



ISSN: 2454-9940



**INTERNATIONAL JOURNAL OF APPLIED
SCIENCE ENGINEERING AND MANAGEMENT**

E-Mail :
editor.ijasem@gmail.com
editor@ijasem.org

www.ijasem.org

THE INDUSTRY 4.0 STRATEGIC DEVELOPMENT REQUIRES A DIFFERENT TEACHING AND LEARNING METHOD THAN HAS BEEN USED TO DATE.

M NARSIMHA^{1,2,3,4}, Dr A K S ANSAR^{1,2,3,4}, K KRISHNAVENT^{1,2,3,4}, R HARI KRISHNA^{1,2,3,4}

ABSTRACT

In recent years, job applicants have been expected to have not just professional knowledge and abilities, but also English that is tailored to the unique needs of their chosen field. As a result, English for particular purposes (ESP) has become the newest and fastest-growing trend in the field. There are a wide range of ESP courses available at most colleges in order to assist students meet their communication and professional requirements. This university has also supplied intriguing ESP courses that are meant to help students in engineering and technology fields. Aiming to help English language learners in engineering and technology as well as those learning English for specific professional purposes acquire specialised vocabulary by using Quizlet, a web-based and mobile study application, this paper proposes that technology be integrated into language teaching and learning. Teachers and students alike will reap the benefits of Quizlet's creative style of learning and teaching, which is likely spreading. While the benefits of Quizlet exceed the drawbacks in this area, it is clear that it should not be required, but rather used in conjunction with other approaches to help fulfil students' rising needs as the industrial revolution approaches. 4.0.

Incorporating technology into the classroom is an important part of the ESP curriculum.

INTRODUCTION

Vocabulary seems to be a critical component in improving students' ability to communicate effectively in English, but this aspect of language learning and instruction has received much too little attention in the past. Learners' needs have expanded greatly since ESP has become a new trend, requiring them to concentrate on enhancing their communication skills via practise in a variety of professional and occupational settings. To date, there are many different kinds of English as a Second Language (ESP) programmes in operation, from those geared toward waiters and tourists to those geared toward business and the sciences. But one thing is clear: the importance of terminology in the field of language teaching and learning cannot be overstated. Aiming to enhance awareness of the relevance of terminology in various professions, this study also introduces one of the creative tools that might help students learn. Students may face a broad range of challenges while attempting to acquire

specialist terminology. Learning new vocabulary in a specific field of study or professional usage may be a challenge for students since these terms tend to be less common and less often encountered by those learning general English. In addition, if kids are just in the classroom, they have less opportunity to practise and utilise these terms on a daily basis. Additionally, these phrases must be interpreted in context in specialised disciplines that may need additional work to learn. Learning specialised vocabulary may be difficult and tedious for students, as they struggle to decide which terms are worth their time and effort. Another issue may be seen because each individual adapts in their own unique manner, how can you organise and arrange terminology systematically? However, it is commonly accepted that vocabulary learners should be concerned with two major issues: how to remember words correctly and how to pick the best ways for learning them. Technology has always played an important role in language learning and teaching, even if many conventional techniques continue to be used to aid both teachers and students.

*Professor^{1,2,3,4}, Assistant professor^{1,2,3,4},
Department of Mechanical Engineering,
Pallavi Engineering College,
Kuntloor(V), Hayathnagar(M), Hyderabad, R.R. Dist. -501505
narsimha329@gmail.com, ramagirihari345@gmail.com*

