

# Is Teaching Technical Words a Problematic Issue for ESP Teachers in a Saudi Industrial College?

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## ABSTRACT

The literature written about technical words instruction is little compared to its equivalent about vocabulary learning. This paper aims to investigate the extent to which English for Specific Purposes Teachers (ESPTs) think that teaching technical words is a problematic task for them in a Saudi Arabian industrial college called Yanbu Industrial College (YIC). It also explores the reasons behind the challenges they face in teaching technical words. To obtain the goals of this study, six ESPTs at YIC from three different nationalities with different majors, teaching experience, and ages were interviewed to understand their beliefs regarding the existence of the problem and the reasons behind this challenge. The interview type was semi-structured in nature and some prompt cards were also utilised to gather data from the participants. The study revealed that ESPTs at YIC don't view technical words as a problem but rather a challenge which they can cope with. Among the main challenges they said they faced in doing their job are lack of the proper subject knowledge, lack of experience, absence of prior to students' enrollment needs analysis and lack of opportunities to employ critical Vocabulary Teaching Strategies VTS and employing reliable Vocabulary Delivery Vehicles VDV. The findings of the study are expected to provide the literature with some instructional implications such as ESPTs and subject teachers collaboration in teaching technical words, ESP course designing, early analysis of ESP students and ESPTs specialized training programs. Future scrutiny to further our understanding about this neglected topic in the ESP domain and L2 vocabulary instruction is highly recommended.

**Keywords:** ESPTs, Subject teachers, technical words

## 1 Introduction

Nowadays, English language is considered one of the most extensively spread languages in the world and as a result it plays a vital role in vocational education with its different specialized subject areas such as technology, engineering, management and finance (e.g., Arias, Contreras and Moore, 2022; Zhang, W., Xiaoya, S., Cheung, Y. 2022). The task of teaching English for specific purposes has been looked at as the job of English for Specific Purposes Teachers (ESPTs) who are basically and fundamentally English for General Purposes Teachers (EGPTs) with degrees in English linguistics, literature and translation. Falas (2017) argues that in comparison with teaching English for EGP, teaching ESP usually poses a lot more challenges such as needs of the learners and concentrating on language in context. Luo and Garner (2017) talk about other challenges and claim that in a cultural context (e.g., China) in which the teacher is regarded as a knowledge provider, learners may doubt the teacher's competence if they do not provide sufficient ESP for the learners. Mulyah and Aminatun (2020) reported some administrative challenges in their vocational school in Indonesia such as the school regulation which imposes certain rules that ESPTs should follow when they implement specific types of assessment. Olga (2018) argues that mixed-ability students in ESP classes is a real challenge for ESPTs. According to the researcher, the problems in heterogeneous classes can be in language learning ability, learning experience, mother tongue, cultural background, preferred learning style and motivation.

Khwaileh (1996: 39) describes the language teacher in the Arab World as “a hostage in the ESP context”. According to him, ESPTs are constrained by different factors that complicate their job, which are: lacking the specialised subject knowledge, which is a view that goes in line with Dudley-Evans and St. John (1998), who argue that the ESPT is not the ‘primary knower’ of the carrier content (i.e., the specialised knowledge) but instead, helps through the language of the carrier content. Difficulty of team-teaching is another challenge because subject teachers in the Arab World are often not keen to cooperate with ESPTs. He also believes that enormous responsibilities (being a teacher, a course designer, a needs analysis specialist, a student of science and a statistician) without training is a big challenge for Arab ESPTs. They also suffer from a much higher teaching load compared to subject teachers. Adams-Smith (1980), who worked for the Faculty of Medicine in Kuwait University, narrates a similar story. She stresses that among the challenges that hindered cooperation between ESPTs and subject teachers at that institution was the timetable pressure that the ESPTs faced. Large ESP classes which exceed 30 students is an additional challenge for Arab ESPTs. Khwaileh (1996) considers the ratio of 1:15 to 1:20 as ideal in ESP classes. The issue of how large an ESP class should be has received notable attention in the literature. Jordan (1990) argues for the usefulness of small classes in the ESP context, which encourage shy students to express their opinions freely. Conversely, it can be argued that large classes cannot be defined numerically and that small classes can also be a problem that needs some adaptation (Dudley-Evans and St. John, 1998). Bolton (1988) suggests combining small classes to overcome this problem. Other challenges for ESPTs in the Arab World reported by Khwaileh (1995) involve lacking respect from students, because ESP courses have little or almost no value in the students’ overall grand point averages, not being well paid compared to subject area teachers, and being students in their own classes, because ESPTs are mostly teachers of general English who have been forced to emigrate to the ESP context.

