

The role of Quizlet in learning business vocabulary

Úloha Quizletu ve výuce obchodní slovní zásoby

Ladislav Václavík

Abstract: In these revolutionary times of technological progress, the use of ICT has become widespread. It is used in all areas of language learning and influences both the learning and the teaching process. Quizlet is an online flashcard programme which offers learners opportunities to enhance their vocabulary. The following article describes an experiment conducted in three ESP classes of Business English at the Faculty of Business and Administration of Masaryk University, Czech Republic. In two of the classes, the use of Quizlet was promoted both in class and out of class throughout the term. The learners in the remaining class, the control group, did not use Quizlet. The experiment took place during one of the seminars. Learners in different groups were asked to study carefully chosen sets of twenty English-Czech word pairs, using either Quizlet or classic, paper-based lists. In one of the Quizlet sets, the meaning of the words was illustrated using context clues. A series of two translation tests then gauged the students' active and passive knowledge of the word meanings. As a follow-up, the results of the translation part of the final credit test were compared. Also, a questionnaire was distributed, mapping learners' study habits as well as their attitude to Quizlet. The experiment was designed to determine if, and to what degree, Quizlet helps learners acquire vocabulary more efficiently, and to help us investigate the role of context in learning vocabulary. The present article describes and discusses the results of the experiment, which illuminate how students perceive Quizlet in terms of effectiveness and user-friendliness.

Key words: context, flashcards, ICT, translation, vocabulary acquisition

Vocabulary acquisition

General remarks

The effectiveness and efficiency of learning L2 vocabulary have drawn the attention of teachers and researchers for decades. Recent studies admit that the best means of achieving good vocabulary learning is still unclear (de Groot 2006, in Schmitt 2008), as a wide variety of factors enter into the procedure. In general, vocabulary learning programmes need to include both an explicit, intentional learning component and a component based around maximising exposure and incidental learning (Schmitt 2008).

Both these general strategies are widely used in courses of Business English at the Faculty of Economics and Administration at Masaryk University, Brno. Learners usually face activities fostering meaning-focused input and output (see Nation 2013; e.g. reading articles in the *Economist* and other sources or the textbook), as well as form-focused exercises (e.g. matching, multiple-choice, fill-in exercises,

and definition games). Both areas of vocabulary acquisition activities take place either in or out of class. Across the 23 groups (taught by eight teachers), learners are motivated to use various vocabulary learning strategies and tools available to them. The tools comprise, for example, a glossary of technical terms available as a downloadable booklet in PDF format, drill exercises accessible at the Information System of Masaryk University, or Quizlet, which is promoted mainly in some classes. At the end of the term, there is a credit test which contains, among others, a vocabulary part consisting of two translation tasks: one task tests productive knowledge and the other focuses on receptive knowledge of business English terminology. Thus, learners are supposed primarily to master the form and meaning aspect of knowing L2 words.

The knowledge of the form and meaning of a word, however, does not ensure that learners know the word in its entirety. Researchers agree that knowing a word involves much more than simply knowledge of meaning and form (Aitchison, 1994; Laufer, 1997; McCarthy, 1990; Miller, 1999; Nation 2013; Schmitt 1994; 1998; 2000). Nation (2013), for example, identifies nine different types of vocabulary knowledge that are a part of knowing a word.

Researchers pointed out that there are two broader aspects of knowing a word: scope and depth. As for the scope, students at the Faculty of Business and Administration need to master some 6,000 words during the first two years of their studies. Pronunciation, word category, associations, collocations, or the position of a word in a sentence constitute the depth axis of word knowledge. Even though learners are led to consider all these aspects of word knowledge, the final credit test focuses on mastering the form and meaning of technical terminology. This fact played a major role in designing the current study.

Importance of context

Given the complexity of knowing a word correctly, a question imposes itself concerning the effectiveness of vocabulary acquisition. Is it more effective for students to learn vocabulary separately or in context? Generally, cognitive psychologists and language acquisition scholars have claimed that retention of information depends on how this information is processed (Mondria 2003). There has been vast research trying to find out whether it is more effective to learn words isolated or in context (Mondria 1991, Laufer and Shmueli 1997, de Groot 2006, Sagarra and Alba 2006, Webb 2007, 2008, 2009, Papathanasiou 2009, Hummel 2010).

Many vocabulary researchers have supported strongly learning in context (Crow 1986; Krashen 1989; Oxford and Crookall 1990). Context can provide more information about the word than a simple translation or synonym, providing detail on its use and meanings. Students can learn different semantic relationships

and associations, grammatical functions and places where it usually appears in a sentence, or syntagmatic associations and collocations (Webb 2007). Indeed, decontextualised learning does not seem the best way to acquire full syntactic and grammatical knowledge. As a consequence, learners lack familiarity with the usage of target vocabulary (Oxford and Crookall 1990, in Webb 2007).

On the other hand, evidence exists to the contrary of the claims mentioned above. It has been shown that decontextualised vocabulary learning tasks (e.g. learning word pairs) can contribute to large gains in knowledge of meaning and form (Thorndike, 1908; Webb, 1962). Learning vocabulary incidentally, i.e. through reading, has been found to contribute to relatively small gains in knowledge of meaning and form (Day et al., 1991; Dupuy and Krashen, 1993; Hulstijn, 1992; Pitts et al., 1989). Indeed, when learning words through reading was compared to learning vocabulary through word lists, learners seem to have benefited more from decontextualised tasks (Laufer and Shmueli, 1997; Prince, 1996; Seibert, 1930).

