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

by **Yudhi Arifani**
Universitas Muhammadiyah Gresik, 61121, Indonesia
Nur Hidayat
STKIP Bina Insan Mandiri Surabaya, Indonesia
Dodi Mulyadi
Universitas Muhammadiyah Semarang, Indonesia
and **Agus Wardhono**
Universitas PGRI Ronggolawe Tuban, Indonesia
yudhi_arif@umg.ac.id; nurhidayat@stkipbim.ac.id; dodi@unimus.ac.id; agusward@gmail.com

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?

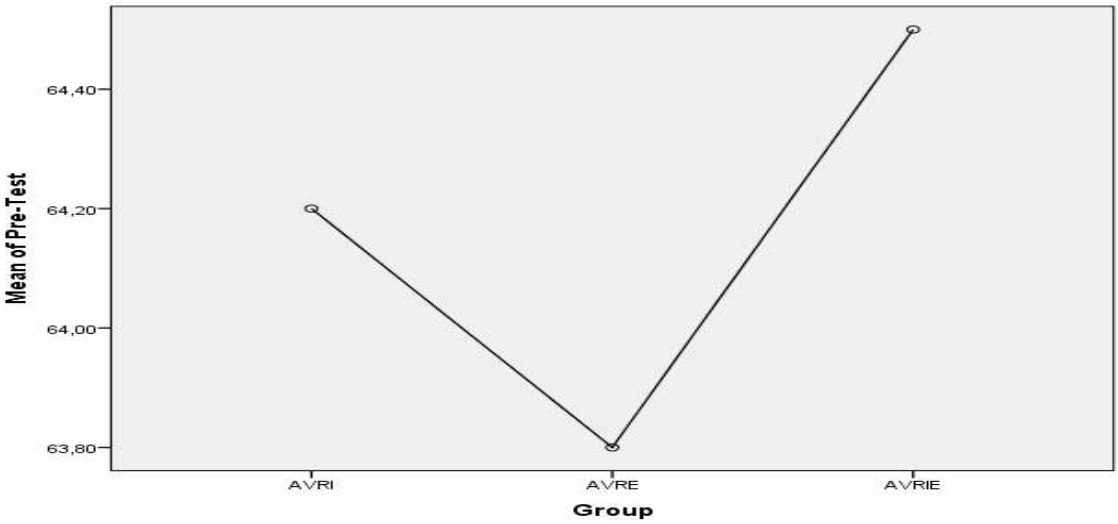

Figure 1. Means scores of pre-test

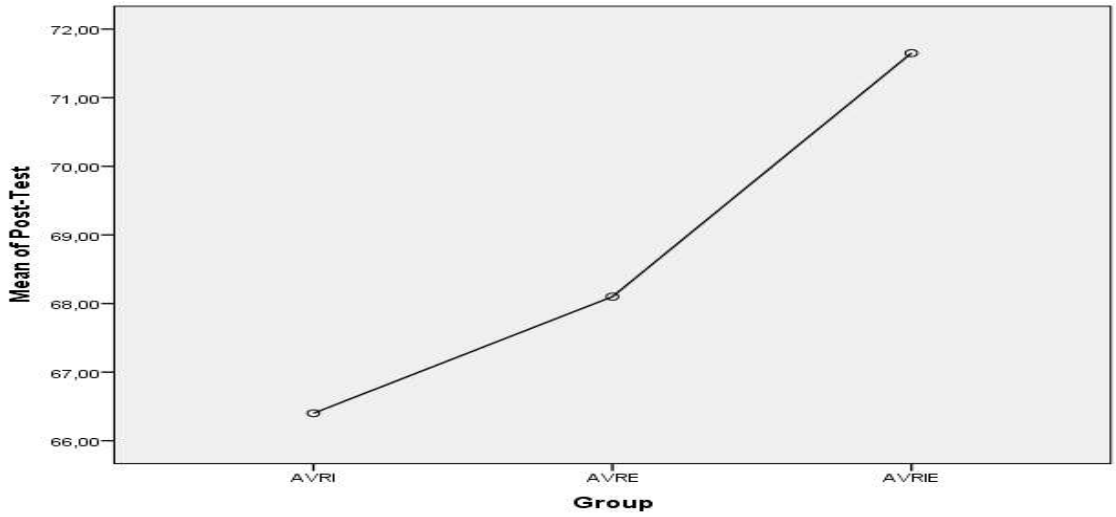

Figure 2. Means scores of post-test

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?

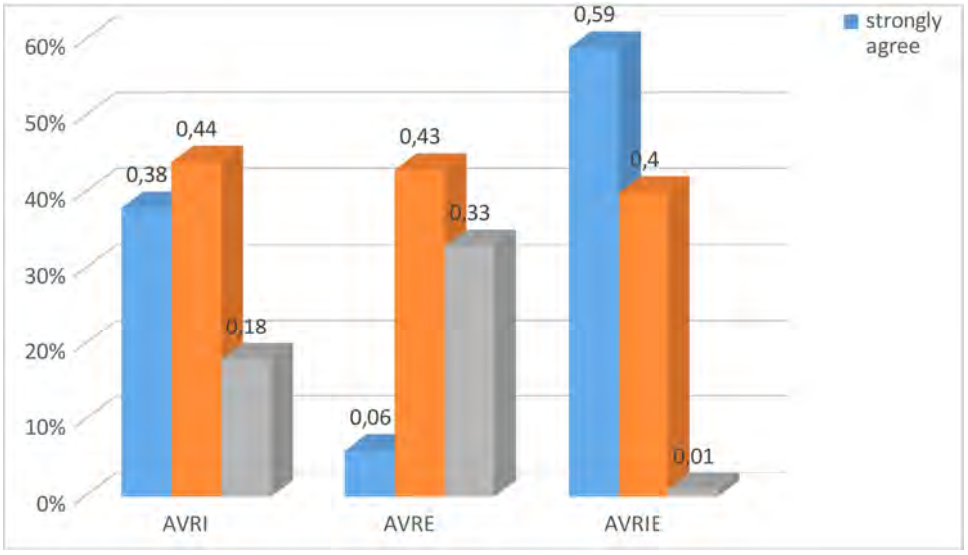

Figure 3. Students' attitudes of the three groups

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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