In Saudi Arabia, ESP is introduced in some industrial and technical colleges to prepare the students for the marketplace. Therefore, the current study is trying to understand the challenges that ESPTs at Yanbu Industrial College (YIC), a leading Saudi industrial college, may face in achieving their instructional goals. We will look more closely at the challenges they encounter in teaching technical words in different specialized majors namely technical English (i.e., mechanical, electrical, computing) and business English. The study will examine both educational and other internal and external contextual factors in order to provide a holistic picture about the situation at the study context. It is expected that the findings of the current study will provide an empirical reference for the researchers to understand the current status at the context of the study. It will also encourage future researchers to carry out further studies to investigate the extent of the challenges that ESPTs encounter in this under-researched topic.

## **2 Technical Words: Nature, Degree of Technicality and Instructional Challenges**

There has been wide agreement among many experts in the field of vocabulary (e.g., Nation, 2001; Schmitt, 2010) and lexicographers (e.g., Richards & Schmidt, 2002) about using the terms 'lexis', 'lexeme', 'lexicon' and 'lexical items' as synonym terms for the commonly used term 'vocabulary'. Nation (2001) defines ‘technical word’ as the term that appears frequently in a specialized text or area but does not occur, or only occurs with lower frequency, in other fields of study. This type of vocabulary covers 5% of the running words in specialized texts (Nation, 2001). Technical words have been surprisingly neglected in vocabulary studies compared to other types of vocabulary such as general service vocabulary and academic vocabulary. Bramki and Williams (1984: 169) believe that “[t]his often-mentioned 'neglect' is, in our view, most apparent in the field of specialist vocabulary”. The often-mentioned ‘neglect of technical vocabulary’ involves both the vocabulary with pure technical meaning, for example, ‘morpheme’ and ‘allophone’ in the field of linguistics, and other everyday words, when they carry additional technical meanings, for example, hydraulic and piston in the field of mechanics, or when they occur in a technical sense such as, ‘motherboard’ in the field of computing.

Degree of technicality, on the other hand, is a notion used to show that some technical words are more technical than others. This notion has also been called ‘technical words tiers’. Nation (2003) argues that

technical words can be classified into four categories, with the first category being the most technical and the last being the least technical. He uses the criterion of frequency of form and meaning as the basis for the four different categories. These categories are: (i) The form of the word is fully technical and appears rarely, if at all, outside a particular field of study and the technical word here only has a technical meaning. Examples of this category are technical words such as *anode*, *galvanometer* in the field of electronics. (ii) The technical word form is used both inside and outside a particular field of knowledge with a different meaning. Examples are words like: *type* and *token* in applied linguistics. According to Nation (2003), words that fall into this category are technical because of their broad meaning, when used outside the field of knowledge, does not provide ready access to their technical use.

(iii) The word form here is used outside and inside a particular field of knowledge but the majority of its uses, with a particular meaning, are in this field of knowledge. In addition to that, the specialized meanings that these words have in these fields are readily accessible through their meaning outside their fields of knowledge. Examples for this category are words like: *offer* and *reconstruction* (of a crime) in the field of law. (iv) The word form in this category is more widespread in a particular field of study than elsewhere. There is minute or no specialization at all of its meaning, which in turn makes it convenient for a knowledgeable person in its field of study to give its meaning. Examples of this category are words like: *icon* and *print* in computing. Words in the third and fourth categories are less technical because neither the form nor the meaning of these words are unique to a particular field of knowledge (Nation, 2003). Therefore, it will not be easy for a reader to decide to which field of study these words belong when encountering them. Researchers have identified several problems that ESPTs face in the ESP context which can negatively influence their performance, if not hinder it on occasions (Spack, 1988; Dudley-Evans and St. John, 1998; Basturkmen, 2010, Alghamdi, 2011). The literature written about challenges ESPTs face in teaching technical words involves similar reasons. One of the main reasons for considering teaching technical words a real problem is because ESPTs lack the proper knowledge needed for teaching specialized area vocabulary (e.g., Spack, 1988, Pritchard and Nasr, 2004). Researchers such as Robinson 1991 and Tabatabaei 2007 claim that students of science may know the field better than their ESPTs. Bramki and Williams 1984 argue that it is quite unrealistic to expect that an ESPT will know enough to deal with technical words. They claim that when an ESPT does this, he will arouse amusement in his student who know far more about such things than he does. On the other hand, some researchers don't view technical vocabulary instruction as a problematic issue for ESPTs but rather cooperative and collaborative task between language and subject teachers in which subject teachers give the specialized knowledge and ESPTs teach strategies. (e.g., Dudley-Evans & St John 1998; Nation 2001, Alghamdi, 2011). Nation (1990) argues that technical words instruction is the responsibility of subject teachers. However, he believes that considering the large number of technical words occurring in specialized texts, language teachers need to prepare learners to deal with them.

