on building students' writing and reading abilities. The author collected her data from two groups of students who were from different Southeast Asian countries such as China, Korea and Japan. Based on her research findings, she maintains that the teachers of EAP courses could easily integrate existing contents with the assignments and activities that involve technology. Ramachandran cites some benefits of incorporating technology in classroom teaching; these include helping students in their literary development, broadening students' exposure to current educational framework, helping students in both process and the content areas of literacy learning, promoting collaborative learning, and encouraging students to become critical consumers. Singh (2017) elicited participants' reflections on learning technologies in a practical online EAP course for teachers offered by the English Language Teaching Centre, the University of Sheffield, the United Kingdom. The course was designed to help EAP teachers feel capable and more confident about using technological tools (e.g.,

Padlet, Quizlet) in their classroom teaching. The analysis of the participant teachers' reflections demonstrated that the range of interesting technology topics, useful technology guides, weekly practical suggestions, forum discussions and interactive activities helped them make their lessons more engaging for students. The results of the study demonstrated that by incorporating educational technologies in EAP courses, teachers would be provided with new knowledge, skills and technological tools that can potentially help them try out new instructional strategies and share the outcome of their experiment with others. The findings also highlighted the pressure that faulty Internet connection and time constraints can put on the teachers.

Similarly, Onat, Kuruoglu and Adiguzel (2014) carried out a study into the use of synchronous videoconferencing (SV) as a platform to transform a traditional language course into an online one. The purpose of their research was to evaluate the reflections of eleven freshmen students taught during an EAP course via the SV platform. Utilizing a semi-structured interview with the students and taking into account factors from all technological, pedagogical and administrative perspectives, they found out that students were generally satisfied with learning through the SV platform, believing that "online learning provides learning and opportunities for [them] that may not be available in a traditional classroom setting" (p. 645). Moreover, the study demonstrated that technology by itself cannot do wonders and its use needs to be backed by pedagogical considerations and administrative support in such a way that instructors in SV classes can have more effective contribution by finding the needs and expectations of students and discovering ways to form relationship in the videoconferencing classes. The results of the research also revealed how students can enhance their autonomous learning environment and equip themselves with skills to concentrate on the lesson content in videoconferencing delivery classes.

In another study, Shrestha, Fayram and Demouy (2015) analyzed the use of mobile technologies in EAP, which is a rather new and emerging field both in EGP and ESP/EAP. Their research reports on an innovative application of mobile technologies in teaching and assessing academic English speaking skills in open and distance learning. A pilot study was conducted with a group of EAP students once they completed their course between October and December 2010. A series of activities were designed and delivered through *Talkback*®, a voice response system powered by *Learnosity* (http://www.learnosity.com). *Talkback*® allowed students to use mobile phones including smart phones, landlines, *Skype* or *OU Voice* (*iTunes* app) for practice and doing assignments. The results of the pilot study indicated that the project met most of the EAP students' expectations in terms of practicing EAP listening and speaking skills in an open and distance learning context. The match between the technological tool, the

content and the format was highlighted by numerous comments and results showed that students perceived that they had improved in skills and confidence. This study clearly showed how highly students rate the opportunities to practice listening and speaking skills. Technologies such as *Talkback*® offer options to provide transcriptions of tasks used in the module and it offers an option for students to make their answers available to all students within the website where the tool is hosted.

In the same vein, Jiboku and Idakwo (2019) confronted the state-of-the-art facilities in the teaching of academic English in selected technological institutions in South West Nigeria with a lot of problems which include large classes, facilities, inadequate time, and fundamental deficiencies of L2 learners of English. Specific technology and innovations that would help pedagogy and learning in EAP classrooms were investigated. The paper concluded that the integration of technology and innovations in EAP classrooms of technological institutions in Nigeria could improve the acquisition of necessary skills by the learners to cope with the future. The findings of the research suggest that L2 teachers must embrace, adapt and apply new technologies in their classrooms and must employ the available latest resources and technology to implant learning. Scherer, Tondeur, Siddiq and Baran (2018) also carried out a study on the relationship between teachers' technological, pedagogical, and content knowledge (TPACK) and attitudes toward technology using a structural equation modeling approach. Based on the attitudes drawn from a sample of 688 Flemish pre-service teachers in 18 teacher-training institutions, they state that there is a positive correlation between teachers' attitudes toward technology and their TPACK self-beliefs.

The literature reviewed above shows that there is a myriad of research about different aspects of technology use in the ELT (be it EFL/ESL or ESP/EAP) instruction, yet very few, if any, of those studies addressed the issue of incorporation of educational technologies in ELT, particularly ESP/EAP, textbooks. There is, thus, a need to conduct some studies to examine this issue in order to enrich the literature on ELT and technology. The present research, therefore, intends to investigate the application of technological tools and resources in the EAP textbooks taught across Iranian universities. In Iran, the Institute for Researching and Composing University Textbooks in the Humanities, generally known by its Persian initials SAMT, publishes most of the EAP textbooks used in the country's universities, and the EAP textbooks produced by this institute composed the materials corpus in the current study.

3. Methodology

3.1. The aims of the study

This study aims at answering these research questions:

1. Do EAP textbooks used in Iranian universities incorporate educational technologies in their design (i.e., reading passages and reading activities)?
2. What are the justifications of the authors of those textbooks for including or ignoring educational technologies in the design of their textbooks?

For the purposes of this study, we adopted Garrison and Anderson's (2003) definition of educational technologies as "those tools used in formal educational practice to disseminate, illustrate, communicate, or immerse learners and teachers in activities purposefully designed to induce learning" (p. 34).

3.2. Materials

Ninety-four EAP textbooks taught in Iranian universities were selected and analyzed to find out whether and how these textbooks treat educational technologies. The textbooks were from four disciplines, namely Arts, Engineering, Humanities, and Medicine. The number of units in the textbooks vary from 10 to 25 or even more. Each unit comprises two reading passages followed by reading comprehension questions, vocabulary and grammar exercises (mainly in the multiple choice format), a very limited number of writing exercises and a translation exercise. The listening and speaking skills have been ignored all together due to the policy of English language teaching in Iran which states reading is the primary skill needed by EAP students at the tertiary level of education (Atai, 2000, Atai & Nazari, 2011). These textbooks have been criticized on a number of fronts by ELT teachers and researchers (see Kiany & Khayyamdar, 2005-2006 for a review). In response to the mounting pressure, SAMT decided to revise and rewrite these books based a new template, which was first applied in writing the *English for the* [sic] *Students of Medicine* (Atai, Shoja, Kafshgar Souteh & Zolghadri, 2013). The new template is also reading-based yet it adopts a task-based approach to teaching the skill. It needs to be noted that the new template gives textbook writers a freer hand so that they can design and incorporate some speaking and writing activities in the textbooks but the listening skill is still missing in the books.

3.3. Design and procedures

To achieve the first purpose of this study, 50 percent of EAP textbooks from four discipline categories, namely Arts, Engineering and Basic Sciences, Humanities, and Medicine, were selected and analyzed by the researchers of this study. The number of textbooks were rounded up to the next number if the outcome of the 50 percent selection ended in decimals, that is, if the 50 percent of 35 books yielded 17.5, we rounded that number to 18. It should be noted that wherever available, the newest edition of the books was also examined too.

Textbook evaluation studies often use checklists or questionnaires as their research instrument (e.g. Alagha, Sahragard & Rahimian, 2015; Danaye Tous & Haghighi, 2013; Gordani, 2010; Manoochehri & Nemati, 2016; Razmjoo, 2010; Salehi, Khadivar & Mehrabi, 2015; Vera-Cazorla, 2015) but the researchers of this study could not find any checklists or questionnaires specifically designed for evaluating application of educational technologies in ESP/EAP textbooks. Therefore, they decided to draw up a list of educational technologies that could potentially introduced and included in ESP/EAP textbooks by reviewing the literature (e.g., Golonka, et al. 2014; González-Lloret, 2016; Li, 2017; Motteram, 2013; Chapelle, & Sauro, 2017; Stanley, 2013). The list was then shown to an expert in the field of educational technology to make sure that we made the right selections. The expert asked for a number of modifications and we finalized the list with 28 technological tools. However, the list does not cover the entire range of possible technological aids that can be included in ESP/EAP textbooks. It also behooves to mention that field specific technologies (e.g., Electrical Insulator, LASER in Dentistry, Speech Audiometry) were not included in the data because they are not technologies that can be used for EAP instructional purposes (see Appendix A for the list of educational technologies).

Moreover, a semi-structured interview was conducted with 18 randomly selected authors of those EAP textbooks to discover their justifications regarding the inclusion or exclusion of educational technologies in their textbooks (see Appendix B for the interview questions).

3.4. Results and findings

For the quantitative part of this research, first the two researchers independently studied the table of contents, the reading texts and associated activities (including grammar, vocabulary and translation exercises) in the selected textbooks and recorded the number of those texts and activities that included, introduced or applied educational technologies and then drew a table of frequencies. The inter-rater reliability between the researchers coding the activities, measured

by Cohen's kappa, was 0.93. The reason for such a high index was the rather low number of reading texts and activities that either introduced or incorporated educational technologies. For the very few cases that the researchers could not agree on a particular educational technology, they consulted an expert in the field of educational technology to resolve the disagreement. The qualitative interview data were thematically analyzed and incorporated into the generalized statements described under 4.2 section of this paper.

3.4.1. The quantitative analysis

Table 1 shows the raw frequencies for the number of the textbooks examined in each discipline and instances of inclusion of educational technologies in the reading texts and activities therein. It should be noted that the number of reading activities were too many to be counted so that statistic is not presented in the table below.

Table 1. descriptive statistics of the number of EAP textbooks and inclusion of educational technologies in their reading texts and activities

Disciplines	**No. of EAP Textbooks Published by SAMT**	**50% of Textbooks Examined by Researchers**	**No. of Texts Including or Introducing Edu. Techs**	**No. of Edu. Techs in Reading Activities**
Humanities	75	38	1216/12 (0.99%)	6
Engineering & Basic Sciences	66	33	1056/3 (0.28%)	3
Medicine	35	18	576/0 (0.00%)	4
Arts	9	5	154/0 (0.00%)	0
Total	185	94	3002/15 (0.50%)	13

The results seem rather disappointing; only 12 (0.99%) out of the 1216 reading passages in the EAP textbooks in the Humanities introduced educational technologies. The situation for the textbooks in the other three categories was no better; 3 (0.28%) out of the 1056 reading passages in the EAP textbooks of the Engineering and Basic Sciences, 0 (0.00%) out of the 576 reading passages in the EAP textbooks of the Medicine, and 0 (0.00%) out of the 154 reading passages in the EAP textbooks of the Arts introduced educational technologies. Putting all these

numbers together, we can see that only 15 (0.50%) reading passages introduce educational technologies. It is noteworthy that one EAP textbook in the Humanities, namely *English for the Students of Educational Technology*[2], contained 8 of the reading passages that discussed technologies and that should not come as a surprise. Examples of technologies introduced in this book are the Internet and its applications, instructional media and technologies for learning, the computers, TV and radio. The author of this textbook, however, failed to utilize any of those technologies in the design of the reading activities. It should also be noted that there were four reading passages in the *English for the Students of Media Arts II (Television, Photography, Theater)* but they barely touched on the educational aspects of these technologies and thus these passages were excluded from the data.

As for the reading activities, there were only 6 activities in the 38 EAP textbooks in the Humanities that employed educational technologies, 3 in the 33 EAP textbooks in the Engineering and Basic Sciences, 4 in the 18 EAP textbooks in Medicine and 0 (none) in the 5 EAP textbooks in Arts. Instances of such activities searching online and finding a set of specialized collocations in the discipline-relevant research publications (page 166 of *English for the Students of Engineering*) or introducing a set of links to websites and *YouTube* videos that further help students with the concepts raised in the reading passages or with the reading strategies and grammar and vocabulary items introduced in the unit (placed at the end of each unit of the *English for the Students of Economics*).

4.2. The qualitative analysis

Thirty-two (n=34) of the textbook authors were selected via stratified random sampling and invited to take part in the interview but only 25 responded positively to the invitation and agreed to take part in the interview with one of the researchers of this study. That number had to be cut down further to 18 as we wanted to interview authors who were teaching or had experience teaching EAP courses. The interviewer assured the authors that their identities would not be revealed and that the interview data would remain confidential and used for research purposes only. The authors all were all PhD holders in their respective fields and had written the textbooks either individually (single authors) or cooperatively (co-authors). Table 2 presents the authors' profile.

Table 2. The profile of the EAP textbook authors taking part in the interview

Field of study	Number of Authors	Academic Rank			Gender		EAP Teaching Experience (yrs)		
		Asst. Prof.	Assoc. Prof.	Full Prof.	Female	Male	1-5	6-10	+ 10
Humanities	6	2	3	1	2	4	2	4	1
Engineering and Basic Sciences	6	1	3	2	2	4	2	4	1
Medicine	5	1	4	0	2	3	2	2	1
Arts	1	0	1	0	0	1	0	0	1
Total	18	4	11	3	6	12	6	8	4

Abbreviations: Asst. Prof.: Assistant Professor; Asst. Prof.: Associate Professor; Full Prof.: Full Professor; Yrs: Years

The semi-structured interview was employed to support and illuminate research findings from the quantitative part of this research. The interview questions focused on authors' attitudes toward and experiences of using educational technologies in the EAP instruction in the university context. Data from the interviews were analyzed using the thematic analysis (Clark & Braun, 2006). The repeated patterns of meaning found in the transcription were coded, and then each code was linked and grouped under the same themes. The codes and themes were discussed between the two researchers until reaching agreement.

The qualitative results revealed that all but two of the authors were in favor of employing educational technologies in and out of classroom teaching and learning, including in the textbooks they used in their EAP courses. They also believed their students would be interested in using such technologies and that students in fact think more positively about technology-enhanced courses and technology-oriented professors. One of those opposing application of technologies in language teaching (a full professor, Humanities, 18 years of EAP teaching experience) said achieving the objectives of her EAP textbooks does not need any particular technologies. The other opposing author (associate professor, Humanities, 9 years of EAP teaching experience) said that most technologies are not teacher-friendly and make the teaching process complicated. Seven authors maintained that introducing educational technologies was not the purpose of the EAP textbooks or courses, as seen in the comment below made by an associate professor in Medicine with 4 years of EAP teaching experience:

> I assume the purpose of [EAP] instruction is for students to master the lingo of medical texts and improve their reading and translation skills. They can learn [how to use] the various technological tools that enhance their learning either on their own or via other supplementary

> courses. After all, neither class time nor the existing facilities allow us to attend to the technological dimension of EAP pedagogy.

The results also showed that most of the authors (15 out of 18) did not consider including educational technologies at the time of writing the EAP textbooks. They gave a number of reasons for this negligence. Nine of them (n=9) faulted the EAP textbook template (either the old or the new one) given to them by the publisher (i.e., SAMT), claiming that if the template had introduced and insisted on using educational technologies in the textbooks, they might have thought about the idea of including such technologies in the content and tasks of their textbooks. Thirteen authors (n=13), however, admitted that even if the template did require inclusion of educational technologies, they could not have done so because they do not have a solid grounding in educational technologies or their applications in EAP pedagogy. They also believed students should be trained in how to use these technologies. This finding clearly demonstrates the need for teachers and learners' professional development courses that would familiarize and encourage them to use technologies in their teaching and learning practices.

> I should admit that I did not know much about educational technologies and how to incorporate them in the design of the textbooks or even in my classroom teaching. Most of the (university) teachers of my generation are like me; they are not tech savvy. All I can do, technologically speaking, is receive and send emails, work with PowerPoint… not much else. I suppose technology suits younger teachers more… (associate professor, Humanities, 10 years of teaching EAP)

> I think students know technologies and how to use them better than us [teachers]; they learn these things quickly but I think that is true mostly about social media and networking technologies. When it comes to educational technologies, I think they, like us, need some training. (assistant professor, Medicine, 5 years of teaching EAP)

Eleven out of the 18 authors believed that lack of facilities in Iranian university classes does not allow them to employ technologies in their classroom teaching or in their textbook designing. They were quick to point out some frustrating experiences they had with the use of some basic technologies such as overhead projectors and the Internet in their classrooms. They said the experience was sometimes embarrassing and some of them even believed the repeated technological failures during teaching led to their low approval ratings at the end of the term.