In these studies, contextualised tasks usually mean learning new words by reading texts. For this study, we define context as a sentence in which the target word appears. The strategy does not involve guessing, i.e. learners are provided with a gloss of the target word (in the first language).

Four studies have examined explicit learning from context and explicit learning of word pairs (Dempster, 1987; Laufer and Shmueli, 1997; Seibert, 1930). The results of those studies showed that both tasks might be effective methods of learning vocabulary. Learners from both conditions produced large gains in knowledge of meaning and form in a relatively short time. For example, Laufer and Shmueli (1997) studied vocabulary learning in different conditions, distinguishing between focus and context-oriented methods. Focus-oriented methods comprised isolated words and words in sentences; context-oriented methods concerned texts and elaborated texts. The main finding is that learning words isolated or in sentence contexts is more effective than learning them in (elaborated) texts. Sagarra and Alba have found that learning techniques requiring deeper processing through form and meaning associations (i.e. the keyword method) yield the best retention (Sagarra and Alba 2006). Importantly, they found that rote memorisation is more effective than creating multiple-meaning associations (i.e. semantic mapping) (Sagarra and Alba 2006). Webb (2007) devised ten different tests for each word in order to compare the effectiveness in the learning of decontextualised word-pairs (word plus L1 translation) with the same word pairs plus a sentence context. No significant difference was found between the decontextualised and sentence context treatments (Nation 2013, p. 461). In sum, the studies do not show one task to be superior, nor do they demonstrate that context has any effect

on vocabulary learning. Indeed, no striking superiority of sentence context over isolated word was found.

Would there be any difference if learners could use online tools to study vocabulary, instead of paper-based word lists? Indeed, does the use of Quizlet to study vocabulary have an impact on the effectivity of vocabulary retention? Quizlet enables learners to use various study modes, which include Flashcards. These can be designed so that they present isolated one-to-one L1-L2 word pairs. Alternately, the translations can comprise short sentences clarifying the meaning of the words.

Word cards

There has been substantial literature probing the effectiveness of learning vocabulary from word cards (see Nation 2013: 438). Some criticism was raised as to the decontextualised techniques implied in learning words from cards, with critics dismissing cards as a learning activity (Oxford and Crookall 1990). It was claimed that learning from word cards does not boost remembering nor does it help with the use of the word. Moreover, word cards only provide explicit knowledge inapt for fluent use, and they only allow to study a restricted number of words needed to be learned.

However, using word cards does not exclude the possibility of putting a sample sentence or collocations on the card. This, nevertheless, could still be considered as decontextualised learning by some researchers (e.g. Oxford and Crookall 1990) given the fact that the word does not appear in a 'communicative' context.

The effectiveness of using word cards (without context) has been corroborated by research literature. There is evidence showing that 'even without a sentence context large numbers of words can be learned in a short time and can be retained for a very long time' (Nation 2013, p. 439) The evidence is provided by numerous studies (Thorndike 1908; Anderson and Jordan 1928; Webb 1962; Lado et al. 1967; De Groot 2006).

To summarise, research has shown that word cards are indeed good for remembering. At the same time, however, it has been proved that word cards are not ideal for learning how to use words in other contexts. Thus, it seems obvious that learning through word cards (language-focused activities) and learning through context (meaning-focused input, meaning-focused output and fluency development) should be considered as complementary activities (Nation 2013).

Quizlet and vocabulary learning

Research shows that the use of technology to study vocabulary is an effective approach for foreign language students (Altiner, 2011; Azabhaftari and Mozaheb, 2012; McLean, Hogg, and Rush, 2013).

In the age of massive and dynamic ICT development, there are several online tools designed to enhance the efficacy of vocabulary learning. Among these, Quizlet enjoys not only the attention of learners but also that of researchers. Surely, the motivational value of using technology in class cannot be understated. This has been corroborated by studies proving that technology can play an important role in motivating digital natives (Chien 2013). Furthermore, studies show that learners prefer Quizlet (over paper flashcards or vocabulary logs) because it is easier to use, more accessible and more user-friendly (Tran 2010). Participants in other studies based on using Quizlet had positive attitudes towards using it (Chien 2015). Perceived ease of use, together with perceived usefulness, is one of the major criteria in learners' choice of technology (Davis 1989). Technologies such as Quizlet provide affordances such as 'immediacy in receiving the learning content, flexibility and portability of learning in time and space and very low cost' (Song, 2008 in Chien 2013).

Apart from motivation and affordances, Quizlet seems to prove beneficial in vocabulary learning if it includes different word knowledge (Chien 2015). According to Wright (2016), allowing students to interact with target vocabulary in various ways – including Quizlet or other ICT tools – results in learners experiencing several aspects of knowing a word as defined by Nation (2013), namely its productive and receptive knowledge. Indeed, online word exercises should focus on developing learners' receptive and productive skills of word knowledge (Chien 2015). Other studies show improvement in learners' vocabulary knowledge as a result of using Quizlet (Dizon 2016) or mobile phones more generally (Başolu and Akdemir, 2010; Azabhaftari and Mozaheb 2012; Lu 2008).

Still, there seem to be some downsides – for example, Wright (2016) has shown that students had a problem with accuracy when creating their vocabulary sets in Quizlet. Bilová (2018) points out difficulties that students had in constructing sample sentences. Despite its shortcomings, Quizlet has the potential to be a powerful vocabulary-learning tool if used properly (Wright 2016).