People feel that modern technology makes it much simpler to study and teach languages, and this is certainly true when it comes to improving one's vocabulary in the English language. Learning vocabulary may be made more exciting by introducing mobile and web-based technology into the classroom such as CALL (computer assisted language learning), MALL (mobile assisted language learning), or SPall (smartphone assisted language learning). There are several benefits to using technology in the classroom, such as creating a positive learning environment for students and allowing instructors to experiment with novel teaching methods [1]. There is also the fact that the use of technology enhances the learning experience for students by making it more interesting, engaging, and motivating [2]. In addition, students' perseverance and reinforcement in English vocabulary learning are bolstered by the use of innovative technologies. As a result of the usage of these apps, instructors and students may collaborate in new and creative ways, changing students' mindsets and empowering them to become self-directed learners [3]. There is little question that all students have benefited from the use of technology to improve their vocabulary in their respective professions throughout the duration of three years of teaching ESP courses. ' Student satisfaction with technological integration is high, it's a proven fact. Both the dictionary and other paid features like word games and practising exercises from huge online vocabulary development applications are supported by these apps. Quizlet, a new vocabulary-learning tool developed by the CALL community, has lately emerged as one of the most popular CALL tools. This software has a wide range of features that not only help instructors organise and manage their classroom activities, but also provide students a unique way to acquire language.

LITERATURE REVIEW

English Selected for Its Use Specific Purposes
Definition of English English as a Second Language (ESL) and English for Specific Purposes (ESP) are two terms that are sometimes used interchangeably (ESL). While both come under the umbrella of English Language Teaching (ELT), the primary distinction between ESP and ESL is the reason for the student's participation in the programme. Although the idea of extrasensory perception (ESP) has been around since the 1960s, the definitions of ESP vary widely, making it difficult to establish one

that is both basic and watertight. Many different techniques have been proposed by scientists to characterise extrasensory perception (ESP) from the days of the first date. When ESP is first introduced to students, it may be seen as a training programme in which certain skills and information are taught to help them solve difficulties. ESP is described as "an important training operation that tries to give learners with a constrained competence to allow them to deal with specific clearly specified objectives, which the ESP course is meant to fulfil" [4]. [5] As a method of learning a language for particular goals, ESP is considered to be a kind of individualised instruction [5]. ESP, on the other hand, is associated with specialised fields of study geared for adults in higher education or in the workplace [6]. In addition, many experts believe that ESP assists English learners to communicate effectively not just in their everyday lives, but also in a variety of professional contexts. ESP focuses on the specific communication requirements and activities of various job roles in society [7]. ESP (English for Certain Purposes) is a word that refers to teaching and learning English for specific vocations in many areas of life [8]. Specific Vocabulary: What Role and What Types? Students of foreign languages are well aware that vocabulary acquisition is an essential part of their ability to communicate in the target language. Despite the fact that vocabulary has a significant impact on fluency in communication, this scope has been underappreciated and ignored for a long time. Following Paul Nation's statement, "It is beneficial to shift vocabulary acquisition toward more specialised areas after learners have learned the 2000--3000 words of broad utility in English," learners may better understand how to deal with specific vocabulary. [9] Having a strong vocabulary is important for all levels of English learners, not just those in ESL or EFL [10]. A wide range of views may be discovered on how to categorisespecialised vocabulary, which has been the subject of much study and practise. Vocabulary may be divided into five categories: spoken and written vocabulary; core and non-core vocabulary; discourse structure vocabulary and procedural vocabulary; technical, semi-technical and general vocabulary; and academic vocabulary[11]. Theoretically, there should be three categories of vocabulary: core vocabulary, semi-technical vocabulary, and technical vocabulary, according to some researchers[12]. Figure 1 and Table 1 below illustrate these three groups and the

unique characteristics of each kind [12].

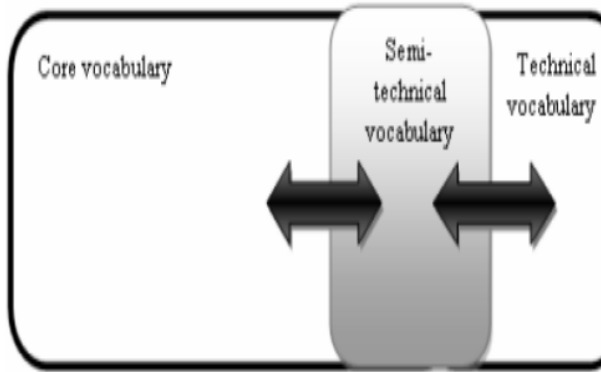


Figure 1: A proposed model illustrating three categories of vocabulary [11]