> I clearly remember this one time I decided to teach the class content via Prezi. First, we could not get the laptop connected to the overhead project. After almost 10 minutes of trying, we had to ask a technical support staff member to help us out. When we did manage to get the connection right, I noticed that the speed of the Internet was low and I could not log into my account to get my Prezi slides on the screen; I had to kill some class time while we waited for better Internet connection… Once I was able to get things right and have the slides running,

> more than 30 minutes of my class time had passed and students were rather distracted and disappointed… I now use PowerPoint as it is more failure proof. The same thing would probably happen with technologies in textbooks. (associate professor, Arts, 9 years of teaching EAP)

Several other authors agreed that the experience of having to cope with technological glitches was indeed unpleasant:

> I do use technologies in my classroom teaching, mostly authentic videos, audios, PowerPoint slides, … but I have learned my lessons, I always give my students a heads up, telling them that they should expect occasional breakups and glitches when working with or presenting via technological tools. (assistant professor, Humanities, 4 years of teaching EAP)

Seven authors (six content experts and one TEFL expert) also said that the focus of the EAP textbooks is on developing and enhancing the reading skills and as such they did not lend themselves well to incorporation of technologies. This opinion is not really justified since there are many educational technologies that support L2 reading and teaching (see Cobb, 2018; Liaw & English, 2017). Six authors (five TEFL experts and one content expert), however, pointed out the SAMT's old template for EAP textbooks were traditional in nature and consisted mainly of multiple choice vocabulary and grammar items or true-false reading comprehension questions and allowed for a very limited technology use, if any at all. They also noted that when they were writing the textbooks based on the old template, technology was not as developed as it is today. Upon further analysis, however, the researchers of this study found out that some of these authors whose books reached the 10th edition were still ignoring educational technologies in their textbook design.

All authors agreed that their specific field of study could benefit from educational technologies and one is only limited by one's imagination as how to apply them in EAP instruction. Eight writers said that one of the main problems with technology is that it continuously changes and this can be discomforting because the changes can mean further workload such as reading and learning about the innovations and a change in teaching practices and pedagogies.

> Technologies are indeed beneficial for my teaching practice but there are so many of them out there that I have a hard time deciding which one to select. even when you manage to choose the right technology for your purposes, there will soon be a newer version which may contains features that require adjustments in my teaching syllabus. I hasten to add that I am not a lazy teacher; in fact, I enjoy reading and learning new things, including technological devices that help me with my teaching. The problem is that I am heavily burned with a wide range of academic social responsibilities that I can hardly take time to make the adjustments.

In addition to the reasons stated above, other reasons provided are shown in Figure 1.

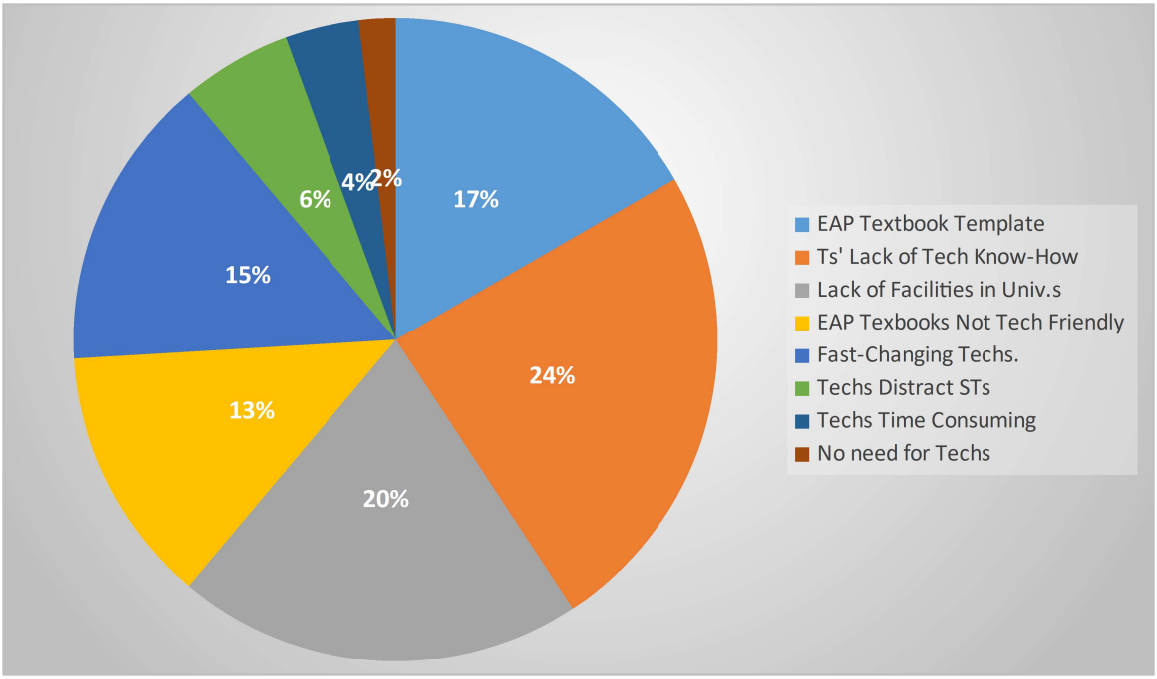

Figure 1. The EAP textbook writers' reasons for not including educational technologies in the books

Abbreviations: T: teacher; tech(s): technology(ies); STs: students; univ.s: universities

Figure 1 shows that the authors' most important reasons, in descending order, for ignoring educational technologies in EAP textbook designing were their insufficient technological know-how (24%), lack of or inadequate technological infrastructure and support of the institutions (20%), technology-deprived EAP textbook template (17%), fast pace of technological innovations (15%), the mono-skill orientation of the EAP textbooks that did not lend themselves to incorporation of technologies (13%), the distracting nature of technologies to students (6%), the time consuming nature of technologies (4%) and that achieving the objectives of the EAP textbooks was possible without the need for technologies (2%).

5. Discussion and recommendations

Textbooks are an essential part of ELT programs and one of the main instructional materials used in the language classroom (Richards, 2014). Similarly, Sheldon (1988, p. 237) states that "textbooks represent the visible heart of any ELT program". Hutchinson and Torres (1994) also contend that the "textbook is an almost universal element of ELT teaching. Millions of copies are sold every year, and numerous aid projects have been set up to produce them…. No teaching-learning situation, it seems, is complete until it has its relevant textbook" (p. 315). It is

not difficult to understand the logic behind these statements; textbooks provide language teachers with content of the course and assure a measure of structure, consistency, and logical progression in a class (Richards, 2014). Moreover, textbooks are important for learners and furnish them with the materials through which they can develop their linguistic and communicative abilities (Ahmed, 2018; Syed, Quraishi & Kazi, 2019).

As mentioned earlier in the paper, the EAP textbooks published by SAMT have been subject of many studies and researchers have examined different aspects of these books, yet the inclusion of educational technologies in them and the attitudes of the authors of the textbooks toward the issue have not be investigated in any of those studies. The current study was an attempt to fill that gap; the results indicated that the textbooks were largely devoid of educational technologies despite the fact that most of the authors of these textbooks were in favor of (though not necessarily capable of) incorporating educational technologies in their books and courses for that matter. This finding supports Dashtestani's (2019) claim that Iranian EAP teachers hold positive attitudes toward the use of technology in EAP courses. The authors cited a number of reasons for that omission, some of which have already be pointed out in previous studies regarding technology and ESP/EAP pedagogy. Flanagan and Shoffner (2013), for instance, found out that one of the factors encouraging or discouraging English teachers to integrate technologies in their instruction was their pervious (un)successful experiences with the technological tools. They also pointed out that lack of training or information on how to use educational technologies influenced the teachers' willingness to integrate technologies into pedagogy. The findings from the interviews are also in line with those of previous studies (e.g., Dashestani, 2012; Kilickaya & Seferoglu, 2013) that revealed lack of technology-based facilities, low availability of computers, and lack of educational authorities' support to include technology are among the significant barriers to utilization of technologies by teachers in their instructional practices (Dashestani, 2012; Kilickaya & Seferoglu, 2013). Al-Mahrooqi and Troudi (2014) also content that the availability of computers and e-learning professionals, and the presence of solid infrastructure (including, among other things, computers, fast Internet, secure platforms, expertise and continued teacher training), are paramount to the success of any technology integration.

Based on the findings of this research, the authors make the following recommendations:

- Of the core principles of ESP/EAP instruction is that it should be based on learners' needs and consequently all decisions as to content and method should be based on the learners' reason for learning (Hutchinson & Waters 1987). Needs analysis can include

the specification of not only the linguistic items and how to use them effectively in communication but also the technological needs and wants of the students. Students taking part in ESP/EAP courses have specific technological needs, some of which are educational in nature, that need to be addressed, either via teaching materials such textbooks or curated lessons. The researchers of the present study suggest ESP/EAP textbook writers and researchers conduct an analysis of the technological needs of students in ESP/EAP courses to tailor instruction to the students' needs (for more information, see Bocanegra-Valle, 2016). As evidenced by the findings of a study carried out in two Sudanese universities (Mohammed, 2016), the needs analysis is an inseparable part of the syllabus designing and students' voices should be heard when designing the syllabus; he adds that EAP materials should be under regular revision and modification. This point was something that was missing from the comments of the authors who participated in our study.

- Like many publishers around the world, SAMT, as a famous publisher in Iran, has its template which guides authors when writing the EAP textbooks. Our recommendation is that the publisher modifies its template in a way that it provides guidelines to authors as how to include educational technologies in the design of the EAP textbooks. Even if inclusion of technologies in the textbooks is impossible or not cost-effective, the template can guide the textbook writers to think of creating spaces where technological tools can indeed be used, spaces like textbook companion websites which can provide additional technology-supported materials and activities to enhance the teaching and learning experience for teachers and students.
- Including educational technologies in ESP/EAP textbooks and courses without providing the teachers with training as how to use these technologies will not be very effective. ESP/EAP teachers need to realize that educational technologies are part and parcel of the ESP/EAP courses nowadays; such professional trainings also help them get rid of technophobia. Research (e.g., Barton & Dexter, 2019; Tweed, 2013) has shown that those teachers who receive instruction in how to utilize technology are more successful when it comes to applying technology for educational purposes. In fact, one of the barriers to utilization of technology in classrooms is the low level of teachers' technological know-how (Flanagan & Shoffner, 2013; Dashestani, 2012).
- Training students in how to use technological tools for academic purposes should not be forgotten either. In a study aimed to investigate the purposes for which students at a Mexican university use technology, Cueto, Ramos, Garcia & Cheol (2017, p. 272)

found out that there was "a noticeable contrast between the use that students make of technologies for academic and personal aspects." This finding implies that students, left on their own, would not be interested in using technologies to learn a foreign language and that they need to be trained and encouraged to apply technologies for achieving their academic goals. It is more likely that students who have more training and instruction on educational technologies are more comfortable with utilization of those technologies for educational purposes.

- ESP/EAP textbooks should include the four language skills as integration of the four skills allows for easier application of wider technologies. In most of the EAP courses taught in Iranian universities, the reading skill receives the greatest attention (Atai & Nazari 2011); a drastic revision in the EAP policies and syllabuses is needed to allow for the integration of all the four skills and incorporation of wider range of technologies. More importantly, applications of technologies need to be supported with appropriate pedagogical approaches and strategies. Yundayani, Kardijan and Herawan (2019) demonstrate how incorporation of technologies in EAP materials through task-based approach can lead to an increase in students' motivation as they will be able to access authentic English through meaningful tasks (see González-Lloret, 2016, 2017 for more information regarding technologies for task-based language teaching).
- Adequate facilities and technological infrastructures are very important if educational institutions wish to run technology-enhanced ESP/EAP courses. As mentioned earlier, lack of technology-based facilities, low availability of computers and lack of educational authorities' support to include technology are among the significant barriers to incorporation of technology (Dashestani, 2012; Kilickaya & Seferoglu, 2013). University administrators and authorities should provide ESP/EAP teachers with access to tools and facilities which help effective utilization of technology in language teaching classes.

6. Conclusion

Although the current study has clear specificity in relation to the EAP context in Iran, it is a critically important subject for all institutions that either prepare ESP/EAP textbooks or offer ESP/EAP courses. Educational technologies cannot be ignored in ESP/EAP textbooks or courses, particularly in today's increasingly technology-oriented globalized academic community. We close this discussion by suggesting that future researchers complement this study by investigating application of technologies in ESP/EAP courses because teachers might

indeed be using educational technologies even if the textbooks they are using or the syllabuses they are following do not contain any educational technologies.

This study suffers a number of methodological limitations which we hope future research will address. The researchers of this study limited themselves to EAP textbooks that have been published by only one Iranian institute, namely SAMT. Although SAMT is indeed the main publisher of such books for Iranian universities, it is not the only publisher of EAP textbooks in Iran. In fact, many Iranian universities have their own publishing houses which produce EAP textbooks for their own in-house consumption. It might be possible that the writers of at least some of those textbooks to have followed a different strategy with regards to technology incorruption in EAP textbooks. In consideration of that possibility, we ask the readers of this article to interpret the findings with caution and not extrapolate them to all the EAP textbooks used in Iranian universities.

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Notes

[1] We prefer the term EAP over ESP for the textbooks used to teach field-specific English in Iranian university contexts.

[2] The authors of this study believe *English for Students of Educational Technology* (without the article "the") is the correct title not *English for the Students of Educational Technology.*

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Appendix A. The list of technological tools

1. (Anti)plagiarism-detecting software
2. CDs or DVDs
3. Course management system (CMS)
4. Digital teaching portfolio
5. E-books
6. E-readers
7. E-dictionaries
8. ePortfolio
9. Electronic gloss or annotation
10. Grammar checker
11. Google Docs
12. Interactive whiteboard
13. Individual study tools (e.g., Skillsoft e-learning)
14. Intelligent tutoring system
15. Learning management systems
16. Massive open online courses (MOOCs)
17. Multimedia (e.g., livecasting, podcasting, photo, video and file sharing)
18. Note-taking apps
19. Online resources (e.g., corpus, concordancer)
20. Online discussion forums
21. Pronunciation programs
22. Presentation tools (e.g., Microsoft PowerPoint, Prezi)
23. Referencing software
24. The Internet
25. Virtual classrooms
26. Wiki
27. Word processing software
28. WebQuest and the blog

Appendix B. The interview questions

1. Have you included technology in the content (reading passages or tasks) of your book?
2. Did you have technology in mind when selecting the content (reading passages) or when designing the reading tasks and activities (including grammar and vocabulary exercises)?
3. What are your perspectives toward application of technology in EAP textbooks (i.e., advantages and disadvantages)?
4. Does your discipline lend itself toward inclusion of technology in the EAP textbooks?
5. Do you think your students will like working with technology when learning English, especially EAP?
6. Do you read articles that report on the use of technology in EAP teaching/ learning?

LEARNING SPECIFIC ACADEMIC VOCABULARY USING MALL: EXPERIENCE FROM COMPUTER SCIENCE STUDENTS

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Abstract

This study investigated the experiences of students in learning specific academic English vocabularies (ESAP) through the use of a mobile dictionary called SPEARA. The mobile app was designed to help the students learn the use of specific words, providing definitions and examples of use from authentic sources. The study aimed at identifying points of learning students experienced when using the mobile-assisted language learning (MALL) by answering two questions: first, to what extent students improved their ESAP using MALL and second, how students perceived MALL for studying specific words in Computer Science. Data for this study were collected from 113 Computer Science students enrolled in English for Academic Purposes classes. Two data sets were compiled in this mixed-method study. The first data set consisted of test scores, and the second data set contained transcripts from interviews with students and students' essays. Findings showed significant learning improvement in the use of MALL to students' vocabulary knowledge (SD=0.992). Students perceived leaning using MALL to be both positive and rewarding. Interestingly, students revealed the use of MALL could not replace human interactions. Human interactions could enrich students' understanding and allowed the exchange of ideas. Further implications on human-interactions in MALL and on the future investigation were also discussed.

Keywords: ESAP; MALL; mobile dictionary; Computer Science

1. Introduction

English learning in Higher Education at present has been focusing on providing relevant and specific knowledge (Hanks, 2013; Hyland, 2017). For this purpose, studies have reported the provision of discipline-oriented learning rather than generic academic English (Bhatia, 2008, 2011, 2017; Flowerdew, 2001, 2012, 2013; Swales, 1990). These studies demonstrate that when exposed to the highly frequent discipline-oriented English words or expressions, students would become more successful in learning. Research also suggests that exposure to English for specific academic purposes (henceforth ESAP) is an important point of the learning process (Swales et al., 2010).

Within the context of ESAP, the aim of learning is to use a word in a typical academic context (Hyland, 2017). For example, in Computer Science, the word 'attribute' refers to the property of files, often related to metadata, and describes the speed and storage capacity of computers. Another example is the word 'performance', which would refer to computer performance, followed by details of the number of works or tasks accomplished by a computer system. From the point of view of ESAP, it is most beneficial for students to be exposed to such specific information (Hyland, 2012a, 2012b; Hyland & Tse, 2007). Most recent studies also highlight the importance of identifying the contexts of use (Dang, 2020; Dang & Webb, 2016).

ESAP in Computer Science provides a window of knowledge to this relevantly new Hard-Applied Science. As an emerging discipline Computer Science is considered to be developed in both Pure Science and Social Science. Computer Science often uses words familiar to Social Sciences, such as attributes and performance, but with different senses or definitions. Corpus studies on ESAP showed the frequency of occurrence for words (Pho, 2008), different frequency of use per word (Leech et al., 2001), different syntactical structures (Anthony, 2006), and different lexical bundles (Hyland & Tse, 2007). However, no studies have been done in portraying students' vocabulary development prior to the use of the ESAP corpus, especially in Computer Science.