Students of Business English at the Faculty of Administration and Economics use Quizlet in two ways. Firstly, they are encouraged to use Quizlet to study vocabulary out of class. Accessible through personal computers or smartphones, Quizlet seems ideal for students to use at any time throughout the day. The tool provides learners with different learning modules (Flashcards, Learn, Write, Spell, Test), thus providing variety and choice. Secondly, Quizlet is used in class both for indi-

vidualised and group activities. Students can learn vocabulary in short, 10-minute intervals at the beginning of each class. Alternately, they engage in Quizlet Live activity which is based on regular reading sessions of the Economists.

Quizlet Live game is played based on word lists created beforehand by the teacher. Quizlet Live is a group activity where students are divided into new, randomly created groups. In these groups, using their smartphones, students are to complete a word into a given sentence, each member of the group seeing a different list of options on her/his display. Here is an example:

The government should _____ Mr Quarles as chairman of the Financial Stability Board, an international body created at the height of the financial crisis to advise the G20. (appoint)

As a result, this multiple-choice reading activity is enhanced by the communication aspect where students need to negotiate – preferably in L2 – possible options for each sentence, as only one of them has got the correct word in their list. As a rule, there are twelve sentences to complete, the first group to complete all sentences in a row without making a mistake winning the contest. Importantly, research provides empirical evidence (Tran 2010) that Quizlet provides more collaboration and competition, and that learners are well aware of this.

At the end of the business news activity, students are provided with feedback. They are shown the sentences where they made mistakes, other options are discussed and correct answers back-elicited. This activity should demonstrate the contextual aspect of vocabulary learning to the learners. Again, this activity has got its counterpart in the final credit test, which contains a gap-fill task. In this task, students have to complete five sentences with verbs (in their base form) that they have to select from a list.

The present study, based partly on Webb (2007) and Dizon (2016), tried to gauge the importance of sentence context in learning English vocabulary in Business English classes at the Faculty of Economics and Administration of Masaryk University, Brno. Also, the article focuses on the role of Quizlet in L2 vocabulary acquisition both in short-term and long-term retention. The study contrasts traditional, paper-based studying from word lists with the use of Quizlet, where vocabulary can be studied using word cards (with both isolated word pairs and words accompanied by sentence context). It also reports learners' reactions to Quizlet in terms of perceived usefulness and ease of use (Davis 1989; Dizon 2016). These two variables are further compared with the frequency of use and means of accessing Quizlet. Eventually, final credit test results are compared (translation and gap-fill tasks) to show whether there was any substantial difference in vocabulary scores which could be attributed to using Quizlet at home (translation tasks) or in class (fill-in task).

Methodology

Research questions

The following study tried to answer three research questions:

1. Does using Quizlet and context-embedded wordlists have significant short-term/long-term impact on learning L2 vocabulary compared to traditional paper-based word lists?
2. What is students' attitude towards using Quizlet for L2 vocabulary acquisition in terms of perceived usefulness and ease of use? Does their attitude correlate with the frequency of use and mode of access?
3. Does using Quizlet outside the classroom have a positive impact on the results of the vocabulary part of the final credit test?

Participants

The population sample consisted of 44 first-year students of the Faculty of Economics and Administration of Masaryk University, Brno, Czech Republic. There were two experimental groups ($N_1 = 15$, $N_2 = 13$) and one control group ($N_3 = 16$). The experimental groups were taught by me, and the control group was taught by a fellow teacher. The reason for this was that only in my groups do learners use Quizlet both in and out of class. The students participating in the study were in the second term of their studies, which means that all of them had to pass the credit test at the end of the first term. This test ensures, at least partially, homogeneity of the groups in terms of L2 proficiency. The limitations concerning sampling are discussed later.

Design and target words

Before the experiment itself, a pre-test consisting of L2-L1 translation was distributed in the groups in order to find out whether students were familiar with words destined for the main part of the project. The words had been chosen according to Nation's low-frequency word sets (Nation 2013, p. 28) to ensure that students will be unfamiliar with them. There were 20 words altogether (seven nouns, seven verbs and six adjectives¹), completely unrelated to business English terminology of the classes. All words that had been correctly translated by students were eliminated and replaced to minimise the probability of learners' encountering a word that they already know. The choice of low-frequency words

¹ The word category distribution pattern (nouns, verbs, adjectives) was modelled on Webb (2007) and Kucera and Francis (1967).

could be another limitation of this study, as learners might not be properly motivated to study and retain the words in memory.

The experiment took place at the beginning of one of the seminars, in the second half of the spring term 2019. In the experimental groups, students were asked to study lists of English vocabulary made accessible on Quizlet by the teacher shortly before the seminar. Group 1 was given a Quizlet set of L2–L1 equivalents words without context. Similarly, Group 2 was given the same Quizlet set of L2–L1, but the L1 translation was complemented with an example sentence:

sundry – (rozličný) There were a watch, a diary and sundry other items on her table.

Finally, the control group – Group 3 – studied the same word set via traditional paper-based L2–L1 wordlists without context. All study sets were eliminated immediately after the study sessions so that students could not access the words again.

Based on previous similar research (Webb 2007, 2008, 2009), learners in all three groups were given 8 minutes to study the vocabulary. Two immediate tests followed, gauging students' productive (L1–L2 translation) and receptive (L2–L1 translation) knowledge of form and meaning associations. Learners gained one point for each word translated correctly. Minor spelling mistakes having no impact on the meaning were tolerated (as recommended by Schmitt 2008). The same tests were distributed four weeks later, without learners having an opportunity to study the words in the meantime. Students had no prior knowledge that they will be tested, neither immediately nor with delay. Despite covering only partially the complex concept of word knowledge, this form of testing vocabulary knowledge (i.e. productive and receptive translation focusing on form and meaning associations) was chosen because the same translation tasks are included in the credit tests, whose results were also compared in the framework of the present study.