Table 1: Vocabulary categories and their characteristics [12]

Technical Vocabulary	Semi-Technical Vocabulary	Core Vocabulary
<ul style="list-style-type: none"> - Technical vocabulary is subject related; - occurs in a specialist domain; - and is part of a system of subject knowledge 	<ul style="list-style-type: none"> - General vocabulary that has a higher frequency in a specific field 	<ul style="list-style-type: none"> - The 2000-3000 words that provide the basis of about 80 percent of the vocabulary likely to be encountered
<ul style="list-style-type: none"> - Technical terms should either only occur in a specialist area or occur with much greater frequency in that area than other areas 	---	---
<ul style="list-style-type: none"> - General English words that have a specific meaning in certain disciplines 	---	---

While "core vocabulary" refers to the 2,000 to 3,000 words that make up around 80% of the frequency vocabulary likely to be encountered and used by English learners, semitechnical vocabulary with its features has become increasingly often used, close behind "core vocabulary" [13]. [12] The use of technical jargon in a particular domain or with higher frequency in that domain than other sectors can also aid those working in these areas in defining every aspect of their professions.. "Technical vocabulary" is a kind of specialised vocabulary, and these terms will be impacted by variables that affect the usage of all vocabulary [9]. This is why it is important for language instructors to ensure that students are well-prepared when it comes to dealing with big amounts

of technical jargon. Teachers of ESP courses, according to one researcher, should become well-versed in the individual field's core terminology and create curricula that include both English language and subject matter [14]. Teachers of English who don't have a solid foundation in the subject matter will have a more difficult time instructing students in ESP courses, it is generally accepted. So "core vocabulary" and "semi-vocabulary" will play a vital role in helping students grasp specialised settings, but technical vocabulary is not a priority in teaching ESP.

Quizlet

Predominant Use of Calling There are more than 50 million active users and over 300 million user-generated flashcard sets on Quizlet, an online learning tool developed by Andrew Sutherland in 2005 and introduced to the public in January 2007 [15]. Using this mobile and web-based study software is advised as a simple and user-friendly learning tool that can be used at any time and from any location over the Internet. Teachers may build and organise all of the study sets in Quizlet according to units, subjects, or subtopics. Furthermore, students may not only contribute to the study sets created by their lecturers, but they can also create their own vocabulary sets for their own study. The teaching and learning process may be managed by both instructors and students at the same time. Flashcards that use a variety of game-like learning tools help students improve their vocabulary and pronunciation by using auditory and visual techniques, which this application does better than paper-based flashcards. However, users can insert both sounds and pictures that correspond to terms and definitions. Quizlet's game-like features fall into two broad groups.

Study section (Learn, Flashcards, Write, Spell, and Test)

Quizlet learning modes of study section

Learning modes	Description
Flashcards	This mode allows users to get familiar with words in the sets by using digital flashcards that can be flipped over by only one mouse click or tabs on screens on the card which shows definition or image to explain the term. This mode also enables learners to control their learning progress on the numbers of cards to be learned.
Learn	As its name implies, this mode provides users opportunities to comprehend all the terms in the sets by learning words and their meaning through multiple choice and writing questions. It also gives learners feedbacks and error corrections.
Write	In this mode, learners are required to write the definitions for the terms or the pictures shown. In case the learner has no answer yet for the question, there will be a prompt which supports them recall the term.
Spell	Learners will listen to audio cues and prompts given and then simultaneously are required to type what they hear. This mode also provides the repetition through different practiced rounds.
Test	This mode is initially designed for testing purposes, entailing four different types of questions: written, multiple choice, matching and True-False. All questions are based on the sets learned and reviewed through different modes before. Learners can check their progress via their scores and the correct answers for the mistakes they make are also provided.

Play section (Match, Gravity, and Live)

Quizlet learning modes of play section

Learning modes	Description
Match	A game in which learners are asked to match terms to their definitions by dragging corresponding items onto each other to make them disappear on the screen.
Gravity	Also a game which shows an asteroid with words on it (terms or definitions or random choices), then users have to type the answer for the clues given as fast as possible to keep the asteroid away from hitting the earth. This mode also allows learners to choose game levels and provides correction for the mistaken responses.
Live	This is an online collaborative activity where groups of students are set up and each group competes to choose the correct answer to become the winner.