2. Literature review

2.1. MALL and learners' perceptions

MALL has been used extensively in higher education and it also provides significant contributions for learning specific English. Studies have revealed important caveats leading to cater to these needs of learning. It is necessary to have an integrated and learner-oriented MALL. There were previous studies into the use of MALL, such as those conducted by Dashtestani (2016) and Müller (2017), which explored the application of MALL in higher education. Dashtestani investigated the practice of using mobile devices by Iranian students as well as their attitudes toward it for learning English as a foreign language. This study showed students considered mobile learning to be beneficial. Besides, students also revealed more opportunities were made available through ubiquitous learning and access to the Internet, the use of multimedia in the classroom, and portability. The study revealed the need for a guideline to integrate MALL for English as Foreign Language (EFL) context.

Meanwhile, Müller et al. (2017) explored the use of the web-based game for learning English idioms and examined attitudes on learning using the web-based game. Thirty-six EFL

learners from Iranian and Japanese students were involved in the study. The findings of this study revealed significant improvements in the knowledge of idiom. The study showed that the dominant factor for learning improvement was the students' motivation in learning English. Students' satisfaction and self-perception of learning improvement were significant forces in improving students' learning.

Another previous study investigated self-perception and identity (Simanjuntak et al., 2018). In this study, gender aspects, as well as academic cultures, became determining factors in designing a model for MALL. The study adapted previous studies by Viberg (2013) and Kearney (2012) and developed a questionnaire to map students' cultural identities. The results revealed 94% of the students preferred collaboration in MALL. Also, 92% of the students demanded authentic materials in the MALL. Students also were aware of their learning needs, and 70% of them wanted to have professional-related content in MALL. Another 84% of the students also preferred MALL to provide indulgences, such as games or connections to social-media.

Previous studies on MALL have addressed some issues related to perceptions of learners. Nevertheless, most of these studies focused on the technical and mechanical applications of MALL. A lack of in-depth investigation of perceptions shows a clear gap in the MALL research. A thorough study needs to address learning as an integral entity, including learners' opinions on the learning process, the interaction with the instructors, as well as learners' perceptions of their learning success. Addressing these issues needs to be immediately done to provide a comprehensive view of MALL beyond technology and learning content.

2.2. ESAP and learner corpora

A comprehensive literature study was also conducted by Dashtestani and Stojković (2015) on English for Specific Purposes, who critically reviewed 55 previous studies on the use of technology in English for Specific Purposes (ESP) instruction. Results indicated differences in the study results for technology used in ESP-related teaching instructions as compared to the ones in EFL instruction, provided clear empirical evidence for the efficacy of the use of course/ learning management systems, corpora, and wikis in ESP instruction and identified the use of corpora to foster academic vocabulary, word combination learning, and the communicative ability for students.

Dashtestani's (2019) investigation on English for Academic Purposes (EAP) was aimed at revealing instructors' use and acceptance of technology in EAP courses. The findings revealed positive attitudes toward the use of technology in EAP courses. On the other hand, the

instructors demanded the development and access to more needs-based and major-specific software tools. The instructors were also expecting the application of technology to be made available for EAP students of different majors, following the needs analysis projects before employing any technology in the EAP courses.

In various fields of studies, the use of language features showed contextually-bound language. In the field of Psychology, Cooper's (2016) study identified the use of vocabulary and lexical bundles by undergraduate students in Psychology. Bhatia et al. (2004) revealed that some lexical items appeared frequently in the Computer Science field, and the recurrence signified the specific language in Computer Science. The study also explored the conventions in which these specific lexical items were used by the experts in the discipline. This study supported earlier studies, which looked at the use of language not merely as regulatory products but as 'text' of its own. However, both studies had not revealed the effectiveness of teaching these field-specific language features to students. Further research is needed to capture students' improvements when being exposed to specific content.

The study of learner corpora showed the necessary attention towards the use of learner language. Flor, Futagi, Lopez, and Mulholland (2015) investigated the misspelling patterns in L2 and L1 of examinees in the ETS corpus (GRE and TOEFL tests). Gilquin, Granger, and Paquot (2007) showed the use of learner corpora in material design, indicating which rhetorical functions are prominent in academic writing. Gablasova, Brezina, and McEnery (2017) investigated the use of collocations by language learners. The investigation was carried out to focus on identifying the relationships between two consecutive words and on the factors that contributed to the combinations of words, or collocates. It was concluded that there were multiple influencing factors, such as individual preference and selection of topics pertinent to the use of collocations.

The study of learner corpora from different first language backgrounds had also been done. Bedmar (2009) explored the written learner corpora by Spanish students of English. Data were compiled from the project called the INTELeNG Project, comprised of 5 research groups, collected students' errors in a Microsoft Access database. The analysis was based on Computer-Aided Error Analysis and Contrastive Interlanguage Analysis methods to describe the students' proficiency level and their interlanguage. Computer-learner corpora were considered important source of information for designing materials for teaching and learning.

On the other hand, Abe (2003) contrasted the use of language in spoken and written forms by Japanese-speaking learners of English. The study further investigated the variability of interlanguage by observing the style-shifting of various grammatical features and word

formation errors by tagging errors in 297 learners' data. There were differences in learners' errors from the perspective of grammatical and word formation. One determining factor for such variability was the English proficiency level of learners.

In Brazil, Dutra and Goide (2015) focused on learner corpus, CorIsF-Inglês, They explained how the corpus was essential to describe the language preference made by Brazilian university learners. Frequency analysis revealed learner choices when they performed different written tasks. Independent tasks, such as argumentative essay, invited learners to use a high frequency of nouns, as well as mental state verbs and some adjectives. On the other hand, in integrated tasks, such as when presenting information in written and oral texts or even in infographics or graphs, prominent use of nouns was prevalent. The results showed students used a high number of arguments as they needed to convince the audience of their position. Mental state verbs were used in supporting argument construction. It was apparent that some nouns were of high-frequency level because these nouns were directly related to the task topic (e.g. 'coffee', 'divorce').

These previous studies into learner corpora had focused more on the texts as students' products of learning. However, further research is needed to reveal students' perceptions of their language productions. Such exploration is deemed as important for more comprehensive, balanced, and fair judgments on English learning. Previous studies showed the benefits in implementing MALL in Higher Education level. However, the studies have not addressed the implementation of MALL in learning discipline-related English, or ESAP. None of the studies has also provided a thorough analysis from the point of view of learners. It is clear that there is a gap in investigating MALL in ESAP. This study aims at filling the pertaining gaps by providing answers to the contributions of the MALL for learning ESAP by answering these questions:

1 To what extent does MALL improve the learning of ESAP?

2 How did students perceive their success in using MALL for learning ESAP?

3. Methodology

3.1. The aim of the study

The present study took 6 (six) months or one academic semester. The context for this study was the use of MALL in an ESAP class for Computer Science students, entitled 'English for Business Presentation'. This course aimed at improving English skills when doing oral

presentations. Students presented their business ideas, such as innovations on technology, and worked on their scripts for oral presentations. At the end of the course, students presented their innovative products or innovative ideas (such as new applications or technology) through short video presentations and product knowledge as the supplement for the video presentation. Students used MALL, called SPEARA, when acquiring specific words in Computer Science. SPEARA was employed to look up for the definition of the word students wanted to use. They could find more information on the use of the word in sentences, which were actual examples from journal articles. These examples were considered as models of use for students to use in their writing or speaking productions. The knowledge for specific words and terminologies for Computer Science was considered very important for the course because the students would present their ideas to a knowledgeable audience. Throughout the course, students were able to access SPEARA from their smartphones.

3.2. Participants

Participants for this present study were 113 students enrolled in English for Business Presentation (EfBP) course. Only students with a minimum TOEFL of 450 (Intermediate Level) could enroll in this course. Students obtained TOEFL scores at the beginning of the university year as part of the new students' orientation program at the university. Participants came from two classes taught by the same lecturer and were all in the fourth semester of their college year.

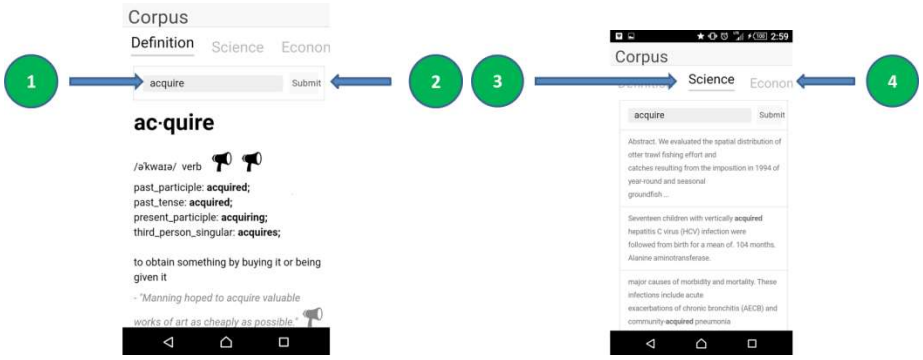
EfBP course provided opportunities for students to present ideas in a semi-business format. The objective of this course was to enable students to come up with innovative ideas to international communities. These ideas would include new technology, such as applications and gadgets. Specific words related to Computer Science and technology in the presentations became central attention in this English course.

3.3. Design and procedure

The present study explored the use of MALL for word-search and concordance. *SPEARA* was the object of investigation for understanding the perceptions when students learn specific words. *SPEARA*, short for Specific English as Research Assistant, is available as a free application in Playstore (Appendix 1). This mobile-app was available since 2017 and funded by the Indonesian Higher Education Directorate, Ministry of Education and Culture, under the Grant Letter Number 003/SP2H/LT/DRPM/II/2016 and 214/SP2H/LT/DRPM/III/2016. As the description of SPEARA found in the About menu of the mobile app reads, it is "…a corpus-

based word-search mobile-app. *SPEARA* aims at helping students learn and use English, especially in their academic majors." *SPEARA's* interface can be seen in Figure 1 below.

Figure 1. Manual for the mobile-based dictionary, SPEARA



As seen in the above figure, there are some steps students can follow to obtain information: (1) a student types the specific word/terminology they want to know in the provided window, and (2) clicks submit, then (3) looks-up how the particular word is used in sentences as found in journal articles by clicking the field of study and by finding out more in different field of study or different disciplines by (4) sliding to the chosen field of study or discipline.

3.4. Data collection tools and procedures

There were two procedures for data collection to obtain two sets of data: (a) test scores, and (b) interview codes. For collecting the first set, the procedure was as follows: first, students did a pre-test. They used the list of words in the pre-test as entry words in the mobile-app, *SPEARA*. After nine weeks of independent learning using *SPEARA*, the second step was to ask students to take the post-test, which consisted of the same items and instruction. The pre-test and post-test contained a list of 50 words taken from textbooks in Computer Science and considered as the most frequently used words in Computer Science. There were two sections of the tests. In Section 1, students identified their familiarity with the words by ticking the box next to the list of words. In Section 2, students wrote a sentence using the same word-list as in Section 1. Scores from both tests were compared and Pearson's correlation statistic was conducted for both test scores in IBM-SPSS.

The second data set came from students' essays and interview transcripts. The corpus consisted of 5,708 words from 29 student essays and 2,448 words from the interview transcript. The present study used a corpus as a systemized collection of English usage to identify the recurring words, which indicate themes and issues in the discussion (Conrad and Biber, 2005, Biber and Barbieri, 2007, Hyland, 2008). Using a corpus not only could reveal the key message

in the data but also display students' understanding of English in a specific context of use (Adolphs, 2008).

29 students submitted their essays at the end of the semester, in which they would describe their experiences when participating in the project. Students were also encouraged to write about their learning improvements. Following the post-test, ten students were selected randomly for a semi-structured interview. Transcript from the interview session was thematically-coded, to identify pertinent issues regarding the use of MALL. The interview was conducted in English using prompt questions as follows:

1 How do you feel about your learning?

2 How does SPEARA help you throughout the course?

3 In what way SPEARA help you to learn new words?

Data analysis revealed the improvements made on learning specific words through the use of mobile-based learning. Learning improvement was identified from the results of pre-test and post-test scores. This analysis followed the students' perceptions. Students' perceptions taken from the semi-structured interviews and essays were thematically-coded. Codes were obtained from recurring words, expressions, and statements found in the transcripts and essays. These codes were analyzed in conjunction with the theme of using MALL for learning ESAP.

Word generation tool *AntConc 3.5.8* (2019) was used to identify frequently occurring words. The tool also provided concordances, which showed the words in the sentence or clause. Thematic coding was vital in revealing the theme, issue, and problems the students had throughout the learning. Following the principles of grounded theory for qualitative analysis from Charmaz (2014), Strauus, and Corbin (1998), thematic coding was successful in identifying the underlying message in the data. These codes were further analyzed to reveal the perceptions of the students, including praise and concerns arising from mobile-based learning. Therefore, this present study used a mixed-method approach for a comprehensive analysis.

4. Findings

This present study revealed the effect of MALL on learning and students' positive perceptions of the use of MALL. The first finding was related to score improvements. More in-depth analysis on the perceptions of learning showed insights on the use of MALL in learning ESAP.

4.1. Improvements in learning ESAP using MALL

Learning improvements can be seen from the results of the pre-test and post-test. The Means, Median, and Modes of both tests can be seen in Table 1 below:

Table 1. Mean, Median, Mode in Pre-Test and Post-Tests (N=113)

Test	Mean	Median	Mode	Minimum	Maximum	Std. Deviation
Pre	58.90	59	52	53	83	9.48
Post	66.27	64	57	23	100	14.87

Table 1 showed higher scores for Mean, Median, and Mode. The higher scores were all shown in the post-test, as compared to the scores from the pre-test. The results showed the scores to be positively skewed (SD=9.48 and SD=14.87). The results showed regression to the right of the Mean scores. The regression in the post-test scores shows apparent differences in the distribution of scores in the post-test. Also, there was a decline in the minimum score of the post-test. The pre-test scores ranged from a minimum of 53 and a maximum of 83. The post-test had positively skewed scores. In the post-test, the minimum score was 23, and the maximum score was 100. The results showed improvements between pre and post-test scores, which were 83 and 100.

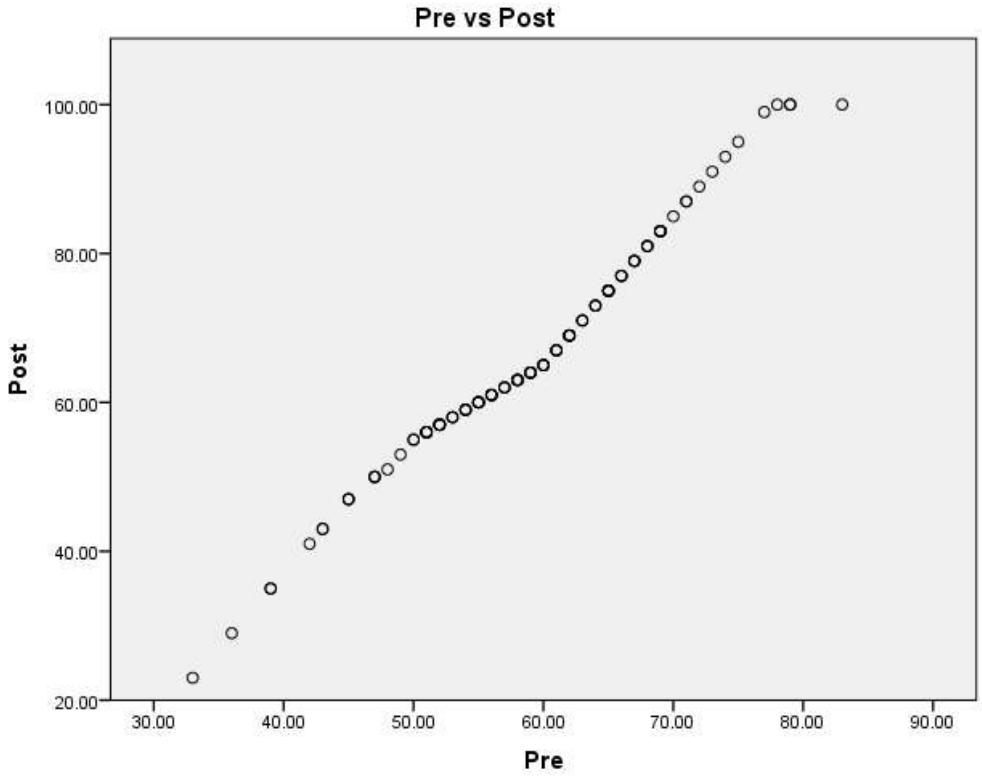
Table 2. Correlation between Pre-Test and Post-Test

	Correlation	Pre	Post
Pre	Pearson Correlation	1	.992**
	Sig. (2-tailed)		.000
	N	113	113
Post	Pearson Correlation	.992**	1
	Sig. (2-tailed)	.000	
	N	113	113

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2 showed that there is a significant correlation (SD=0.992) between pre-test and post-test scores. The results showed most of the students had shown improvements in their test scores after nine weeks of learning using a mobile app. The scatter plot in Figure 2 also confirmed the increasing trend for the learning.