The second part of the study concerned the usefulness and the ease of use perceived by learners who used Quizlet to study business vocabulary during the term. The terminology is based on the technology acceptance model (TAM), a research framework by Davis (1989), which aims at measuring a user's behavioural intention (BI) to use a given technology according to two primary factors: perceived usefulness (PU) and perceived ease of use (PEOU). According to Davis (1989), PU is "the degree to which a person believes that using a particular system would enhance his or her job performance", while PEOU is defined as "the degree to which a person believes that using a particular system would be free of effort" (p. 320) (Dizon 2016).

The questionnaire (based on Dizon 2016) was distributed at the end of the term. It consists of 12 questions which gauged the average time spent on Quizlet; learn-

ers' preferred means of accessing Quizlet, either via computers or smartphones; the perceived usefulness; and the ease of use. The first two questions concerned the mode of accessing Quizlet (PC or smartphone) and the frequency of use per week. Questions 3–6 and 7–10 operationalised the perceived usefulness and the ease of use, respectively. The last two questions tried to find out learners' future intent to use Quizlet to study L2 vocabulary.

Results

Vocabulary tests

Using descriptive statistics (calculation of mean scores), the first part of the study tried to gauge the short-term, and long-term retention of vocabulary learned via three different input methods. The results of the immediate post-test were as follows:

Tab. 1: *Productive and receptive immediate post-test results*

Group	Cz-En translation M_{immP}	Retention rate	En-Cz translation M_{immR}	Retention rate
Group 1 (Q+con*)	14.71*	73.6%	15.93*	79.7%
Group 2 (Q, nc**)	12.42	62.1%	13.08	65.4%
Group 3 (C***)	13.87	69.4%	14.13	70.7%

Note: Maximum score = 20 points. M_{immP} : mean score, immediate productive post-test, M_{immR} : mean score, immediate receptive post-test. *Quizlet flashcards with context sentences; **Quizlet flashcards with isolated word pairs, no context sentences; ***Control group, paper-based word lists of isolated word pairs.

In general, the results roughly correspond to findings in vocabulary acquisition literature (Lado et al. 1967; Laufer and Shmueli 1997; Webb 2007). As can be observed, Group 1 shows best results (compared both to Group 2 and Group 3), which might hint at a role of context in learning vocabulary (Schmitt and Laufer 1997). Given the scope of the study, however, this result can hardly be generalised. Interestingly, when we compare Groups 2 and 3, we can see that the traditional word lists were more efficient than the Quizlet variety of Flashcards. This might hint at greater effectiveness of word lists over word cards (cf. Nation 2013: 438). Finally, productive tests in all three groups show poorer results than the receptive ones, both in the respective groups and in general. This, however, is not surprising as the trend has been described in L2 vocabulary acquisition literature (e.g. Nation 2013).

The results of the delayed post-tests are shown in Table 2:

Tab. 2: *Productive and receptive delayed post-test results*

Group	Cz-En translation M_{delP}	Retention rate	En-Cz translation M_{delR}	Retention rate
Group 1 (Q+con*)	3.18	15.9%	6.56	32.8 %
Group 2 (Q, nc**)	2.55	12.75%	7.09	35.45%
Group 3 (C***)	2.42	12.1%	9.41	47.05%

Note: Maximum score = 20 points. M_{delP} : mean score, delayed productive post-test; M_{delR} : mean score, delayed receptive post-test. *Quizlet flashcards with context sentences; **Quizlet flashcards with isolated word pairs, no context sentences; ***Control group, paper-based word lists of isolated word pairs.

These results are not so clear-cut as in the previous test. Group 1 (words studied in context through Quizlet) achieved the best score in delayed productive post-test, but the worst in the receptive task. Group 3 (paper-based vocabulary learning from word lists) yielded the best score in receptive knowledge of vocabulary, but the worst (even if marginally) in the productive test. When we compare Group 1 and Group 2 (the only variable being the sentence context), we can see that the results copy the same tendency. These results would point at the effectiveness of both word list rote learning and simple flashcards for the easier, receptive part of vocabulary knowledge. When the cognitive effort is more difficult, context might be more effective (Group 1 achieved the best score in the productive task). However, the results cannot refute previous findings which showed a minimal effect of context on vocabulary learning (Webb 2007). As in the immediate post-tests, the receptive mean scores are better than the productive scores, in all three groups.

From the tables above, we find that there is a significant difference between short-term and long-term memory tests. This, however, represents the natural memory fading phenomenon of the human mind. To investigate the memory fading further, we can put both tables together and observe the rate of long-term retention (or memory fading tendency) across all three groups. By subtracting the mean scores in all categories ($M_{immediate} - M_{delayed}$), we arrive at the following numbers (the smaller the number, the better the retention rate):

Tab. 3: *Long-term retention rate*

Group	Difference Cz-En (productive)	Difference En-Cz (receptive)
Group 1 (Q+con)	11.53	4.66
Group 2 (Q, nc)	9.87*	5.99*
Group 3 (Control)	11.45	4.72

As the results show, Group 1 and Group 3 came with similar, almost identical, figures. This could mean that context played very little difference in terms of long-term effects on retention, when compared to the traditional, paper-based

wordlists, which yielded almost identical outcomes. This would corroborate some research findings (Webb 2007), contradicting others (Laufer and Schmitt 1997).