Previous Studies

Many studies have been done to determine the importance of Quizlet on the development of vocabulary. For example, Tamagawa University conducted a study to determine the effectiveness of digital flashcards on Quizlet with first-year students at the low level. This research found that students who used Quizlet performed better on gap-fill assessments than those who did not. These researchers also feel that Quizlet was a useful instrument for students to study on their own and this hopeful trend may increase students' active vocabulary, their confidence, and their fun studying vocabulary [16]. The Prince Sattam Bin Abdulaziz University undertook a research to see whether Quizlet had an influence on vocabulary development among low-level English learners. According to the findings, students appreciated Quizlet's ability to help them learn vocabulary, definitions, synonyms, and even pronunciation [17]. Pupils who took part in a study involving 830 low-level students were shown to be enthusiastic about using Quizlet for vocabulary acquisition [18]. Another study focused on the use of Quizlet for tertiary-level vocabulary acquisition. Learners' performance, engagement, autonomy, interests, and motivation may all be improved by using Quizlet. When it comes to vocabulary acquisition, students believe that using Quizlet will make the process more fun, more self-directed, and more rewarding [19]. It's surprising how few studies there have been to look at how the Quizlet app affects general English vocabulary acquisition at various proficiency levels. UEH used Quizlet to conduct a case study on the teaching and learning of business English vocabulary. The findings of this instance show that students consider Quizlet necessary and effective for vocabulary development in addition to standard teaching methods. With Quizlet, students may practise vocabulary in a way that increases their pronunciation, independence, and ability to learn on their own[20].

METHODOLOGY AND FINDINGS

Study Design as well as the Subjects

The research was conducted with 37 third-year computer technology students at HCMC University of Transport in Viet Nam during the first semester with students who had completed two General English courses prior to the English for Information Technology course. English for Information Technology was taught to participants over 15 weeks, with 15 sections in the course book. No matter how long the 15-week course lasted (Unit 3 through Unit

10 - English for Information Technology – Career Path Publisher), research took 8 weeks, from 27 September to 15 November. The Control group (CN16B) consisted of 19 students, 8 of whom were female and 11 of whom were male, who received no particular treatment, in other words, no exact approach for vocabulary acquisition. The remaining group (CN16A) consisted of 18 students (7 female and 11 male), all of whom used Quizlet as their therapy.

Research Method & Procedures

This is a quantitative study that examines the relationships between the experimental group and the control group (which did not receive any treatment). Experiments and questionnaires were used in this study's methodological studies. Pre-test, an information technology-specific vocabulary exam, was administered to both the control and experimental groups. This test was taken directly from the textbook. This quiz was designed to find out how well these two sets of IT students understood the English vocabulary associated with their respective fields of study. Students in the Control group utilised whichever technique they saw acceptable to learn the 8 units' terminology, while those in the remaining group were instructed to use Quizlet as a supplement to their vocabulary development. There were two groups of students who were asked to take a Post-test after eight weeks in which they were tested on their ability to absorb particular language. Students' performance was also evaluated as part of this test to see whether Quizlet had an impact on their results. A questionnaire was intended to find out how happy students of Information technology were with the advantages of Quizlet, as well as how they felt about the service as a whole. Findings from the Study of the Data Students in the experimental group performed better on the post-test than those in the control group when it came to vocabulary performance in English for Information Technology. Quizlet's mobile and web-based learning tool also has a major impact on learners when they are able to increase their specialised vocabulary, according to the findings of this study. In addition, a questionnaire was administered to students to gauge their thoughts on Quizlet's usefulness. The first set of questions includes three questions designed to gauge the student's general impressions about Quizlet. Question 1 reveals that more than 78% of students polled utilised a variety of ways before utilising Quizlet to learn vocabulary, indicating that Quizlet was not widely used by students to begin with. The smartphone was the most popular internet device,