Figure 2. Scatter plot for pre vs post tests



The scatter-plot showed data points clustered around higher scores. There was also a cluster of data points at the lower-middle part of the population. There was a small number of data points clustered at the bottom of the plot. The data cluster at higher scores indicated improvements had taken place. The data showed that learning had taken place. Students' post-test was also correlated with their TOEFL score to gain more understanding about their learning. The results were seen in Table 3 as follow:

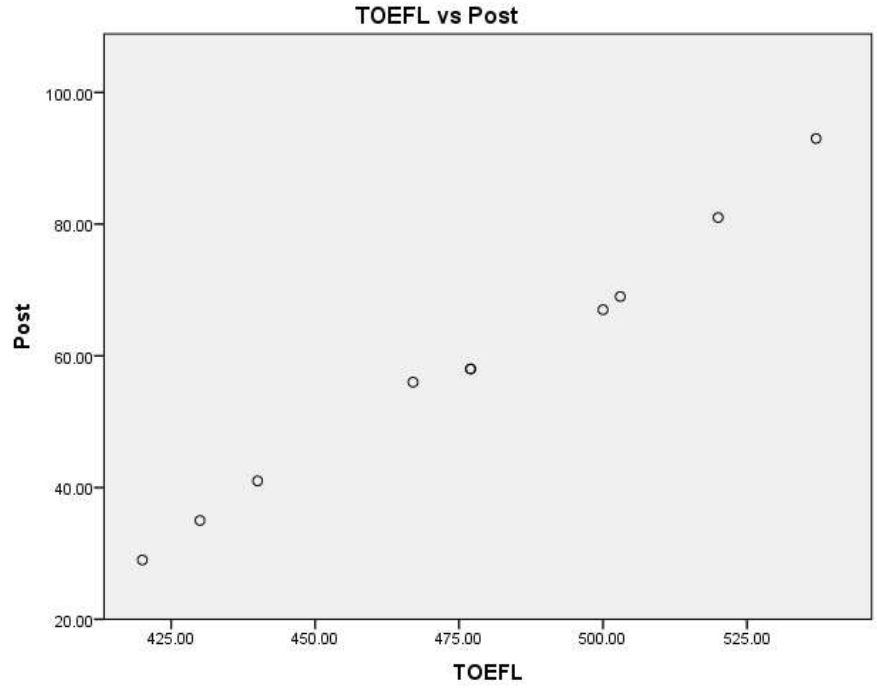
Table 3. Correlation between Post-Test and TOEFL scores

	Correlation	Post	TOEFL
Post	Pearson Correlation	1	.994**
	Sig. (2-tailed)		.000
	N	10	10
TOEFL	Pearson Correlation	.994**	1
	Sig. (2-tailed)	.000	
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

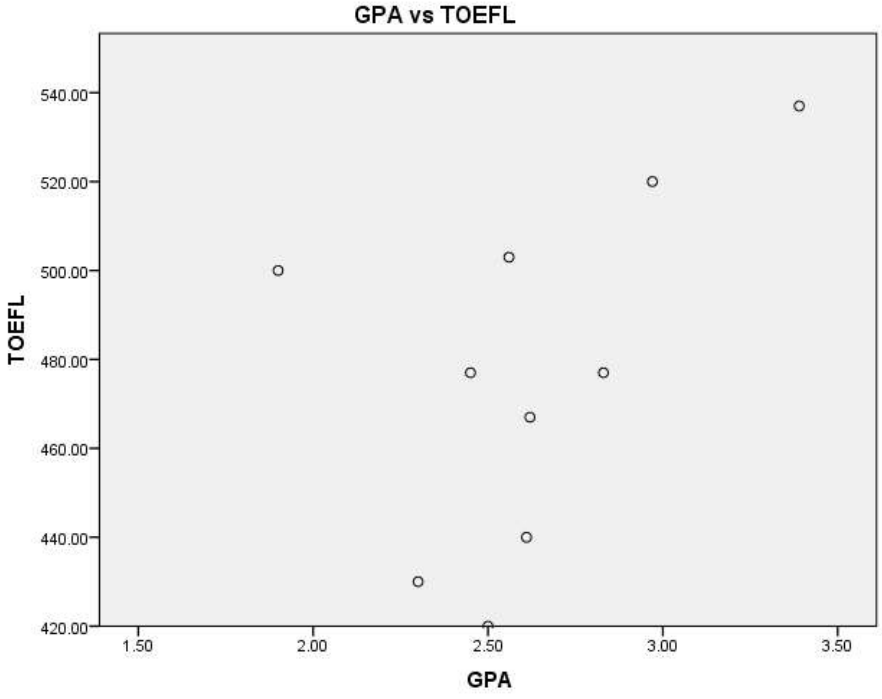
As can be seen in Table 3, there is a positively strong correlation regarding students' post-test scores and the TOEFL score. The TOEFL scores were obtained at the beginning of students' university years and were used as entry requirements to join this ESAP (English for Business Presentation) course. From the data, students with high TOEFL scores would likely have high post-test scores. This inference can be confirmed from the scatter plot in Figure 3 as follows:

Figure 3. Scatter Plot for TOEFL scores vs Post Tests



The scatter plot showed a correlation between post-test scores and students' TOEFL scores. On the other hand, students' TOEFL scores did not always correlate with students' previous academic achievements as represented by their grade point average (GPA), as seen in scatter plot in the following Figure 4:

Figure 4. Scatter Plot for GPA vs TOEFL scores



As evidenced by Figure 4, students with higher TOEFL scores (>500) appeared to have high GPAs. Meanwhile, students with TOEFL scores of 500 and lower had various GPAs.

4.2. Perceptions of success in using MALL for learning ESAP

Perceptions on learning success are shown in students' essays and interviews with students. Participants also provided important information on how the perceive themselves and others throughout the learning process.

4.2.1 Students' perceptions as seen from students' essays

In students' essays, there were some high frequently recurring words found. These words are as shown in Table 4 below:

Table 4. 50 most frequently occurring words in students' essays

No	Freq.	Word	No	Freq.	Word	No	Freq.	Word	No	Freq.	Word
1	376	I	16	17	You	31	11	present	46	8	interested
2	214	my	17	16	need	32	11	product	47	8	practice
3	145	presentation	18	16	speaking	33	10	class	48	7	bad
4	97	audience	19	15	expect	34	10	improving	49	6	relax
5	35	nervous	20	15	give	35	10	public	50	8	talking
6	34	think	21	14	point	36	9	business			
7	32	hope	22	14	say	37	9	confident/nce			
8	29	good	23	14	want	38	9	memorize			
9	23	attention	24	13	English	39	9	part			
10	23	expectation	25	12	contact	40	9	pay			
11	20	speak	26	12	eye	41	9	talk			
12	19	better	27	12	gesture	42	9	understand			
13	18	presenting	28	12	get	43	9	voice			
14	17	people	29	12	improve	44	8	feel			
15	17	they	30	11	know	45	8	future			

As can be seen in Table 4, most frequently recurring words were about self, including *I* (376 times), *my* (214 times). Such frequently occurring words could be further identified as having similar themes, namely:

1 words referring to self, including *nervous* (35 times) and *hope* (32 times)

2 words referring to audience, including *audience* (97 times) and *people* (17 times),

3 words referring to English skills, including *speak* (20 times) and *speaking* (16 times)

Students reflected on their feelings and concerns regarding their learning. They used the words *nervous* (35 times), *hope* (32 times), *attention* (23 times), and *confident*/*confidence* (9 times). These frequently used words inform the themes that occur in students' essays. It can be concluded that students felt nervous about their presentation and what their audience would think of them, as can be seen in the following examples:

1. When I present my group project, I was really nervous and also scared. (Kthn)
2. I can relate the talk with good eye contact and gesture which will make it great to me to

understand, and if I can control all things of myself like nervous and everything, the audience hopefully will be interested with my presentation.(Erc)

3. My pronounciation* is quite good when im* talking casually, but when presenting I became nervous and it end up badly. (Kvn)

As can be seen from the examples, students were mainly concerned about the success of their presentations and projects. Their perceptions of success were closely related to accomplishing the task (presenting group project) as well as getting the attention of the audience.

Students were very concerned about how the audience would react to their presentations. The words related to this theme included *audience* (97 times), *people* (17 times), *they* (17 times), *you* (17 times), and *public* (10 times). In this theme students perceived other people as their audience. Examples of students' sentences on this theme were:

(1) I also want to present the points I want to tell to the audience clearly, with no points missed because I forgot to tell it. (Own)

(2) I expect that I can be more confident when I speak in front of public, understand most of the material I am presenting. (Wlm)

From these examples, the students were aware of the importance of getting the presentation messages across. Students also recognized the importance of quality materials as well as the use of persuasive tone in a video presentation.

As regards their perceptions of improvement, students perceived improving English skills as central in completing the course projects. The theme appeared as students frequently used the words *speak* (20 times), *speaking* (16 times), and *product* (11 times) in their essays. An example of the sentence using the word product can be seen below:

(1) The goal of the presentation is to convey idea of the product including all of its features. (Yvn)

As can be seen from this example, student Yvn wrote the word *product* in association with the word *features*. The student intuitively used the word *product* together with the word *features*. The combination is acceptable or seen as common in the Computer Science context. She then conveyed in the sentence her acknowledgment of the concept and successfully made her point as the goal for her project's presentation.

Another example of use was shown in the sentence below with the word *speak*:

(2) I'm not used to speak in English since I was a little kid so that's why my spoken English has so many lacks (ex: pronunciation, vocabularies, accent) here and there. (Mlv)

As can be seen in this sentence, student Mlv gave her evaluation of her spoken performance. She concluded that her speaking ability was lacking since she was not used to speaking in English from the beginning. However, the way she explained her situation indicated full

knowledge of how to be successful in speaking. As a speaker, she was fully aware that she needed to work on pronunciation, vocabularies, and accent.

These sentences prove students knew how to complete their tasks. They also showed a relatively low confidence level in terms of performing their language skills.

4.2.2 Students' perceptions as seen from the interview session

Ten students were selected randomly for a semi-structured interview session. The ten students answered questions on the use of *SPEARA* as MALL for ESAP. Students were prompted with three questions: (1) How do you feel about your learning? (2) How does *SPEARA* help you throughout the course? and (3) In what way *SPEARA* help you to learn new words? Results were obtained from students answers. Using thematic coding, the results obtained from interview session revealed several themes.

When asked the question, "Do you think you have been successful in doing this course?" almost all of the ten students responded they had successfully improved their confidence and presentation skills. One student regarded himself as still not confident in doing a presentation in English, despite his high score for the course. Prompted with another question, "Do you learn new words, especially in Computer Science?" the students all answered yes with various responses, such as:

VNY : I think I did. I learnt new words like the ones you gave us on the quiz,… query… attributes.
JUV : Yes, certainly. There are words I already know. But, I also learn new words, such as query. I learn to making sentence using that word.

Both transcripts demonstrate that students confirmed that *SPEARA* had helped them. Students' feeling of confidence were related to new skills or information they received from learning new words.

Students agreed that *SPEARA* was easy to install and use. Students were able to navigate between the menu in the mobile-app easily. Some students provided further comments:

VNY : I think SPEARA is pretty easy to use, no confusion
GEO : (it is) quite easy, just slide to the menus
JUV : Using SPEARA is easy, (you) just have to type the word

From above responses, students in general perceived SPEARA as the MALL to be easy to use. Also, the mobile-app was considered as having the features that the students preferred. One of the favoured features was word-pronunciation ("so we know how the word sounds" –Vny), which sometimes confused. Another positive remark was about the size of the mobile app, which was small (<10MB). Students also admitted that something they remember about the

learning was the use of a mobile-based dictionary in their course. Even after the course completed, they still kept the mobile-app in their smartphones for future use.

Students particularly noticed the large amount of information provided by *SPEARA*, from their interactions with the MALL. When asked to recount their experience using *SPEARA* one common theme that always appeared in the interview transcript was the amount of information students received from the mobile app. The reason being upon typing the keyword the students could see concordance-lines, which are lines of sentences from multiple sources containing the word. Some students reminisced:

HMW : Yea, you *gotta* select what you want to read, though, there are so many information

MLV ; So much information, which is quite useful for reference

Such overflowing of information as the students recalled, could be overwhelming, as in their words:

KTN : … (there is just) too much information, (I am) not sure where to read first

BRY : I could not understand them. The sentences are difficult to understand. There are too many lines (of sentences)

When prompted further what they did to manage the situation, both of these students recalled the time when the lecturer provided the explanations on these sentences. Both students asked the lecturer during the lesson to explain the sentences they found in the mobile-app. Upon receiving an explanation from the lecturer, the students said the information from the lecturer was most helpful for them.

Finally, students provided answers on whether they would use *SPEARA* again for their learning purposes. All ten students agreed that *SPEARA* was an effective tool for assisting their study. Students again highlighted that it would be ideal if there would also be someone who could help them with further explanation.

Based on the data provided in the tables and figures of students' test results, it could be confirmed that MALL had a positive impact on students' learning. The data has significantly shown correlations between the tests as well as revealed the effectiveness of MALL. It was shown that students could achieve maximum results in the post-test. The achievement further confirms that students had been able to provide the learning outcome by using MALL. These findings are in line with the previous studies (Kearney, 2012; Müller et al., 2017).

The data also revealed students' test results to be consistent with higher academic English. It could be concluded from this study that students' success in ESAP could be determined by students' readiness in learning highly contextual English. In this present study, students joined a high-intermediate level course. This present study also revealed that an ESAP

course would not only require sufficient knowledge in academic English but also other academic skills. A consistent rise in students' test results could be seen in students with a high GPA (>3.00) and TOEFL scores (>500). Students with sufficient knowledge in both aspects had been shown to gain maximum benefits from the MALL. This finding supports previous research on ESAP, arguing that the English courses in university-level would only be meaningful when it is aligned with students' field of study (Flowerdew, 2012, 2013; Hyland, 2007),

The use of MALL had also been perceived as positive in this present study. Students' essays and interviews had confirmed the benefits of using a mobile-based dictionary to provide specific information as needed by the students. The provision of MALL was also considered as convenient due to the ubiquitous nature of the technology. MALL allowed students to access the materials at their convenient times. Students had also professed that the use of the mobile-app would last even after the course had resumed. This finding supports the previous research, in which efficient measures were always one of the preferences in adopting MALL in formal education (Dashtestani, 2016; Fortunati, 2012).

The main finding of this study is arguably the autonomous tenet of MALL. Autonomy is the prerogative of the students, in which students felt they have control over their learning. This study showed students had a strong proposition on learning. They felt confident when producing the language in their projects. These themes kept appearing in students' essays. The recurrent information revealed the ultimate value for students as users and owners of the language. Students no longer lingered upon structures and rules of the language but on the functions and strategic values of English. This study conformed to the study of learner corpora and ESAP (Bedmar, 2009; Biber & Barbieri,2007; Conrad, 2005).

This present study had also successfully employed a grounded approach to reveal important realities as shown in qualitative data. An important finding revealed the importance of navigating MALL. In the present study, students appreciated the freedom provided by the MALL. Such an opportunity means that students could use MALL any time and in any way they wish. Using MALL in this way makes students the centre of the learning process. This present study had also revealed that students do tend to underrate their performance, which may be related to levels of confidence. Data have also shown that students preferred to have their lecturer to be their learning guide. The amount of information made available by MALL could make students felt overwhelmed. Accordingly, students would need the necessary guidance to sieve through the information. Human interactions also are considered important to meet with the socio-cultural expectations of learning, in this case, students with lower confidence levels

or students with low independence levels. The pedagogical value in the use MALL as to complement and not to replace human interaction as identified in this present study conform the proposition made in the previous studies (Abe, 2003; Dashtestani, 2019; Flowerdew, 2013; Fortunati, 2012; Hyland, 2012a).

This present study has revealed the improvements of learning as well as students' perceptions on learning English in Higher Education. It could be seen that in Higher Education MALL could empower students to be the centre of the learning. Students could navigate their own learning process and the MALL provided them with the opportunities to reach their learning outcomes. On the other hand, the use of MALL also increased the value of student-lecturer interactions. Students perceived lecturers as experts and value the discussion throughout the learning process.

5. Practical applications in the classroom

This present study could be useful in applications in the classroom, especially for three purposes:

First, in the integration of MALL at universities, administrators could apply MALL in conjunction with other main courses. In different contexts, some classes may use languages other than English. Therefore, a pre-test could function as a needs analysis. The needs analysis usually becomes a starting point for the teaching-learning process. On the other hand, a test would also become a point of inspection on the learning progress but also to identify possible problems faced by the students.

Second, the MALL used to teach ESAP can be customized. An example would be adding the list of high-frequency vocabularies in a specific discipline. Apart from using MALL as a means for independent learning, which tends to be focused on generic academic English, customization would enable learners to be effective in using the words applicable to their disciplines or field of studies. Corpus-based tools are the best tools to generate the vocabulary list.