The role of context in the two Quizlet groups seems more ambivalent. On the one hand, context might help learners gain receptive knowledge (Group 1 did better than Group 2) in the long term. On the other hand, Group 2 did better in the productive, more difficult, part of the test. This could mean that context has a negative effect on the productive knowledge of vocabulary, maybe due to heightened cognitive load, which might have placed more time pressure on learners (all learners had the same amount of time to study the words across the groups). However, this result seems to be in contradiction with research which has found that effective elaboration and deepened information processing (i.e. more cognitive effort) help memorisation (Baicheng 2009). Other types of test (e.g. associations, collocations) might have yielded a different picture.

Questionnaire

Besides using Quizlet in class, students in Group1 and Group2 were encouraged to study business English vocabulary at home. The following part outlines their responses to the questionnaire (reproduced from Dizon 2016).

The questionnaire showed that the majority of learners used computers to access Quizlet.

Number of learners	PC	Smartphone
21	13	8

This finding is quite interesting, as the research in the field shows opposite preferences. The result does not copy the general tendency to move from PCs to smartphones expressed by Walters (2012, in Dizon 2016). Nor does ubiquity (Lu 2008) seem to have played a role in persuading learners to use mobile devices instead of computers. Further research could elucidate this finding, trying to establish any general trend or tendency.

The questionnaire also tried to find out whether those learners who used computers differed from smartphone users in how much time they spent learning vocabulary. The following charts show that the frequency distribution copies similar patterns for both groups.

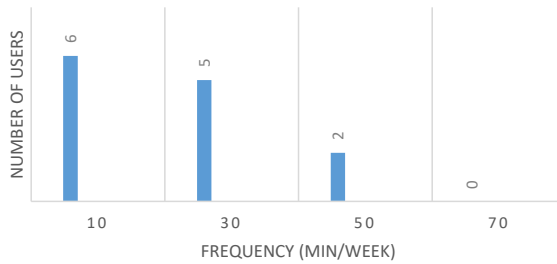


Fig. 1: Use of PC – time-frequency (minutes per week)

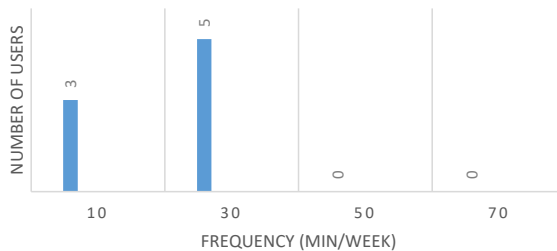


Fig. 2: Use of smartphones – time-frequency (minutes per week)

Maybe somewhat surprisingly, the majority of computer users ($n = 6$) accessed Quizlet for short periods. The smartphone was mostly used for 30-minutes study sessions per week. It would be highly speculative, however, to try to explain the nature of the difference in use here. It might be possible that mobile technology, because of its ubiquity and flexibility, can be accessed at different places, thus adding up to the total number of minutes. Additional interviews could elucidate this finding further. On the other hand, only computer users, unlike their smartphone counterparts, were able to extend their study periods beyond the 30-minute timespan. On the whole, despite being encouraged to use Quizlet as much as possible, learners showed only limited enthusiasm for the tool. Again, personal interviews with them could throw some light on this matter.

Usefulness

The mean score for the usefulness variable is 16.62 (max = 20, i.e. four questions per 5 points max.), showing positive feedback. The following table plots the perceived usefulness against the frequency of use.

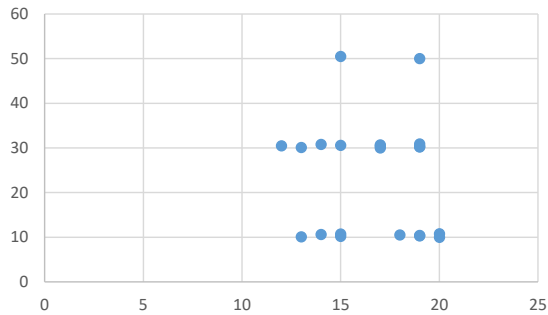


Fig. 3: Time-frequency (0-60min/week) of usefulness (min 4 - max 20 pts)

The results do not show any substantial differences among learners. Both hard learners (50min per week) and weak learners (10min per week) find Quizlet both extremely and quite useful. At the same time, the lowest usefulness score correlates with a lower frequency of use. Average users (30min per week) tend to find Quizlet less useful (mean score is 16) than sporadic and hard learners (10min per week and 50min per week, both groups have a mean score equal to 17).

Ease of use

The mean score for this variable is 16.76 (max = 20 points; i.e. four questions per 5 points max.), which is almost identical to the usefulness mean score (= 16.62). If plotted against the frequency of use (minutes per week), we get the following chart.