with over 85 percent of students choosing it as their favourite method of accessing Quizlet. With regard to Quizlet use outside of class, 50% of students used it for between 20 and 40 minutes, with 22% and 28% of students spending more than 40 minutes or less than 20 minutes on it. It was obvious from the students' responses to the second set of questions that they were interested and engaged in utilising the teacher's usage of Quizlet. They also agreed that the interface is clear, friendly-use, and simple to operate for learners. More than eight out of ten students (83 percent) agreed that the use of Quizlet helped them acquire particular terminology. Despite the fact that these kids were able to retain the words for longer, more rapidly and more readily, Quizlet is a valuable tool for students to store vocabulary. 77.7 percent of the students who answered this set of questions planned to use Quizlet in the future to learn English vocabulary. As for using Quizlet to teach other topics, just 55.5 percent said they were either uncertain or opposed.

DISCUSSION AND PRACTICAL IMPLICATIONS

Teachers and students alike have found Quizlet to offer a variety of advantages when used as a supplemental tool in and out of the classroom. For teachers, they may develop and create study sets that help pupils learn specific terminology more effectively. A teacher's time is frequently used by checking and assessing the progress of pupils' vocabulary acquisition. Teachers may use Quizlet to minimise the amount of time spent on vocabulary retention in the classroom, which in turn allows students more time and opportunity to work on other skills and activities. On top of that, Quizlet has a variety of features that make it easier for instructors to keep track of their students' actions on the platform and monitor their progress. Each unit in the study set will clearly identify whether or not a student has finished an assignment or needs more support. In addition, instructors may use this monitoring feature to determine which phrases or topics their pupils are having the greatest difficulty grasping. It's also worth noting that the cutting-edge application Quizlet has had a huge impact on students, particularly when it comes to learning and revisiting vocabulary. When students are free to design their own study plans for future courses or simply enrol in courses from a wide range of disciplines, their motivation and autonomy are boosted. When it comes to vocabulary development for students of all disciplines, Quizlet is one of the most effective instances of integrated technology that offers a sophisticated, enjoyable online environment. But it is clear that QUIZLET should be

used in conjunction with other tactics to maximise the learning of certain vocabularies. A few drawbacks are exposed in addition to the positives listed above. First and foremost, all research sets are time-consuming and take a lot of work to plan and implement. Premium study sets, on the other hand, need registration or purchase for more sophisticated aids. As an example, if instructors are looking to get more advanced features such as visuals to explain terminology or an offline version of Quizlet, they always ask for the premium plan. While many students like using Quizlet on their smartphones, computers, or tablets because of the app's exceptional benefits, students may lose focus and attention when surrounded by a range of social diversions such as advertisements, online games, or social networking sites. As a result, some students find it difficult to do well on actual exam papers since they are accustomed to taking practise tests or quizzes online. Because the exercises on Quizlet are the same in every lesson, students may find them tedious.

CONCLUSION

In the field of language learning and education, Quizlet is unquestionably an outstanding illustration of how technological integration has aided in the expansion of specialised vocabulary. Studies show that Quizlet may help students in ESP disciplines, like as engineering or technology, to acquire and teach specific terminology as part of their coursework. Learners, on the other hand, have reaped tremendous advantages, particularly when they can expand their vocabulary via the use of this programme. Learning vocabulary may be tedious and difficult for students, even if they are aware of its value, therefore Quizlet provides a motivating atmosphere for students to acquire vocabulary effectively. In addition to helping students improve their vocabulary and language acquisition, this study software helps students cultivate a habit of self-learning, which is a key aspect in students' overall success. It is important to keep in mind that there are certain drawbacks, such as the amount of time and effort required to complete each study set or the distractions from social media that may cause pupils to lose focus on the learning process. Teachers, on the other hand, are forced to upgrade their subsequent registration with special accounts in order to try out the restricted features that are available to all users. Additionally, one drawback of Quizlet is that the same features are available in all units and study sets, which may lead to a sense of monotony for users, particularly after a period of time. Quizlet's advantages outweigh its disadvantages to some degree, however the learning tool should not be used