Third, a MALL developer could consider the integration of chat-room or other communicative/collaborative features. This human-human interaction would supersede the artificial communication provided by the mobile-app and would provide a needed balance to human-computer-interaction. This provision could result in adding the menu to contact the facilitator or to open a group-chat or video-conference. In the classroom setting, a lecturer/instructor could open a thread in the Discussion Forum. Lecturers could also initiate the topic for discussion. For example, a chat thread allows students and lecturers to discuss

more instances. This way, the student-lecturer interactions become fruitful and more engaging. Students would also feel less stranded upon communicating their worries to the lecturer/instructor.

5. Conclusion

The provision of a MALL in English education has contributed to the demand to provide the most necessary language elements for the students. Efforts to provide both important and effective learning models for relevant English learning are necessary. This study has shown that a combination of MALL to teach ESAP is a successful step towards ideal English pedagogy in Higher Education level.

This present study has explored the possibility of both and presents promising results. The present study has shown that approaching ESAP through MALL is possible. A proposition on the use of MALL shows the vital importance of students' perceptions. The roles of the students are central in the learning process as they become the active producers of the language they learn.

Finally, the present study has argued that MALL would be successful through the provision of human interaction. Developing human-interaction in mobile-app would be the necessary interactions needed for real communications. The ESAP approach in MALL abridged the interactions with experts in the field. Future study could investigate the human-interaction during the application of the MALL in an ESAP classroom. The investigation of how students interact with their peers and their lecturer/instructor would provide a more comprehensive view on the integration of MALL in English education. Collaboration and peer-review would be other aspects worth exploring in the future.

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USING *TWITTER* TO ENHANCE WRITING SKILL WITH SENIOR HIGH SCHOOL STUDENTS: A CASE STUDY

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Abstract

Computer Assisted Learning (CALL) is defined as the process in which a learner improves language skills by using a computer. Hani (2014) argued that CALL enables individualized, continuous, and authentic activities to teach and integrate the four language skills and indicates that immediate feedback can be given. Thus, this research aims to investigate and analyze the use of *Twitter* to improve writing skills on senior high school students and to determine its effectiveness as a tool in EAP instruction. The participants were 19 students from the senior level and an English teacher. To conduct this research, a mixed-method design was applied; and a survey and pre-post tests were administered to the participants. At the end of the research process, the participants outperformed on post-testing of writing, therefore, it can be concluded that *Twitter* is an effective tool to improve the written production of senior high school students, and this micro-blogging platform can be integrated to enhance EAP instruction within EFL contexts.

Keywords: ESAP; MALL; mobile dictionary; Computer Science

1. Introduction

Along with the development of technology, different social networks have provided technologies to facilitate second and/or foreign language learning. In the past few years, researchers have significantly evaluated online social networking sites (e.g., *Facebook*, *Twitter*, *LinkedIn*, and *YouTube*) to examine their relationship with students' educational outcomes (McLain, 2019; Taskiran, Gumusoglu, & Aydin, 2018; Bista, 2014), due to the fact that social media offer many benefits such as developing critical thinking and increasing motivation (BaŞöz, 2016).

Particularly, writing is a fundamental skill to be developed in any language because it allows communication and interaction as well as it is part of everyday activities; for instance, young students spend a lot of time writing on social networking sites and the Internet (Eren, 2012). Therefore, there is a necessity to encourage learners to produce intelligible writing; for this reason, teachers are challenged to motivate learners when writing integrates the diversity of

sources and tools that the technological era provides when teaching in an EFL (English as a Foreign Language) class (Li, 2017). In this regard, *Twitter* seems to be one of the best options for improving writing skills since it can be adapted to students' interests, needs, motivations and expectations (Hamid, Waycott, Kurnia, & Chang, 2015), as it enables students to participate in a wide range of interactions from private messages to arranging meetings in order to engage them in learning (Bista, 2015).

Undoubtedly, improving students' writing skills in a foreign language is fundamental; in fact, the integration of social networks into the curriculum has contributed to broadening students' knowledge, increasing their motivation and building confidence in learning EFL writing (Rosell-Aguilar, 2018). Therefore, it is advantageous to use *Twitter* to produce writing as the input that this space provides is of great relevance and rich of valuable content which enables students to have the autonomy for learning at their own pace (Tran & Duong, 2018) and the opportunity to interact with classmates, teacher, and people who are interested in a particular topic (Tang & Hew, 2017).

Thus, the necessity to conduct a study in the Ecuadorian context has become obvious since few researchers have investigated the effects of using *Twitter* in Ecuadorian educational institutions. Therefore, the current research was carried out in order to investigate and analyze the use of *Twitter* to improve writing skills on senior high school students and also to answer these questions:

1) Is the *Twitter* social network a suitable learning tool to foster writing skills?

2) What are the students' perceptions of *Twitter* as a tool to improve writing skills?

2. Literature review

2.1. EFL writing skills

Communication is the base for the development of any activity; in that sense, writing is an essential tool that enables people to express thoughts, feelings, and ideas in any language. However, this skill is considered one of the most challenging to master and even worse in a second or foreign language because it demands effort and time (Pek, Mee, Shing, Theesmas, & Nadarajan, 2019). According to Fareed, Ashraf, and Bilal (2016), the factors that hinder students to achieve effective writing skills in a second language can be linguistic, psychological, cognitive, and pedagogical. Besides, Saragih and Septiani (2017) expressed the view that students' native language may interfere with writing in a second language.

To write effectively in a foreign language, knowledge about the topic, a wide range of vocabulary and appropriate use of grammar are necessary for writers (Calkins & Ehrenworth, 2016). In that sense, as Alqunayeer (2016) mentions, vocabulary is important in order to master any language.

Motivation to write is also essential to produce critical thinking ideas as Fareed, Ashraf, and Bilal (2016) argue. The combination of the elements mentioned previously assures to avoid ambiguity of the message for the reader. Considering that writing is a systematic process that needs organization, physical and mental acts are necessary to write (Nunan, 2003).

Since writing is a complicated process before a final product is obtained, students require extensive practice to acquire the competences of a good writer. As Al-Tamimi, Al-Khawaldeh, Natsheh, and Harazneh (2018) argue, writers should first put into practice the reading skill to obtain all the input and to be familiar with the content, grammar structures and aspects that writing skills needs.

2.2. Elements of good writing

Even when there is no agreement among authors about the elements of writing, they consider that coherence, cohesion, and unity as the main ones. Jacobs (1977) describes coherence as the connection between words and text. It is the consequential construction into a sentence, bounded by two sentences or a paragraph, which contributes to the efficient message transmission. As a result, the argument is delivered in a clear and logical way. Oshima and Hoyge (2006) define coherence as the quality of writing something logical in order to avoid misunderstanding in the reader or receptor.

Coherence produces a qualified text; it means easy to understand by readers (Fareed, Ashraf, & Bilal, 2016). When the ideas are placed logically, the text is accessible because the reader can move easily from one idea to another. Students of a foreign or second language present a lack of coherence in a text when they cover many ideas in a text, and they do not concentrate on a single main idea (Faradhibah and Nur, 2017). Cohesion refers to the addition of logical connections between concepts, words, and sentences using different instruments such as grammatical structures, capitalization, punctuation, parallelism, among others. As a result, when a text contains all these factors, it becomes easy to understand and follow.

Cohesion is another element that refers to the way of connecting ideas within a text using appropriate vocabulary and grammatical structures. In order to have cohesion in a text, cohesive devices that are words, transitional, words, linking words, connectors among others need to be used to promote clarity. Hublová (2017) states that lexical cohesive devices

contribute significantly to recognition of coherence and play an essential key role in text production and interpretation process.

Using cohesive devices and phrases effectively helps the reader to have a better understanding of the meaning and relationship between information and a text. Furthermore, the sentences or paragraphs within an academic text should be all related to one another. In this sense, the job of the writer is to make appropriate connections between sentences and paragraphs as clearly as possible.

The last element essential for obtaining an academic writing product is unity. Shiyab and Halimi (2015) claimed that ideas need to be linked with one another to create unity in the written text. An excellent example of unity is when all supporting sentences are related to the topic sentence. It means that ideas must be explicit and direct to the point, from the beginning to the end of a text discussing the main idea (Fajri, 2016). In relation to these previous statements, Reinking and Osten (2015) suggest that the writer may edit and check a couple of times his/her ideas in writing, to avoid information that is not relevant in order to guarantee unity in the text.

The elements mentioned above enable the discussion of more than one idea in the same paragraph as long as the same idea is related to each other. Unity is the result of the correct gearing of every supporting sentence related directly with the topic sentence, which supports the main idea showing a close relationship in cohesion and coherence.

2.3. The structural parts of a paragraph

A good paragraph has three necessary parts: a topic sentence, supporting sentences and a concluding sentence. All these sentences are related to each other and well-organized having coherence, cohesion and unity. Normally, the first sentence of a paragraph is the topic sentence and it serves to indicate the main idea that will be discussed within the whole paragraph. To form a topic sentence, the main and controlling ideas are necessary. The main idea refers to the discussed topic in the paragraph while the controlling idea guides the thoughts that provide support, and limits the scope of the paragraph (Oshima & Hoyge, 2006).

The supporting sentences are usually in the middle of the paragraph, and they contain details that describe, explain, clarify or provide examples of the topic sentence as it has been stated by Folse, Solomon, and Clabeaux (2007). In order to support the topic sentence, examples, facts, steps, statistics and quotations are employed (Oshina & Hogue, 2006).

The last part of a paragraph is the concluding sentence that is the last sentence of a paragraph, and it has as main purpose to summarize, restate, suggest, give an opinion or make a prediction about the topic discussed in the whole text (Folse, Solomon & Clabeaux, 2007).

2.4. Computer-Assisted Language Learning in EFL classrooms

At the end of the 20th century, technologies focused on the education field became powerful tools that helped students to learn new languages faster, easier, and cheaper. One of the main features of Computer-Assisted Language Learning (CALL) is the use of the Internet through social networks, games, blogs, among others; in terms of hardware, CALL requires computers, laptops, and LCD projectors to present content to students (Blume, 2019).

Gündüz (2005) highlights that the language laboratories in the 1970s that were under the influence of the Audio-lingual Method are an example of CALL. Thus, as Chrystal adds (1996, p. 377), "Microcomputers were used as word processors complement the audio facilities, enabling the interactive teaching of all four language skills reading, listening, speaking and writing". Nowadays, technology provides a great variety of facilities to be employed in EFL classrooms that enhance students' linguistic and communicative competences. Teachers are able to combine these new tools with traditional ones such as grammar books, audiotapes, dictionaries, which facilitate the acquisition of a foreign language.

According to Costley (2014, pg.3), "another reason why technology is a factor improving learning is the fact that technology is becoming such an integral part of our everyday world". Most of the students use it daily; for instance, for texting or web surfing, to search additional information in order to do their homework, to keep in touch with their friends or relatives, to get updates from their favorite topics or just to spent their free time.

In relation to the use of technology for academic purposes, it has a positive impact on students' learning because they are more engaged in the topics that they are studying as they retain more information and feel more motivated since technology provides more meaningful learning experiences. Furthermore, educators have the possibility to employ a vast amount of material and information sources in order to impart the classes more conveniently and interactively to engage students in the learning process (Li, Sun & Jee, 2019).

For these reasons, schools should be equipped with language laboratories that facilitate access to the Internet and to the variety of Web 2.0 tools that offer new opportunities for EFL learning. In this regard, Granito and Chernobilsky (2012) highlight that for a 21st century educator it is important to gain a broader understanding of the impact that technology produces in education. Bearing in mind that teachers are responsible for boosting students' motivation

(Sanacore, 2008), technological tools are the adequate means to motivate learners intrinsically and extrinsically.

2.5. *Twitter* as a Web 2.0 tool for EFL writing classroom

EFL teachers should make proper use of different technological tools that facilitate interaction with students to reinforce or enhance their knowledge. Some of these options are social networks, Virtual Learning Environments, and Microblogging services. According to Conole and Alevizou (2010), the social nature of Web 2.0 fosters and enables the base input interaction, sharing content and collaboration within microblogging websites. *Twitter* is the most popular microblog site because of its friendly interface. Consequently, it can help to complement daily classroom activities because it provides constant communication, produces alternative work, hubs resources and embeds content. Besides, it allows students to post any type of content that contains images, audio, and or video (Allam, Elyas, Bajnaid, & Rajab, 2017).

Some benefits have been attributed to the use of *Twitter* for EFL classrooms. Concerning linguistic content, students can learn sophisticated vocabulary, new expressions, idioms and grammar structures because there is an interaction of people worldwide from different fields. Additionally, there is a cultural contribution since English speakers share their routines, thoughts, beliefs and even traditions that target students visualize (Rosell-Aguilar, 2018).

One of the features of *Twitter* is the limited number of words for each post, it must not exceed 140 characters that makes students to be strict with the information, thought, or feeling they want to express in the post (Allam, Elyas, Bajnaid, & Rajab, 2017). *Twitter* users have to demonstrate in their posts not only their creativity but also their writing mastery to match the requirements of this microblog. *Twitter* is a platform that allows users to write brief text updates. In the context of education, pedagogical tweeting represents a proficient and natural way through which lecturers can identify students' thoughts hence making learning more meaningful, fun, enjoyable, and effective (Menkhoff et al., 2014; Wankel, 2009). Here, students participating in *Twitter* activities create their individual and unique networks in which learning occurs (Boyd & Ellison, 2007).

As teachers, we have to propose alternative activities that reinforce students' knowledge. Indeed, *Twitter* allows posting online writing activities without the necessity to have the teacher physically to hand their homework or any assignment.

Since the Internet contains an infinite supply of information that can be shared with the students easily by using a #hashtag and tagging the student via *Twitter*, they can access this

online repository immediately. In this category, also embedded content is implicit because we can share resources from the most popular and useful websites such as *YouTube*, *Facebook*, newspapers and/or magazines.

Some research has been conducted into the use of *Twitter* in academic EFL contexts. For example, Altakhaineh and Al-Jallad (2018) carried out a study intending to compare the effect of *Twitter* and *Facebook* on teaching Arabic-speaking EFL learners the mechanics of L2 writing. They applied an experimental design in order to collect data, pre and posttests were used; in addition, 100 words essays were compiled. The participants were divided into two groups; one group used *Twitter* while the other used *Facebook*. At the end of the study, both social networks helped students to improve their writing skills. The participants who used *Twitter* enhanced their knowledge of the mechanics of writing in English; while those using *Facebook* produced a lower number of errors.

Another study carried out by Said and Elfatah (2015) had as its purpose discovering the difference in students' writing between learners who use *Twitter* and those who do not, to see whether *Twitter* has any effect on writing improvement. In this investigation, there were experimental and control groups and the results show that the experimental group obtained better scores in comparison to the control group; additionally, the experimental group also showed improvement in their writing skills. This difference may be attributed to the effect of the treatment exemplified in *Twitter* and this platform offers participants new experiences and scaffolding through peer interaction. Furthermore, *Twitter* can stimulate students' ideas in the form of their tweets because they can write summaries, essays and the instructor can track students' writing process and development.

In the last study, Bista (2015) investigated the perspectives of graduate students on using *Twitter* as a pedagogical tool. This study attempted to describe this microblogging service as a pedagogical tool, focusing on the process and results of having used it among students. The participants were requested to have social media activity in class for fifteen weeks. Furthermore, they were required to develop a short online questionnaire at the end of the semester in order to produce qualitative data. During the time of the intervention, there were 2,414 tweets from 40 participants at the end of the semester. Findings indicate that using *Twitter* was a meaningful learning experience for all the participants, also learners acknowledged that *Twitter* fostered active participation and collaborated actively in their educational activities. Additionally, participants reported positive experiences of *Twitter* and recommended it to be implemented in future classes with bright commands and expectations.

3. Methodology

3.1. The aim of the study

The current research has been carried out in order to investigate and analyze the effect of *Twitter* on improving writing skills of senior high school students and also to answer these questions:

1. Is the *Twitter* social network a learning tool to foster writing skills?
2. What are the students' perceptions of *Twitter* as a tool to improve writing skills?

3.2. Participants and the research context

This research was conducted in a private high school in a city in the south of Ecuador. The participants who agreed to be participants of the study were third year senior high school students. The sample consisted of 19 students, 26% were women and 74% were men, aged 16 to 18 years old. Their English level was intermediate according to the European English Framework; it was verified with the pre-test that consisted of items about grammar and vocabulary sections. Also, one English teacher was considered as a participant for this research. He was the main English teacher and he was responsible not only for providing content about writing topics but also for monitoring the activities on the *Twitter* social network.

This study lasted eight weeks, the topics were selected based on the students´ textbook, and the teacher also provided information about the writing topics; for example, how to write a well-structured paragraph.

3.3. Design and procedure

This research was carried out by using a mixed-method approach in which quantitative and qualitative procedures are involved. The present research began with the bibliographic review with the purpose of gathering scientific foundations related to the use of *Twitter* to improve writing skills of senior high school students. The bibliographic information was gathered from reliable sources, such as printed books, theses, journals, the Internet, and encyclopedias.