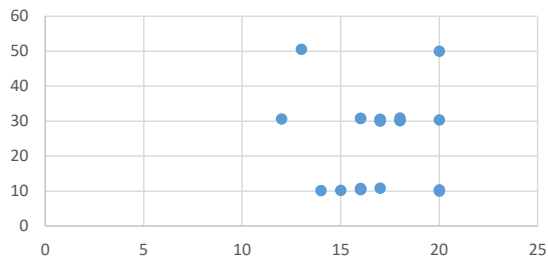


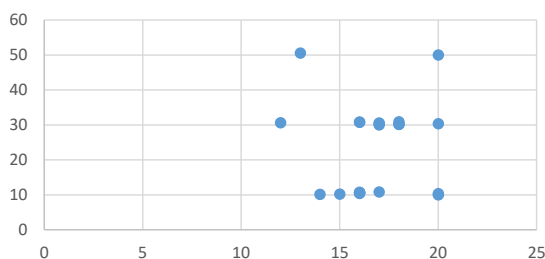
Fig. 4: Time-frequency (0-60min) and ease of use (min 4 - max 20 pts)

On the whole, the perceived ease of use had no impact on the frequency of use. The biggest span in the ease of use can be observed in average users. The majority of the least frequent users found Quizlet more difficult to operate than the other users, which might suggest a causal link between the two factors. On the other hand, the two least content users come from the groups showing more frequent

use of Quizlet. This, in itself, might point to personal commitment and industriousness on the part of these two learners who persisted in spending more time on Quizlet despite having trouble using it. Interestingly, the mean score for ease of use in all three categories differs only marginally ($M_{10\text{min}} = 16.7$, $M_{30\text{min}} = 16.9$, $M_{50\text{min}} = 16.5$), which shows that learners, on average, find the tool easy to use irrespective of the time spent on it.

Usefulness, ease of use and behavioural intention

Finally, we plotted the perceived usefulness and the ease of use to find out whether there is any significant pattern. The graph below shows a cluster centred in the top-right quarter, which suggests that Quizlet was perceived both as useful and easy to use by the learners. Moreover, when asked whether they would use Quizlet to study L2 vocabulary in the future, learners' mean score for behavioural intent was 4.14 (max = 5). This score suggests a quite strong intention to reuse Quizlet for education purposes and copies previous results (Dizon 2016).



Dizon (2016) presents the following results:

Construct	Mean	SD
Perceived usefulness	4.5	0.7
Perceived ease of use	4.4	0.8
Intention	4.4	0.6

Our study provided similar scores:

Construct	Mean	SD
Perceived usefulness	4.2	0.6
Perceived ease of use	4.2	0.6
Intention	4.1	0.9

The groups under examination scored marginally less in all the three constructs. Nevertheless, the difference is negligible and, on the whole, the mean scores still

reflect a positive attitude to Quizlet as a tool suitable for learning vocabulary. Thus, we can conclude in similar terms, namely that 'the learners in the study viewed the program as a useful and easy to use method for studying vocabulary and indicated that they would like to continue using it in the future' (Dizon 2016: 52). However, our students – in contrast to Dizon's sample – did not show any preference for the use of smartphones, contradicting the proclaimed 'shift towards mobile technology' (Dizon 2016: 52).

Final credit test scores

The final credit test comprises three major sections: listening, grammar and vocabulary. The vocabulary part consists of four subtasks, two of which are based on translation. Learners can achieve a maximum of 10 points for L1–L2 (productive) translation of business English terms, and 5 points for L2–L1 (receptive) translation. The maximum score of the whole translation section of the test is then 15. Comparing the results in all three groups, we get the following scores:

Tab. 4: Credit test results

Groups	Cz-En translation	Percentage	En-Cz translation	Percentage
Quizlet groups	7	70%	3.4	68%
Control group	6.64	66.4%	3.5	70%

The results are almost identical, showing that groups which used Quizlet to study business English vocabulary for test purposes scored slightly better – in the productive task (i.e. Czech-English translation) – than the group which used other tools. However, the results are opposite for the receptive task (i.e. English-Czech translation). As a result, no significant impact of the use of Quizlet can be pointed out. Nevertheless, different design, which would track individual students' time spent on Quizlet and their final score, might bring in clearer data.

As for the fill-in tasks, the results were as follows:

Tab. 5: Verb fill-in task results

Groups	Verb fill-in mean score (max. 5)	SD
Quizlet groups	3.91	1.03
Control group	3.83	1.21

The results do not show any significant difference between the groups.

Discussion and limitations

The study in question does not pretend to draw any general conclusions. It tried to map the effect of various learning methods on specific groups in specific cir-

cumstances. Thus, given the small numbers and the design of the study, no statistically relevant figures were neither sought for nor found.

There are several limitations to the study. The distribution of the population into samples seems the most difficult issue, as it was practically impossible to gather randomised samples. Despite the credit test which the learners had to sit at the end of the first term, their proficiency level differed: some students were highly proficient (C1), others weaker (B2).

There were three convenience samples, determined by the distribution of students into study groups. Thus, the process of distribution could not be fully controlled, as the decision which group to join had been made by learners themselves, based on learners' preferences in terms of schedule (morning, afternoon groups), teachers' reputation (as a part of student narrative). The personality of the teacher might also have influenced the gender distribution in the groups (predominantly male students in my groups). Given these and other facts, group homogeneity could not be assured. Another limitation concerns the role of teachers, as two different individuals taught the three groups. Factors such as the teacher's attitude towards learners, his or her methods and teaching style, or agreeableness, could have played an important role in motivating students. As my colleague, who taught in Group3, reported to me, her students found little value in the delayed post-test, which could have distorted the results.

The process of word selection could have taken consideration into the fact that some low-frequency words can have high-frequency synonyms, which would depreciate the role of context in vocabulary acquisition (Webb 2007). At the same time, the learners at the B2 level are not beginners, and only beginners do not know synonyms for most of the words that they learn.

Also, this study did not use the results of classroom observations, learners' learning records, and interview to identify the features of the effective designs of flash-card website on language learners' acquisition of word knowledge. This mixed-method approach could have yielded richer data and thus clarify some issues that arose from the test results and questionnaire answers.