as a stand-alone strategy for vocabulary acquisition, but rather as a supplement to other methods. Due of Quizlet's present status as an optional study tool, students may be less inclined to participate in study groups as a result. So it is clear instructors should use a variety of teaching strategies to make their sessions more interesting. There are a few caveats to this study, such as the quantity of the participants and the technique of inquiry, that must be taken into account when analysing how Quizlet affects vocabulary development. It is also recommended that future research compare Quizlet with other conventional techniques, in order to maximise the development of specialised vocabulary by choosing and combining each method's excellent strength. When students are able to design their own study sets, not just for their particular vocabulary list, but also for the wider English language, their successes have been highlighted lately. It's also worth mentioning that they're keen to use Quizlet's resources to pick courses from a variety of disciplines, allowing them to broaden their horizons. More prospective research are expected to investigate whether or not Quizlet enhances students' autonomy, motivation, and curiosity.

REFERENCES

- [1] B. A. Wiekling, "Technology Integration and Student Learning Motivation," 2016.
- [2] A. Baytak, "Experiencing technology integration in education:," *Int. Electron. J. Elem. Educ.*, vol. 3, no. 2, pp. 139–151, 2011.
- [3] A. I. Journal, E. Education, and R. Published, "Mohammad Reza Ahmadi 1*," no. June, 2018.
- [4] A.-A. Dragoescu and S. Stefanovic, "221 Quality Improvement of ESP in Mechanical Engineering," 2010.
- [5] E. Susilowati, "ESP as An Approach of English Language Teaching in ITS," *J. Sos. Hum.*, vol. 1, no. 1, Jun. 2008.
- [6] M. Rahman, "English for Specific Purposes (ESP): A Holistic Review," *Univers. J. Educ. Res.*, vol. 3, no. 1, pp. 24–31, 2018.
- [7] K. E. N. Hyland, "International Handbook of English Language Teaching," *Int. Handb. English Lang. Teach.*, no. January 2007, 2007.
- [8] M. Hamad and E. Hamad, "Investigating of ESP Vocabulary Difficulties Encountered by EFL Learners," no. May, 2014.
- [9] I. S. P. Nation, *Learning vocabulary in another language*. Cambridge University Press, 2001.
- [10] M. Brooks, "The Role of Vocabulary in English for Specific Purposes (ESP) Teaching and Learning : Considerations for Asia," pp. 153–171, 2014.
- [11] W. Jiangwen and W. Binbin, "The Role of Vocabulary in ESP Teaching and Learning," *English*, pp. 1–15, 2001.

[12] A. M. Mohammadabadi and Z. M. Mohammadabadi, "On the importance of semi-technical vocabulary in ESP materials development," vol. 51, pp. 10714–10717, 2012. [13] R. R. Jordan, *English for academ Cambridge University Press, 1996*

[14] B. Khaferi, "Teaching and learning ESP vocabulary," vol. 1127, no. April, 2010.

[15] Wikipedia contributors. Quizlet. "In Wikipedia, The Free Encyclopedia", 2019 [Online]. Available: <https://en.wikipedia.org/w/index.php?title=Quizlet&oldid=896857643>. [Accessed: 16-May-2019]

[16] Q. Blair and W. B. Barr, "Checking the Effectiveness of Quizlet as a Tool for Vocabulary Learning," *Cent. ELF J.*, vol. 2, no. 1, pp. 36–48, 2016.

[17] A. B. Sanosi, "The Effect of Quizlet on Vocabulary Acquisition," *Asian J. Educ. e-Learning*, vol. 6, no. 4, Aug. 2018.

[18] B. Lander, "Quizlet: what the students think – a qualitative data analysis," 2016.

[19] A. G. Anjaniputra and V. A. Salsabila, "the Merits of Quizlet for Vocabulary Learning At Tertiary Level," *Indones. EFL J.*, vol. 4, no. 2, p. 1, 2018.

[20] T. Thị et al., "Application of Quizlet.com to Teaching and Learning Business English Vocabulary at The University of Economics Ho Chi Minh City.," 2011