The first stage of the research involved a survey applied with the senior high school students in order to find out their opinions, preferences and management about the use of *Twitter* in relation to improving their writing skills. The survey consisted of three sections. The first section concerned *Twitter* usage to improve writing skills, the second one dealt with their purposes and preferences of using *Twitter*, and the third section was related to general information about their *Twitter* accounts. Furthermore, this survey contained an open question

asking about their experience using Twitter, besides general recommendations about the implementation of this application in the academic field.

This survey consisted of ten items in the form of a 5-point Likert scale. To assess the reliability of the survey with five rating scales comprising the students' performance (14 items) and the perceptions on Twitter (10 items), the researchers distributed them to 18 students outside the experimental group. Cronbach's Alpha Coefficients were calculated to evaluate the internal consistency reliability, and the result was 0.84. In addition, during the field research, a test was applied twice to the students assessing such skills as grammar, vocabulary and writing.

Students were asked to read the information about the topic studied and post a paragraph expressing their opinions. The data for this research was registered in the social network *Twitter*, while classroom activities were registered in the teacher´s notes. Once the classes and student's participation ended, the information about the use of *Twitter* to improve students' writing skills was tabulated, and then it was used to analyze the information quantitatively and qualitatively.

4. Findings and discussion

4.1. Learning experiences with *Twitter*

According to the field research, 79% of the students indicated that they knew how to use *Twitter* before this study has started. This is an important aspect to be considered as BBC active (2017) suggests that nowadays social networks can become a VLE (Virtual Learning Environment) and allow students to access virtual rooms and use it as an extension of the physical room where the teacher and students can interact. On the other hand, four students (21% in total) answered that they did not know how to use *Twitter* at all because this social network did not seem interesting for them.

Figure 1. Students' *Twitter* accounts

In the image above, two students who have had Twitter accounts since 2014 and 2015 can be seen. This fact demonstrates that students have had prior experience using this social network which turns advantageous for the learning context since the educator is able to use its

features to foster language acquisition (Granito & Chernobilsky, 2012). In addition, the participants showed a positive attitude towards the use of *Twitter* because its interface is very friendly with the user; it provides easy and quick access. According to Costley (2014), students are familiarized with this social network environment because these types of technology are becoming an integral part of our everyday world. Consequently, the facility that this social network has with users help foster students' engagement and organization in order to develop their writing skills.

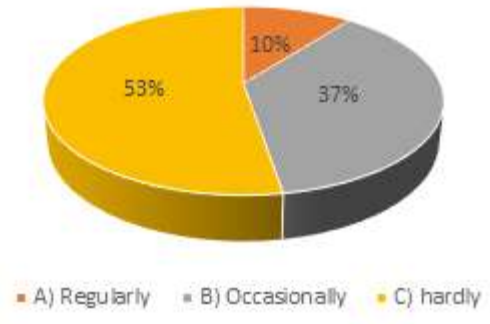

Figure 2. Frequency that students tweet per day

Figure 2 shows the frequency of tweeting, 53% of the participants mentioned they use *Twitter* once in a while, 37% of the students report that they use it occasionally, 10% answered that they tweet regularly. Prestridge (2014) found that learner-interface interaction occurs with a focus of technology as an intermediary between the students and the content, this behavior can be explained considering that they were constantly monitored in order to ensure they use this social network only for completing the assigned task. Furthermore, Bista (2015) reported that *Twitter* was a meaningful learning experience for students. Also, the participants of the current study highlighted the active interaction that happened when they used this tool for academic purposes.

Figure 3. Student Twitter post

Furthermore, 79% of the whole class indicated that *Twitter* is a useful tool to improve writing skills; this can be confirmed by Said and Elfatah (2015) who found that *Twitter* was an effective instrument in order to develop the writing skills because it integrates many aspects of

education and has a user-friendly nature. However, 21% of the interviewees considered *Twitter* as not useful for improving writing skills. It should be mentioned that these students were the ones who did not have a *Twitter* account and were not willing to participate in this practice.

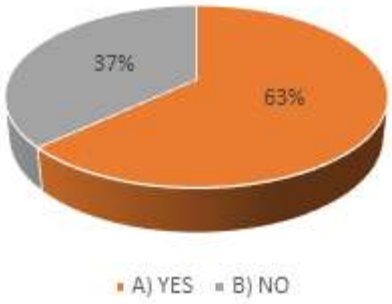

Figure 4. Students´ perceptions about the usefulness of *Twitter* for academic purposes

In terms of learning, all the participants stated that they used *Twitter* for general purposes, such as interacting with other users, sharing content and posting own information. However, in order to avoid distraction on students, *Twitter* was restricted to specific academic purposes while this investigation was carried out. In fact, 63% of the students indicated that they learnt to use *Twitter* academically because of the current study. In this regard, Prestridge (2014) mentions that *Twitter* as any other networking tool can be adapted into the educational field, with the appropriate technological approaches and the correct tracing. Therefore, students used the English lab to work on some activities in *Twitter*, as it can be seen in the following figures:

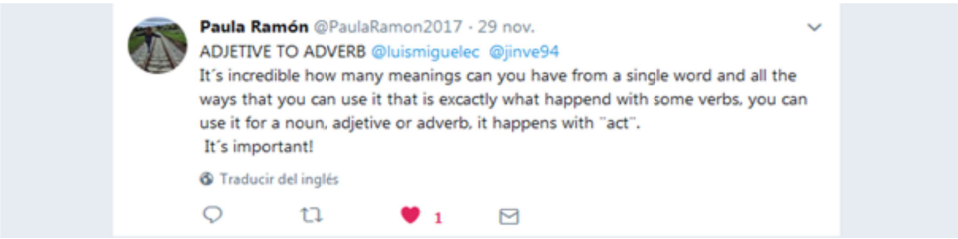

Figure 5. Student Twitter post

Correspondingly, 79% of the students expressed the view that this social network helped them to learn and improve vocabulary knowledge in order to make their postings interesting and give supporting details to their replies. Alqunayeer (2016) mentioned that vocabulary is important in order to master any language; also, this author restated that *Twitter* is a good

alternative to teaching vocabulary. In contrast, 21% of students said that *Twitter* did not help them to improve their vocabulary at all.

58% of the learners who participated in this survey answered that they would like to continue using *Twitter* to improve their language skills. This constitutes a positive result of this investigation which corroborates Bista's (2015) finding that using *Twitter* can be considered as a meaningful learning experience for all the participants since it fosters active participation and collaboration in learners' educational activities, as it can be seen in the following figure.

Figure 6. Student *Twitter* post

4.2. Students' academic performance and satisfaction

Consistent with findings from previous studies, it was found that vocabulary and organization showed the strongest correlation with academic performance. It was also determined that *Twitter* activity has a positive relation to academic performance – which is also in agreement with the majority of the studies that have been carried out related to *Twitter* and social media usage. The platform supported students' performance in terms of grading; those students who used more *Twitter* in their classes ended up with much higher assignment scores and grade point averages than the remaining students. Likewise, those classes where *Twitter* was implemented as a supportive tool displayed greater learning as well as showed higher grades than the counterparts showed. In the following table, it can be noticed that students in the experimental group obtained higher grades than the ones in the control group.

Table 1. Students' pre and posttest results

Grade Point Average (over 10 points)	**TEST ONE**		**TEST TWO**	
	Test	**Writing section**	**Test**	**Writing section**
Mode	7.9	7.5	8.8	9.5
Mean	**7.1**	**8.2**	**8.7**	**8.9**
Median	7.1	8.0	8.8	9.0

As it was mentioned in previous sections, a pre-test was applied to the students to examine their English level, and more important to have a source of information in order to make a

comparison. Furthermore, a post-test was applied at the end of the project with the purpose of determining whether there has been any writing skills improvement or setback.

The results of the test applied to the students are shown in Table 1. It consisted of two parts; the first one contained grammar and vocabulary, the topics included in the test were taken from the textbook they had studied before, in this way, they were familiar the test content. However, even though the test was about content that they have already studied; some students did not achieve a good grade, and their average mean in grammar and vocabulary was 7.1 out of 10. Additionally, in the writing section the average score was 8.2 out of 10 points.

Consequently, the second test showed students' better performance. They achieved better grades than during the pre-test; one reason is that the same test was applied with the aim of having reliable results. As it has been shown in Figure 1, students achieved an average grade of 8.7 out of 10 in grammar and vocabulary section, which is 1.6 points more than the first time, and the average grade in the writing sections was 8.9 out of 10 which represents 0.6 points more than the first time.

This result shows a certain improvement, both in grammar and vocabulary sections, more than the writing section. In fact, *Twitter* helped them to learn new vocabulary as well as allowed them to put into practice their grammar and writing skills. As it is stated by Rosell-Aguilar (2018), in relation to the linguistic content, students can learn sophisticated vocabulary, new expressions, idioms and grammar structures because there is an interaction of people worldwide from different fields.

In accordance with previous studies, it was found that satisfaction promotes both academic achievement and retention of the student. Under this premise, students were asked about their perceptions of the learning experience they have when using Twitter. The results are summarized in Table 2.

Table 2**.** Students' satisfaction

Statements	1 Strongly disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly agree
1. I like to use *Twitter* within this course.	0%	5%	32%	63%	0%
2. Using *Twitter* in this course feels like an obligation for me.	31%	47%	22%	0%	0%
3. *Twitter* can increase the flexibility within learning and instruction.	5%	0%	32%	63%	0%
4. Because of *Twitter*, I feel more connected with the teacher and classmates.	0%	10%	47%	32%	11%
5. *Twitter* can be an interesting	0%	0%	22%	18%	60%

tool for instruction.					
6. *Twitter* can be helpful to open your critical mind to education-related topics.	0%	0%	45%	6%	49%
7. The added value of *Twitter* depends on how you personally deal with it.	0%	0%	32%	63%	0%
8. *Twitter* can be a good tool to become acquainted with relevant expertise in our field.	0%	0%	63%	17%	20%
9. *Twitter* is a good tool to keep posted about educational topics.	0%	10%	47%	32%	11%
10. *Twitter* is the most appropriate social network for improving writing skills.	0%	0%	15%	80%	5%

In the table above, we can see students' satisfaction level after a period using *Twitter* as a learning tool. Students agreed that they feel very satisfied, pleased contented, even delighted. Bista (2015) investigated the perspectives of education in graduate students of using Twitter as a pedagogical tool, finding that all participants shared positive attributes and used Twitter appropriately in class because the social network was used only for academic purposes. Bista's study indicates that using Twitter is a meaningful learning experience for all the participants; it also increases participants' knowledge, fosters active participation, and collaborates actively in their educational activities.

Similarly to the findings of Allam, Elyas, Bajnaid and Rajab, (2017), this study reveals that students consider *Twitter* as a good tool to become acquainted with relevant expertise in the field and learn important information in a way that matches their preferences better.

5. Conclusions and implications for further research

Twitter can be considered a useful tool for learning English for Academic Purposes since it motivates students to write in English as a foreign language due to easy interface, possibility to choose students' preferred topics and follow different users. In addition, *Twitter* offers a variety of topics in different fields that exposes students to vocabulary as well as academic grammar structures that allow them to be acquainted with these issues.

The findings of the study of *Twitter* application confirm that this tool has helped students to make their learning environment more dynamic, besides, it also served to monitor the activities requested by the teacher since he or she can keep a record about the students' performance on the proposed activities. In addition, interaction and participation, both in the classroom and within the social network, have increased due to students' increased motivation. It can be concluded that students' initial expectations about the use of *Twitter* for teaching and

learning were moderately positive and successfully met by the end of the research. For instance, learners considered using *Twitter* as an innovative and dynamic practice that let learning and instruction be flexible since the gap between formal and informal learning has been reduced.

Despite the existing studies related to the use of *Twitter* in the EFL context, it is relevant to develop further investigation of this issue with the aim of examining the potential for improvement of other language skills. Furthermore, as digital natives continue to populate schools, teachers feel pressure to include more modern methods and tools in the educational experience of students, therefore, it would be necessary to make a comparison of *Twitter* with other social networks that could enhance students' productive skills.

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ENHANCING EAP LEARNERS' VOCABULARY ACQUISITION: AN INVESTIGATION OF INDIVIDUAL SMS-BASED REPORTING ACTIVITIES

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Abstract
This study aims to show the effect of individual SMS-based academic vocabulary reporting activities on EAP learners' general academic vocabulary learning and attitudes. An experimental design was employed for this purpose. A total of 60 EAP students were randomly assigned to three different cohorts, consisting of 20 students each. The three different cohorts received 120 academic words and reported their meaning and definition in Indonesian (AVRI), in English (AVRE), and in both Indonesian and English (AVRIE). Then, a general academic vocabulary test (GAVT) was administered to assess their academic vocabulary acquisition. The findings indicate that learning English academic vocabulary applying mixed languages revealed higher vocabulary scores gains than the other two groups because the double representations of the meanings strengthen their comprehension and acquisition. Learners also show positive attitudes toward the implementation of SMS-based reporting activities as they can select their vocabulary more freely to suit their learning needs.
Keywords: individual learning; texting report; EAP learners; academic vocabulary

1. Introduction

Texting or text messaging has been very popular, both for academic and non-academic purposes. According to a recent report, more than 96% of people in the world use texting as a medium for communication (Li & Cummins, 2019). Due to the popularity of text messaging for communication and its many advantages, a considerable number of scholars have endeavored

to integrate text messaging into English as a Foreign/Second Language teaching and learning device that aims to contribute to developing self-regulated learning (Alemi, Sarab & Lari, 2012; Dashtestani & Stojković, 2015; Li, Cummins & Deng, 2017; Li & Deng, 2018; Li & Cummins, 2019; Suwantarathip & Orawiwatnakul, 2015).

The objective of self-regulated learning is enhancing students' learning autonomy so that they can learn more freely based on their learning preferences and initiation (Krajka, 2006; Garcia, 1996). Moreover, it emphasizes students' self-freedom of initiation to manage their learning process in order to optimize the quality of learning (Zimmerman & Risemberg, 1997). With the use of mobile applications and their ubiquitous merits, it is hoped that students have the learning freedom and initiation to master many aspects of foreign or second language such as listening, speaking, reading, and writing skills as well as pronunciation, grammar, and vocabulary without any boundaries (Al-Jarf, 2012; Al-Shehri, 2011; Ally, Schafer, Cheung, McGreal, & Tin, 2007; Baleghizadeh & Oladrostam, 2010; Chen, Hsieh, & Kinshuk, 2008; Warschauer, 2011; Xu, 2016).

This study aims to scrutinize the potential impact of SMS-based academic vocabulary reporting activities on enhancing the academic vocabulary acquisition of EAP learners. Several concerns underlie this study. Although the advantages of texting in EAP teaching have been shown, there is still a general lack of research on the way texting reports contribute to vocabulary teaching and learning. Second, some studies have established the influence of the level of texting reports on EAP learners' general academic vocabulary learning (Cavus & Ibrahim, 2009; Song, 2008); while other studies have revealed both positive and negative impact of texting on learners' vocabulary acquisition. Third, most of the previous experimental studies exploiting texting as vocabulary learning device did not treat the EAP learners as active learners because of vocabulary glossing, its definition, and meaning provided by teachers or researchers. The aforementioned strategies go against the concept of the self-regulated learning paradigm of using texting in EFL/ESL learning. Barak (2010), Kitsantas (2013), Kauffman, Zhao, and Yang (2011) and Krajka (2019) stated that the objective of using technology in EFL/ ESL learning is to enhance students' self-regulated learning.

As the ability to acquire academic vocabulary is one of the vital elements of successful EAP teaching and learning, this study will make a practical and theoretical contribution to the field of EAP general academic vocabulary learning and texting reports. That is why this research attempts to implement several variables such as the freedom to select academic vocabulary from wordbanks provided by the teacher and to report the meaning of the vocabulary using three different language options that are sent to their teachers individually.

2. Literature review

2.1. SMS-based reporting in vocabulary learning

Previous research on texting and vocabulary learning has yielded two different design features. The first design is called one-way texting intervention, and the second is two ways of texting intervention. In a one-way texting strategy researchers send a certain majority of the design using a one-way intervention strategy (Dashtestani & Stojković, 2015; Li & Cummins, 2019). One of the most common strategies consists of the researchers sending a high number of vocabulary items to the students using different variations such as items with their first language translation, second language, and mixed translation both in the source and target language. This experimental design contradicts the nature of using text messaging itself which aims to promote the self-regulated learning of language learners, student-centered learning, preferences, and language ability (Dashtestani & Stojković, 2015; Petersen & Markiewicz, 2008; Sharples, Taylor, & Vavoula, 2005). When teachers take the 'extreme' role, it is likely to be more teacher-regulated learning. These proposed strategies make it hard to attain the goals of self-regulated learning because there is no clear link between the learning goals and students' vocabulary learning needs.

The next one-way treatment is quite similar to the aforementioned strategy. In this case, researchers apply the experiment using gap-filling sentence construction and they control the timing and frequency (Li & Cummins, 2019; Suwantarathip & Orawiwatnakul, 2015). This strategy is quite similar to teaching listening activities where a teacher asks the students to fill the blanks in sentences while listening to an audio file sent to the students' mobile phones. This activity was implemented in the experimental cohorts. Meanwhile, the traditional cohort carried out similar activities by listening to the same audio file and learners were required to perform the same tasks using the paper-based media.