Finally, the two experimental groups were taught by me. Ideally, I should have taught one experimental and one control group, leaving the other experimental group to my colleague. The final design, however, was opted for because my colleague does not use Quizlet in her classes, and it would be time-demanding and hard logistically to reorient her learners to use Quizlet at such short notice.

Conclusion

The study in question tried to answer three research questions. The first question – concerning the impact of context or Quizlet on vocabulary retention – did not yield any statistically significant results. On the other hand, it corroborated previous findings which claim that the role of context in vocabulary acquisition is not clear-cut (Nation 2013: 438). Also, it showed that in certain circumstances, the context seems helpful. In immediate post-tests, Group 1 shows best results, which might hint at a role of context in learning vocabulary. Given the design of the study, however, this result can hardly be generalised. Also, productive tests show poorer results than the receptive ones. In delayed tests, Group 1 (words studied in context) achieved the best score in productive post-test; in contrast, Group 3 (words studied in one-to-one word lists) scored significantly better in the receptive post-test which might corroborate the minimal effect of context on vocabulary learning discovered in previous literature (Webb 2007). When we compare the differences in mean scores in both immediate and delayed post-tests, we get the average rate of retention in all three groups. Group 1 and Group 3 achieved similar figures, which could mean that context played very little difference in terms of long-term effects on retention when compared to the traditional, paper-based wordlists, which yielded almost identical outcomes. The role of context in the two Quizlet groups seems more ambivalent. On the one hand, context might have helped learners foster receptive knowledge (Group 1 did better than Group 2) in the long term. On the other hand, Group 2 did better in the productive, more difficult, part of the test. This could mean that context has a negative effect on the productive knowledge of vocabulary, maybe due to heightened cognitive load.

The second research question concerned learners' perceived usefulness and ease of use when studying vocabulary with Quizlet. Here, the results corroborated previous research in full (e.g. Dizon 2016). On average, students find Quizlet both useful and easy to use. However, these two variables do not correlate in any way with other factors, such as means of accessing Quizlet (computer or smartphone), or frequency of use (minutes per week).

Finally, the credit test results showed no differences between the groups that used Quizlet to study business English terminology and the group which used other tools (PDF glossary).

In the future, the role of Quizlet Live on learning vocabulary could be investigated further. Also, the use of Quizlet outside class might be studied in more depth, given the fact that students of the Faculty of Economics and Administration spend most time studying vocabulary at home/on their own. The impact of long-term use of Quizlet on the credit test results might also have significant educational value.

References

- AITCHISON, J. (1994). *Words in the mind*. Oxford: Blackwell.
- ALTINER, C. (2011). *Integrating a Computer-Based Flashcard Program into Academic Vocabulary Learning*. Unpublished doctoral dissertation. Iowa State University. <http://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=1122&context=etd>
- ANDERSON, J. P., & JORDAN, A. M. (1928). Learning and retention of Latin words and phrases. *Journal of Educational Psychology* 19, 485–496.
- AZABDAFTARI, B., & MOZAHEB, A. M. (2012). Comparing vocabulary learning of EFL learning by using two different strategies: mobile learning vs flashcards. *EUROCALL Review*, 20(2), 48–59.
- BAŞOLU E. B., & AKDEMİR, Ö. (2010). A comparison of undergraduates students' English vocabulary learning: using mobile phones and flashcards. *TOJET: The Turkish Online Journal of Educational Technology* 9(3), 1–7.
- BILOVÁ, Š. (2018). Collaborative and individual vocabulary building using ICT. *Studies in logic, grammar and rhetoric*, 53 (66), 31–48.
- CHIEN, C.-W. (2013). Perception and practice of Taiwanese EFL learners' making vocabulary flashcards on Quizlet. *IADIS International Conference e-Learning*, 459–462.
- CHIEN, C.-W. (2015). Analysis the Effectiveness of Three Online Vocabulary Flashcard Websites on L2 Learners' Level of Lexical Knowledge. *English Language Teaching*, Vol. 8, No. 5, 111–121.
- CROW, J. T. (1986). Receptive vocabulary acquisition for reading comprehension. *Modern Language Journal* 70, 242–50.
- DAVIS, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
- DAY, R. R., OMURA, C., & HIRAMATSU, M. (1991). Incidental EFL vocabulary learning and reading. *Reading in a Foreign Language* 7, 541–551.
- DE GROOT, A. M. B. (2006). Effects of stimulus characteristics and background music on foreign language vocabulary learning and forgetting. *Language Learning*, 56(3), 463–506.
- DEMPSTER, F. N. (1987). Effects of variable encoding and spaced presentation on vocabulary learning. *Journal of Educational Psychology* 79, 162–70.
- DIZON, G. (2016). Quizlet in the EFL classroom: enhancing academic vocabulary acquisition of Japanese university students. *Teaching English with Technology*, 16(2), 40–56.
- DUPUY, B., & KRASHEN, S. D. (1993). Incidental vocabulary acquisition in French as a foreign language. *Applied Language Learning* 4, 55–63.
- HULSTIJN, J. H. (1992). Retention of inferred and given word meanings: experiments in incidental vocabulary learning. In ARNAUD, P., & BEJOINT, H. (eds.) *Vocabulary and applied linguistics*, London: Macmillan, 113–125.
- HUMMEL, K. M. (2010). Translation and short-term L2 vocabulary retention: Hindrance or help? *Language Teaching Research* 14(1), 61–74.
- KRASHEN, S. D. (1989). We acquire vocabulary and spelling by reading: Additional evidence for the input hypothesis. *Modern Language Journal* 73, 440–62.
- LADO, R., BALDWIN, B., & LOBO, F. (1967). *Massive Vocabulary Expansion in a Foreign Language Beyond the Basic Course: The Effects of Stimuli, Timing and Order of Presentation*. Washington, DC: US Department of Health, Education, and Welfare.