A more progressive piece of research conducted into the use of texting and vocabulary is exemplified by cooperation via a mobile phone (Arifani, 2019; Derakhshan & Kaivanpanah, 2011). Some researchers attempted to implement a texting strategy where the students collaborated on constructing the more acceptable sentences from a given vocabulary item (Derakhshan & Kaivanpanah, 2011). This strategy is quite acceptable for achieving interactive and collaborative purposes where learners acquire vocabulary from peers because they are believed to benefit from mutual and interactive collaboration. Although it was worth contributing to the body of knowledge in the field of cooperative learning, the research could

not verify whether the students learnt vocabulary from peers or from the individual mobile phone activities when the teachers did not control the collaborative and interactive process (Arifani, 2019). Furthermore, the specific vocabulary learning needs of each group had not been taken into account as the vocabulary learning process of different individual and groups was different. Therefore, the contribution of the research rests on the collaborative aspects rather than on the vocabulary itself. Moreover, when a collaborative process is not monitored, it is quite difficult to check the result of vocabulary enhancement. Arifani, Asari, Anwar, and Budianto (2020) claim that it is important for the researcher to assess process-based collaborative activities rather than assessing product-based collaboration as a process that determines the learning outcomes. In addition, Arifani (2019) states that the use of *WhatsApp* media could be used as an alternative to monitor process-based collaborative activities by examining the students' group chat history.

The next type of research implemented an interactive intervention strategy. In this strategy, both students and teachers engage in a more interactive learning process (Li & Cummins, 2019; Suwantarathip & Orawiwatnakul, 2015). This strategy emerged to respond to the shortcomings of the previous intervention strategy which was considered less supportive of student-centered learning and thus unable to reach the expected objective of texting-based learning that aimed at achieving a self-regulated learning paradigm. One of the most popular interventions in the area of texting is implemented using a writing exercise from a given vocabulary set and exchanging its sentences that have been made using the target words. This treatment was considered to be more interactive than those in the one-way strategy because students could interact with their peers to discuss the sentences they had texted to their peers. The interactive strategies come into play when the students can exchange information interactively. However, while determining the direction of vocabulary learning to the students, most researchers did not provide them with the freedom to opt for certain vocabulary items that would match their level. Therefore, this experimental design proposes a slightly different inquiry in terms of providing more freedom for the students to select vocabulary words from 'vocabulary banks' provided by the EFL/ESL teachers.

2.2. Vocabulary learning in EAP

English academic vocabulary is closely related to the EAP instruction, which is focused on preparing learners to gain mastery of English for the learning process (Schmitt & Schmitt, 2014). Non-native language learners still encounter difficulties with academic vocabulary learning and consider it an obstacle to mastering the second language. Undergraduate EAP

learners who have better vocabulary knowledge can cope with the challenges of understanding unfamiliar academic words (Cavus & Ibrahim, 2009; Hayati et al., 2013; Li et al., 2017; N.-S. Chen, Hsieh, & Kinshuk, 2008; Song, 2008; Suwantarathip & Orawiwatnakul, 2015). The study focusing on 14 EFL students at a New Zealand university found that English academic vocabulary had been a prominent factor in attaining success in college studies, particularly in academic writing courses (Coxhead, 2012).

Vocabulary learning needs a recursive and long learning process, which is strengthened by the role of contextual clues (Karakas & Sariçoban, 2012; Pavicic Takac, 2008). The previous studies have asserted that iterative encounters with unfamiliar words are necessary for mastering vocabulary (Alamri & Rogers, 2018; Feng & Webb, 2019; McKeown, Crosson, Moore, & Beck, 2018; Mulder, Van De Ven, Segers, & Verhoeven, 2019; Walters & Bozkurt, 2009). Familiarity and recursive retention with the novel English words enable learners to improve their vocabulary acquisition.

Previous research has documented the instructional theories of vocabulary learning. First, language learners need to have exposure to explore the usage of novel words in different contexts (Li & Cummins, 2019; Pavicic Takac, 2008). Second, they should be involved in a conducive academic learning process with both intentional and incidental lexicon learning tasks (Lee, 2014; Li & Cummins, 2019; Li et al., 2017; Li & Deng, 2018). Third, intensive treatment and self-regulation should be formulated by language teachers for coping with students' difficulties in mastering language, especially in English for Academic Purposes (C. M. Chen, Chen, & Yang, 2019; Kim & Linan-Thompson, 2013). Furthermore, Lin & Lin (2019) report a positive correlation among language learner proficiency, autonomy, and learning performance in which the students with higher proficiency in a second or foreign language can control their self-regulated learning of vocabulary acquisition (Lin & Lin, 2019). College students should be directed to be autonomous learners since the instructional meetings in the classroom provide insufficient opportunity to master all materials (Li et al., 2017).

Surprisingly, the previous studies documented that the unfamiliar words in academic textbooks played an important role in developing learners' English proficiency by enriching their vocabulary knowledge (Sakata, 2019). Therefore, EAP instructors or teachers need to consider students' vocabulary learning challenges and attitudes when providing a list of words in every learning topic. Newton (2013) suggested that EAP instructors offer various types of tasks learners that can attract students' attention to while dealing with unfamiliar words. Meanwhile, Ha & Hyland (2017) indicated that vocabulary studies in EAP need to be conducted based on specific lists of various knowledge disciplines.

2.3. Learner attitudes in English vocabulary learning

Various learner attitudes in mastering vocabulary should be considered by language instructors to accommodate students' preferences and learning styles. Previous studies documented that most EAP teachers or lecturers and undergraduate learners had a positive attitude towards the internet, technology utilization as well as mobile devices (Atai & Dashtestani, 2013). More recent studies found that mixed strategies for learning vocabulary via mobile devices can be one of the alternative learning modes for different vocabulary learning behaviors (Ou-Yang & Wu, 2017; Alamri & Rogers, 2018).

Moreover, Amiryousefi (2015) asserted that considering learners' attitudes in vocabulary learning enables learners to improve their English vocabulary acquisition. EAP instructors have to ponder upon learners' attitudes in vocabulary learning to develop effective English vocabulary instruction and engender students' learning autonomy in mastering English (Dashtestani, 2015). One previous study, for instance, reported that language learners perceived vocabulary learning as the predominant factor in the process of comprehending and expressing themselves in spoken communicative competence as compared to written one (Dhanavel, 2015).

3. Methodology

3.1. The aim of the study

Currently, to the best of the researcher's knowledge, no study has been carried out to explore the effect of the language of SMS-based reporting on learners' academic vocabulary learning and attitudes. Identifying the merits of applying SMS-based vocabulary learning as derived from the previous studies provides a fruitful initiative for English teachers and policymakers to implement more effective strategies for EAP programs at universities. Therefore, this study has been conducted to explore learners' vocabulary mastery, the best strategy, and learners' attitudes towards three different methods of reposting academic vocabulary through the SMS application. To achieve the goals of this study, the following three main questions are proposed:

1. Is there any significant difference among EAP learners' academic vocabulary learning using the three different methods of SMS-based reporting (i.e., AVRI, AVRE, and AVRIE)?
2. Which one of the three treatments (AVRI, AVRE, or AVRIE) is the best predictor for learners' academic vocabulary learning?

3. What are the EAP learners' attitudes towards the three different vocabulary learning methods through SMS-based reporting? Are there any significant differences among the EAP learners' attitudes?

3.2. Participants and the research context

A total of 60 EAP learners (21 male and 39 female) who attended a year-long EAP course in the first and second semesters from Universitas Muhammadiyah Gresik participated in this study. A "World English" placement test initiated by Laufer and Nation (1995) was administered to arrive at three homogeneous classes. The students whose total placement test scores ranged from 6.5 to 7.5 were selected as the participants in the study. The participants' age ranged from 19 to 21. The students from the six EAP classes majoring in Management Studies were carefully selected using the aforementioned World English placement test. The researcher also examined the equivalence in the students' vocabulary test by referring to study reports used at the university and through their summative test as well. All the students had been using mobile phones for more than three years. The learners were then randomly assigned to three different groups. The first 20 EAP learners were assigned as the AVRI group. The second group involved 20 EAP learners who were labelled as AVRE, and the remainder was categorized into the AVRIE group.

3.3. Instrument

Two general academic vocabulary tests (GAVT), the pre-and post-test, were assigned in the experimental study to assess learners' general academic vocabulary mastery. The researcher arranged two sets of collocation tests for the pre-and post-test. The GAVT form 1 involved 19 items, and form 2 contained 19 items. Each GAVT question contained three matching question items in the left column with six different definition options visualized as points in the right column ranging from a) to f). In this case, the learners were asked to write the letter corresponding to one correct option. Both GAVT test form 1 and form 2 were adopted from Pecorari, Shaw, & Malmström (2019). The original Cronbach's alpha reliability index of the general academic vocabulary levels test amounted to .96. The internal consistency reliability for the present study using Cronbach's alpha came to .86 for the test items with 19 items, indicating excellent internal consistency.

To respond to the learners' attitudes towards the three different SMS report treatments, a five-point Likert scale rated from 5 (strongly agree) to 1 (strongly disagree) with 15 items was applied. The questionnaire was designed based on Dashtestani & Stojković (2015). The

questionnaire items contained learners' opinions on the SMS strategies, future hopes of using SMS reports, retention of words, suitability of the received and reported words to their learning needs, learning motivation, anxiety, accessibility, and meaning comprehensibility. Minor amendments were made to some questionnaire items. For example, the items such as "learning academic vocabulary through SMS was interesting for me" and "the words that I received through SMS were the ones that I needed" were changed into "learning academic vocabulary through SMS-based report was interesting for me" and "the words that I sent to the SMS-based report were the ones that I needed". Before administering the learners' attitude questionnaire, it was piloted with 20 learners from a different experimental group. Reliability tested with Cronbach's Alpha internal consistency of .84 was achieved, which indicates a satisfactory rate of reliability.

3.4. Design, procedure and data analysis

This study aimed to explore the effect of individual SMS-based academic vocabulary reporting activities on EAP learners' general academic vocabulary learning and their attitudes towards the implementation of three different treatments. Therefore, the design of this study essentially consisted of a mixed method using experimental and non-experimental surveys to explore and identify various attitudes. A randomized experimental study with pre-test and post-test design consisting of three different experimental groups was employed to achieve the objective of the study. The descriptive data were collected to examine the attitudes of the participants towards the three different treatments. The first group received the academic vocabulary items, reporting their definition and meaning in Indonesian (AVRI). The second group received the same academic vocabulary items, reporting their definition, meaning, and possible synonymous words in English (AVRE). The third group received similar academic vocabulary items, reporting their definition, meaning, and synonyms in both Indonesian and English (AVRIE).

The academic vocabulary items were chosen from 120 academic words from the EAP book prepared by three different English teachers who teach vocabulary at the same university. Those 120 academic words (supplied without meanings and definitions) were then simultaneously sent as SMS to students. Every day the students reported two academic words and their meaning, definition, and synonyms to the three English teachers. Group 1 (the AVRI group) sent 2 academic words and their meaning in common Indonesian to English teacher 1. Group 2 (AVRE) sent 2 academic words, their English definitions, and synonyms to English teacher 2 every day. Group 3 (AVRIE) sent 2 academic words, their Indonesian and English meanings, definitions (synonyms) to English teacher 3. The experiment was conducted for four

months. Two tests, that is to say the pre-and post-test, were administered during the experiments. During SMS-based academic vocabulary reporting, all the teachers were involved. The researcher prepared a vocabulary test for the pre-test and post-test. During the pre-test and the post-test activities, the learners' vocabulary score was measured using general academic vocabulary test form 1 and form 2 proposed by Pecorari, Shaw, & Malmström (2019). GAVT form 1 (19 items) and form 2 (19 items) consisted of academic vocabulary questions matching words and their definitions. Cohen's Kappa statistical analysis (-0.1 + 1.0) was used to measure the inter-rater reliability of the test (.86). Besides, a descriptive design, including post-study questionnaires of attitudes proposed by Dashtestani & Stojković (2015), was administered in the second phase of the study.

Ethical consideration was shown by using the specific consent letter guidelines mentioned in Mackey & Gass (2005). The letter was submitted to all respondents to maintain their confidentiality, voluntary participation, purposes, and anonymity. A consent letter was written in Indonesian to avoid misunderstandings.

To determine the differences among EAP students' academic vocabulary score, the one-way ANOVA test was employed since the data were normally distributed. Also, to assess the differences between the test scores of each two groups, an independent *t*-test was performed. The qualitative data from the questionnaire, the descriptive statistics, covering mean and standard deviation, were subsequently processed. Finally, the percentages were applied to analyze the learners' attitudes as derived from the multiple-choice questionnaire.

4. Findings and discussion

Normality and homogeneity tests using the Kolmogorov-Smirnov test were examined to determine how normal the data distribution and the variance of the data were. The results of the two tests are described in Table 1 and 2.

Table 1. Tests of normality

	Group	**Kolmogorov-Smirnov[a]**			**Shapiro-Wilk**		
		Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Pre-Test	AVRI	.192	20	.153	.935	20	.192
	AVRE	.204	20	.129	.877	20	.216
	AVRIE	.116	20	.200*	.970	20	.744

Table 2. Test of homogeneity of variances

	Levene Statistic	df1	df2	Sig.
Pre-Test	1.022	2	57	.366
Post-Test	.877	2	57	.422

Table 1 and Table 2 indicate the results of normality and homogeneity of the tests. The normality test result illustrates that the value was higher than the alpha value of .05. This means that the data were normally distributed. Therefore, the data could be analyzed using one-way ANOVA to address the formulated research questions.

Research Question (RQ 1): Is there any significant difference among EAP learners' academic vocabulary learning using the three different methods of SMS-based reporting (i.e., AVRI, AVRE, and AVRIE)?

Table 3. Multiple comparisons

Dependent Variable	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Post-Test	AVRI	AVRE	-1.70000*	.65848	.033	-3.2846	-.1154
		AVRIE	-5.25000*	.65848	.000	-6.8346	-3.6654
	AVRE	AVRI	1.70000*	.65848	.033	.1154	3.2846
		AVRIE	-3.55000*	.65848	.000	-5.1346	-1.9654
	AVRIE	AVRI	5.25000*	.65848	.000	3.6654	6.8346
		AVRE	3.55000*	.65848	.000	1.9654	5.1346

*. The mean difference is significant at the 0.05 level.

Table 3 illustrates the results of the one-way ANOVA test among the three different groups. Among these three different groups AVRI, AVRE, and AVRIE, the significance value of the three groups was significant as the data were lower than the alpha values of .05. It implies that the scores of the students who learned academic vocabulary using SMS based reporting in Indonesian, English and mixed treatments were significantly different.

Research Question (RQ2): Which one of the three treatments (AVRI, AVRE, or AVRIE) is the best predictor for learners' academic vocabulary learning?

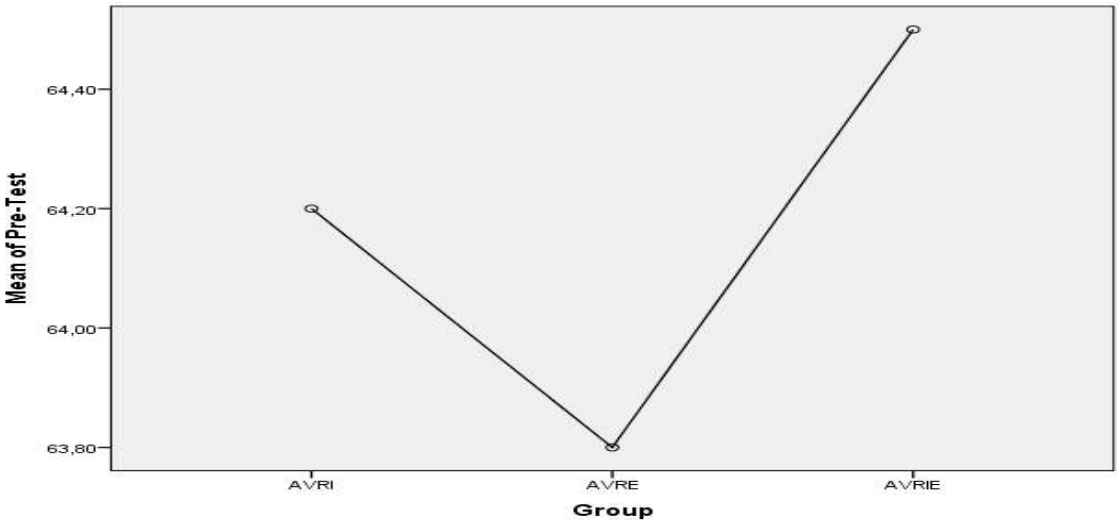

Figure 1. Means scores of pre-test

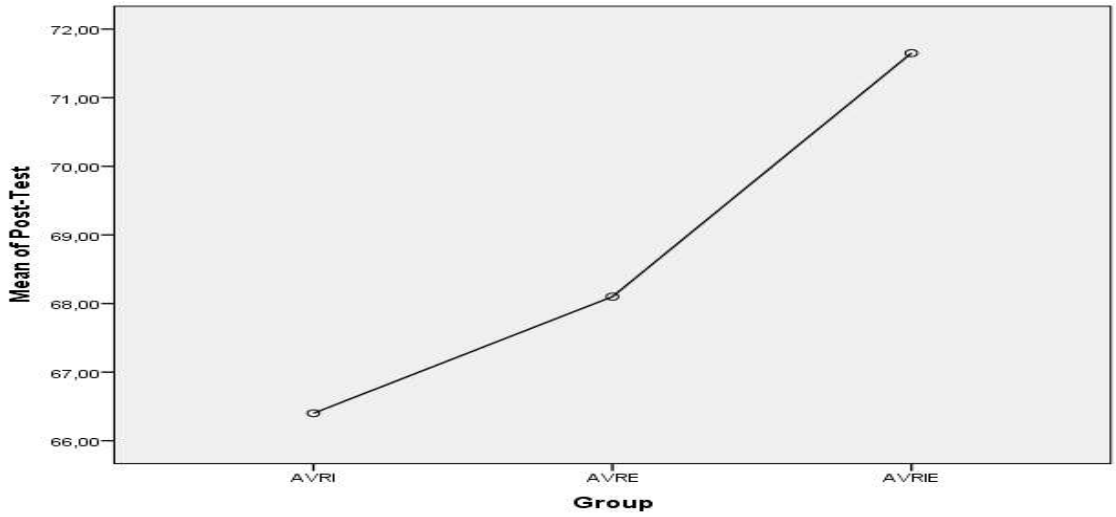

Figure 2. Means scores of post-test

Figure 1 and Figure 2 indicate the different mean scores between pre-test and post-test of the three different groups. First, the AVRI group's mean scores from pre-test to post-test increased from 64.20 to 68.00. Second, the AVRE group's mean scores also increased from 63.80 to 68.00. Similarly, the AVRIE group's mean scores increased from 64.80 to 71.80.

From the three different treatments, the highest mean score rank was achieved by the AVRIE group with a mean score increase of 7.00. The medium increase of the mean score's group was attained by the AVRE group with a mean score increase of 4.20. Meanwhile, the lowest mean score increase was attained by the AVRI group with a mean score increase of 3.80.

Research Question (RQ3): What are the EAP learners' attitudes towards the three different vocabulary learning methods through SMS-based reporting? Are there any significant differences among the EAP learners' attitudes?

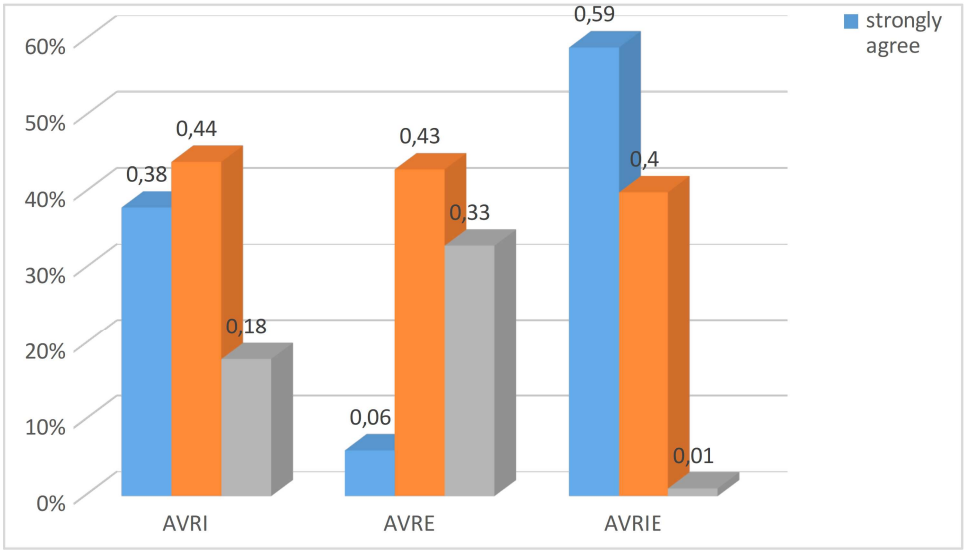

Figure 3. Students' attitudes of the three groups

Figure 3 illustrates students' attitudes towards the three different groups from the questionnaire. The AVRI group showed that only 18% responded "quite agree", 44% "agree", and 38% "strongly agree" to learning academic vocabulary using Indonesian through SMS reporting. Also, in the AVRE group 6% responded "strongly agree", 33% "quite agree", and 43 "agree" to learning academic vocabulary using English through SMS reporting. Meanwhile, the AVRIE group shows that 1% responded "quite agree", 40% "agree", and 59% "strongly agree" to learning academic vocabulary using the Indonesian-English version using the same SMS reporting strategies. The findings also imply that the students' attitude was very positive as the "strongly agree" percentage of responses rested on the AVRIE group. Meanwhile, the lowest percentage was shown in the AVRE group. Similarly, the students' attitudes were very positive when they were learning their English academic vocabulary using the AVIRE and AVRI treatment compared to the AVRE group.

Table 4. Students' attitudes towards all AVRI's indicators

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.595[a]	.355	.057	1.76582

Table 4 indicates whether the students' attitudes towards all AVRI's indicators were significant or not. Since the significance value was .057 or similar to the alpha value .050, the

students' attitudes were estimated to be significant although the significance was relatively very small. It could also be said that the students responded positively towards the implementation of learning English academic vocabulary using Indonesian through the SMS reporting strategies.

Table 5. Students' attitudes towards each AVRI indicator

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	62.946	5.526		11.390	.000
	X1	.554	2.675	.242	.207	.041
	X4	-.393	1.917	-.164	-.205	.841
	X5	-2.036	2.137	-.924	-.953	.358
	X6	-1.518	1.643	-.420	-.924	.372
	X7	3.000	1.766	.846	1.699	.013
	X8	1.036	1.734	.286	.597	.561

Table 5 illustrates the students' attitudes towards each AVRI indicator. Two out of eight indicators were significant since the significance values .041 and .013 were lower than the alpha value of 005. These two indicators referred to X1 ("learning academic vocabulary through SMS reporting was interesting") and X7 ("the students felt less anxious about learning academic vocabulary through SMS reporting compared to learning it in the classroom by way of straightforward teaching"). Similarly, learning English academic vocabulary using the Indonesian language (*Bahasa Indonesia*) via SMS reporting was considered as an interesting medium.

Table 6. Students' attitudes towards all AVRE indicators

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.779[a]	.607	.321	1.79170

Table 6 indicates whether the students' attitudes towards all AVRE indicators are significant or not. Since the significance value amounts to .321 or bigger than the alpha value of .050, the students' attitudes are not significant. It could also be said that learning English academic vocabulary using Indonesian through the SMS reporting strategy was not considered as a positive method by most of the students in this AVRE group.

Table 7. Students' attitudes towards each AVRE indicator

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	77.048	6.427		11.988	.000
	X9	3.525	1.521	1.275	2.317	.041
	X10	-2.809	1.619	-.981	-1.735	.111
	X11	1.406	1.309	.492	1.075	.305
	X12	.306	1.585	.084	.193	.850
	X13	-.559	1.570	-.212	-.356	.729
	X14	-1.804	1.276	-.602	-1.413	.185
	X15	-.961	1.365	-.290	-.704	.496
	X16	-1.597	1.850	-.369	-.863	.407

Table 7 illustrates students' attitudes towards each AVRE indicator. Only one out of eight indicators was significant since the significance values of the X9 variable was .041 or lower than the alpha value .005. This one indicator referred to X9 ("learning academic vocabulary through SMS reporting was interesting"). Similarly, learning English academic vocabulary using the Indonesian language via SMS reporting was considered as an interesting alternative medium by most of the students in this AVRE group.

Table 8. Students' attitudes towards all AVRIE indicators

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.613[a]	.376	.011	2.16169

Table 8 indicates whether the students' attitudes towards all AVRIE indicators were significant or not. Since the significance value is .011 or lower than the alpha value .050, the students' attitudes are indeed significant. In other words, learning English academic vocabulary using both Indonesian and English through the SMS reporting strategy was considered as a positive method by most of the students in this AVRIE group.

Table 9. Students' attitudes towards each AVRIE indicator

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	78.000	6.663		11.707	.000
	X17	3.500	2.162	.826	1.619	.031
	X19	-3.000	2.648	-.694	-1.133	.279

X20	-2.375	1.709	-.549	-1.390	.040
X21	.900	2.819	.203	.319	.755
X22	-.800	1.933	-.216	-.414	.686
X23	.700	2.465	.132	.284	.041
X24	-1.100	2.819	-.225	-.390	.703

Table 9 illustrates students' attitudes towards each AVRIE indicator. Three out of eight indicators are significant since the significance values of the X17 (.031), X20 (.040), and X23 (.041) variables are lower than the alpha value .005. These three indicators refer to X17 ("learning academic vocabulary through SMS reporting was interesting"), X20 ("The words that I reported through SMS were the ones that I needed"), and X23 ("I felt less anxiety learning academic vocabulary through SMS reporting compared to learning it in the classroom by way of straightforward teaching"). It also implies that learning English academic vocabulary using both Indonesian and English via SMS reporting was considered as an interesting alternative medium by most of the students in this AVRIE group. They also reported that all the English academic vocabulary they learned using both Indonesian and English suited their learning needs. Moreover, the students did not suffer from learning anxiety using this AVRIE treatment.

The objectives of this study aim to find a significant difference among EAP learners' academic vocabulary learning using the three different methods of SMS-based reporting (i.e., AVRI, AVRE, and AVRIE), to find the best predictor for English academic vocabulary learning, and to explain EAP learners' attitudes towards each different treatment. The findings from the first research objective reveal that the scores of the EAP learners who learned English academic vocabulary using SMS reporting in Indonesian, English and mixed treatments are significantly different. Besides, among the three different groups, the AVRIE means score shows the highest increase from the pre-test to post-test, followed by the AVRE group which shows a medium increase. The lowest mean score increase has been attained by the AVRI group.

This finding indicates that learning English academic vocabulary through SMS-based reporting using both Indonesian and English could enhance EAP learners' vocabulary mastery, and that the AVRIE-based vocabulary learning strategy may thus be assumed to be the strongest predictor of the three strategies because it has the highest mean scores among the other two groups. Although learning vocabulary using AVRIE SMS-based reporting could be more effective than the other two different strategies, the results do not lead to the claim that this strategy is superior to the traditional vocabulary learning method because the researchers did not draw a comparison between the traditional vocabulary learning method and SMS-based

vocabulary reporting. A similar study of EAP vocabulary learning using different SMS-based approach conducted by Dashtestani (2015) echoed similar results. In the findings, he also asserted that Iranian EAP learners' vocabulary mastery could be enhanced using combinations of both Iranian and English. The SMS-based strategies were different and the result remained similar although the experimental designs were different (Alemi et al., 2012; Cavus & Ibrahim, 2009; Derakhshan & Kaivanpanah, 2011; Hayati et al., 2013; Li & Cummins, 2019; Li & Deng, 2018). In the previous findings, learners received many academic vocabulary items from the teacher, but in this study, the learners were free to report five academic words in both Indonesian and English every week as the cultivation of student-centered and self-regulated learning in vocabulary instruction.

Learning academic vocabulary using combinations of both English and Indonesian could make it easier for EAP learners to understand more comprehensively as they could associate the meanings of vocabulary in its real context. At the same time, they could also understand the meaning in the English context. In this case, learners' comprehension of the words was better than using a single language where they could not make associations with the real context when they encountered an unfamiliar word. Therefore, it is not surprising that the AVRIE model was considered as the stronger predictor of vocabulary learning using the SMS-based reporting strategy. The unique strategy from this study rests on learners' freedom to select a number of academic words and find their meanings in mixed languages. These unique activities were not derived from the previous findings because during learners' meaning discovery using an online dictionary and other media, they are forced to independently learn from many different sources with examples, which improves their academic vocabulary learning process. Meanwhile, the Indonesian equivalent helps learners strengthen their word-meaning comprehension from bilingual exposure (Indonesian and English) compared to the two other *WhatsApp* reporting strategies which only provide monolingual explanation, either in Indonesian or in English.

Further findings also illustrate that the EAP learners' attitudes were significantly positive towards English academic learning using AVRI, and AVRIE, even though it was not significant for the AVRE group. Specifically, from each indicator of attitude, the study shows that all EAP learners from the three different groups asserted that they enjoyed learning English academic vocabulary using AVRI, AVRE, and AVRIE SMS-based reporting because the three treatments provided more interesting vocabulary learning. The EAP learners from both AVRI and AVRIE groups also felt less anxiety when they learned English academic vocabulary using these two treatments but this did not apply to the EAP learners from the AVRE group. Another

positive attitude that emerged from the AVRIE group is that the students felt that self-selection of vocabulary and report activities were suitable for their learning needs. Following this finding, Kim & Linan-Thompson (2013) confirmed that students' self-preferences in reporting the unfamiliar words significantly affected the coping mechanisms used to overcome their learning difficulties in vocabulary acquisition.

Furthermore, the present study found that individual-based SMS-reporting could be an interesting medium to be considered for English vocabulary learning. Moreover, it could be deduced that SMS-based English vocabulary learning has proved to be a joyful medium of learning for the students because of its ubiquitous merits and simplicity, in line with previous research (Lin & Yu, 2017; Li et al., 2017; Chen et al., 2008; Tseng, Liou, & Chu, 2020). These previous studies also found that this SMS-based learning strategy where students received academic vocabulary and its definition and meaning from the teachers enhances the positive attitudes and confidence of the learners.

It is clear that SMS-based reporting where each learner had to report many vocabulary items to the researcher has resulted in positive attitudes among the EAP learners. Thus, this study corroborates the findings of the previous studies (Alemi et al., 2012; Dashtestani & Stojković, 2015; Krajka, 2019; Li & Deng, 2018; Suwantarathip & Orawiwatnakul, 2015) from a different implementational perspective. It may also widen the horizon of learning academic vocabulary using the SMS-based reporting strategy.

Interestingly, in terms of reducing EAP learners' anxiety, the AVRE treatment did not significantly influence EAP learners' anxiety while both AVRI and AVRIE had a positive effect on it. This issue is very interesting since the mean score of the AVRIE group was higher than that of the AVRI group. This is probably due to the tendency of Indonesian (*Bahasa Indonesia*) to borrow words from English vocabulary that must have influenced their vocabulary comprehension and scores. Coming across some English vocabulary which contained words similar to English (loan-words such as 'prediksi', 'kalkulasi', 'estimasi', 'akses' and the like) makes it easier for them to understand the meaning of the words. These four examples are very similar to the English words 'prediction', 'calculation', 'estimation', and 'access'. These similarities make it easier for students to understand the meaning and context of certain English academic vocabulary items, though not all. These results are in agreement with the earlier studies that prediction based on context awareness (C. M. Chen & Li, 2010) and contextual clues (Uz Bilgin & Tokel, 2019) help students to achieve success in vocabulary acquisition.

Ironically, the students' attitudes were not positive towards AVRE or learning English academic vocabulary in English using the SMS-based reporting strategy. This possibly

happened when they did not find any English academic words which were similar to the Indonesian words, which must have caused frustration. Another possible cause is that each EAP learner had different vocabulary learning needs. Therefore, when the vocabulary selections were suitable for their learning needs, their attitudes would be positive and vocabulary mastery would be enhanced. Since this study does not facilitate EAP learners' English academic vocabulary learning needs, it seems hard to come up with the right conclusion.

5. Conclusion

The present study addressed three different issues, namely significant different vocabulary score using three different combinations, the best academic vocabulary learning predictor, and EAP learners' attitudes. Overall, the findings reveal that EAP learners who learned English academic vocabulary using Indonesian and English through SMS-based reporting outperformed those using the other two proposed strategies. The findings also indicate that familiarity of targeted vocabulary learning with vocabulary in their mother tongue (L1) could influence the semantic interpretation of the reported vocabulary. Therefore, careful selection of vocabulary learning should be taken into account. All EAP learners showed their positive attitudes towards the three different SMS-based reporting strategies, but learning vocabulary using English meaning frustrated the students, especially when encountering unfamiliar academic-flavored English vocabulary items. Therefore, assigning students to learn vocabulary using a combination of English and one's mother tongue to understand the vocabulary meaning is worth implementing.

Still, two limitations can be found in the current study. First, the researchers did not draw a comparison between EAP English academic vocabulary learning needs before and after the implementation of SMS-based reporting, thus one cannot accurately describe its impact on EAP learners' vocabulary mastery. Second, the study did not draw a comparison between SMS-based reporting and traditional vocabulary learning either, so no valid conclusion could be drawn to claim that SMS-based reporting using mixed language is superior to the other two monolingual vocabulary learning strategies. Therefore, it is addressing the aforementioned gap by comparing vocabulary learning using SMS-based report and traditional learning.

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