- LAUFER, B. (1997). What is in a word that makes it hard or easy? Intralexical factors affecting the difficulty of vocabulary acquisition. In SCHMITT, N., & MCCARTHY, M. (eds.) *Vocabulary: description, acquisition and pedagogy*, Cambridge: Cambridge University Press, 140–55.
- LAUFER, B., & SHMUELI, K. (1997). Memorising new words: does teaching have anything to do with it? *RELC Journal* 28: 89–108.
- LU, M. (2008). Effectiveness of vocabulary learning via mobile phone. *Journal of Computer Assisted Language Learning*, 24, 515–525.
- MCCARTHY, M. (1990). *Vocabulary*. Oxford: Oxford University Press.
- MCLEAN, S. HOGG, N., & RUSH, T. W. (2013). Vocabulary learning through an online computerised flashcard site. *The JALT CALL Journal*, 9(1), 79–98.
- MILLER, G. A. (1999). *On knowing a word*. Annual Review of Psychology 50: 1–19.
- MODRIA, J. A., & WIT-DE BOER, M. (1991). The Effects of Contextual Richness on the Guessability and the Retention of Words in a Foreign Language. *Applied Linguistics*, Vol. 1ú, No. 3.
- MONDRIA, J. A. (2003). The effects of inferring, verifying, and memorising on the retention of L2 word meanings. *SSLA*, 25, 473–499.
- NATION, I. S. P. (2013). *Learning vocabulary in another language*. Cambridge: Cambridge Applied Linguistics.
- OXFORD, R., & CROOKALL, D. (1990). Vocabulary learning: a critical analysis of techniques. *TESL Canada Journal* 7, 9–30.
- PAPATHANASIOU, E. (2009). An investigation of two ways of presenting vocabulary. *ELT Journal Volume* 63(4), 313–322.
- PITTS, M., WHITE, H., & KRASHEN, S. (1989). Acquiring second language vocabulary through reading: a replication of the Clockwork Orange study using second language acquirers. *Reading in a Foreign Language* 5, 271–75.
- PRINCE, P. (1996). Second language vocabulary learning: the role of context versus translations as a function of proficiency. *Modern Language Journal* 80, 478–493.
- SAGARRA, N., & ALBA, M. (2006). The key is in the keyword: L2 vocabulary learning methods with beginning learners of Spanish. *The Modern Language Journal*, 90, ii, 228–243.
- SCHMITT, N. (1994). Vocabulary testing: questions for test development with six examples of tests of vocabulary size and depth. *Thai TESOL Bulletin* 6, 9–16.
- SCHMITT, N. (1998). Tracking the incidental acquisition of second language vocabulary: A longitudinal study. *Language Learning* 48, 281–317.
- SCHMITT, N. (2000). *Vocabulary in language teaching*. Cambridge: Cambridge University Press.
- SCHMITT, N. (2008). Instructed second language vocabulary learning. *Language Teaching Research* 12(3), 329–363.
- SEIBERT, L. C. (1930). An experiment on the relative efficiency of studying French vocabulary in associated pairs versus studying French vocabulary in context. *Journal of Educational Psychology* 21, 297–314.
- SONG, Y. (2008). SMS enhanced vocabulary learning for mobile audiences. *International Journal of Mobile Learning and Organisation* 2(1), 81–98.
- THORNDIKE, E. (1908). Memory for paired associates. *Psychological Review* 15, 122–38.
- TRAN, T. P. ET AL. (2010). Application of Quizlet.com to teaching and learning business English vocabulary at the University of Economics Ho Chi Minh City. (not mentioned), 230–238.

- WALTERS, T. (2012). Understanding the “mobile shift”: Obsession with the mobile channel obscures the shift to ubiquitous computing. Digital Clarity Group. <http://digitalclaritygroup.com/wordpress/wpcontent/uploads/2012/12/DCG-Insight-Understanding-the-Mobile-Shift-Nov-2012.pdf>
- WEBB, S. (2007). Learning word pairs and glossed sentences: the effects of a single context on vocabulary knowledge. *Language Teaching Research* 11(1), 63–81.
- WEBB, S. (2008). The effects of context on incidental vocabulary learning. *Reading in a Foreign Language* 20(2), 232–245.
- WEBB, S. (2009). The effects of receptive and productive learning of word pairs on vocabulary knowledge. *RELC* 40(3), 360–376.
- WEBB, W. B. (1962). The effects of prolonged learning on learning. *Journal of Verbal Learning and Verbal Behavior* 1, 173–182.
- WRIGHT, B. A. (2016). Transforming Vocabulary Learning With Quizlet. In P. CLEMENTS, A. KRAUSE, & H. BROWN (Eds.) *Transformation in language education*. Tokyo: JALT. 436–440.

Author

Mgr. Ladislav Václavík, Ph.D., Masaryk University Language Centre, Faculty of Economics and Administration unit, e-mail: 20439@mail.muni.cz

He has been teaching at the Masaryk University Language Centre since 2014, he specialises in business English and French for Specific Purposes (academic, medical). As a researcher, he focuses on course design, ICT and blended-learning areas, vocabulary acquisition and, last but not least, he takes an interest in issues related to creativity and motivation.