That said, the current study is trying to answer the two following research questions:

**RQ1:** To what extent do ESPTs at YIC view technical words teaching as a problematic issue?

**RQ2:** If they see it as problematic issue, what are the reasons for their views?

### 3 Methodology

This study is a qualitative one which was conducted under the case study tradition which is one of the genuine traditions in qualitative research (Dawson, H., Algozzine, B., Lim, J., 2021). Qualitative methodology was selected in this work to primarily obtain open-ended, non-numerical data which was analysed by a non-statistical method. Case study was utilised to gather data about the opinions and beliefs of six ESPTs at YIC who teach English for different purposes (see Table 1) regarding the problems they face in teaching technical words. The ESPTs included in this study were selected based on having different ages, teaching experience, and majors. The only exclusion criteria that existed was non-interested participants. It is also important to note that the number of ESPTs at YIC is small and the participants involved in the study are a representative sample. Interviewing, which is the main tool utilised in this work, is a conversation with the purpose of gathering information (Berg, 2004). The interview is also looked at as

the most often used method in qualitative inquiries (Dörnyei, 2007: 134). That said, we can add that different interview types (i.e., structured, semi-structured, unstructured interviews) can be employed to gather data for different types of research (Mackey and Gass, 2005).

**Table 1:** *ESP Participants' Background Information*

Participant	Degree held	Teaching experience	Major	Nationality	Module observed
ESP NS	BA TEFL	12 yrs.	TEFL	Jordanian	Technical English
ESP NL	M.Sc. in ESP	18 yrs.	ESP	Jordanian	Business English
ESP JB	BA in Education & TESOL Certif.	19 yrs.	TESOL	American	Technical English
ESP PM	BA in Social Sciences	27 yrs.	Social Sciences	British	Technical English
ESP WH	BA in Linguistics	7 yrs.	Linguistics	Saudi	Business English
ESP MD	MA in Language & Literature	8 yrs.	Language & Literature	American	Technical English

The interview employed in this study is, to a great extent, semi-structured in nature. The semi-structured interview has been utilised in this work due to its long and successful tradition of use in teacher thinking research (Mangubhai, Marland, Dashwood and Son, 2004) and the many advantages associated with using it. As far as the structured dimension in this study goes, similar questions are asked of all those involved, the kind and form of questions go through a process of development to ensure (a) their topic focus, (b) equivalent coverage (with an eye to subsequent comparative analysis), (c) interviewees are prompted by supplementary questions and (d) approximately equivalent interview time is given for each participant (Gillham, 2005). The interviews in this study also includes the following unstructured features: some questions are open (i.e., the direction of the answer is open) and probes are used according to whether the interviewer judges there is more to be disclosed at a particular point in the interview (Gillham, 2005). A number of participants were also asked some questions which did not appear on the interview schedule due to the nature of the discussion between myself and the teacher. Similarly, the interview schedule was generally consistent, it was not always exactly identical in terms of question wording or order of questions, due to the nature of the themes covered, which are all essential features of a semi-structured interview (Borg, 2006: 204).

**Table 2:** *Vocabulary Teaching Strategies (VTS) and Vocabulary Delivery Vehicles (VDV) used in prompt card no. 2*

Groups of VTS and VDV	VTS/VDV that belong to the group
VTS for meaning presentation	Translation, definitions, exemplifications or attention to register, pictures, photos, posters and other illustrations, real objects (realia), scales and body actions
VTS for form presentation	Word parts
VTS for use presentation	Associations and collocations
VTS for practice	Memory images, semantic mapping, labels, conversations and dialogue, synonyms and antonyms, repetitions, vocabulary tests and games
VTS for discovery	Dictionary use, guessing from context
VTS for consolidation	Recycling
VDV	Technology aids, wall charts, flash cards



In addition to the interview questions, three prompt cards were also used in the interviews. Prompt card no. 1 elicited more data regarding the issue of how technical words should be taught. Prompt card no. 2 provided VTS and VDV that participants are likely to use (see Table 2), while prompt card no. 3 sought answers regarding the potential wider issues that may cause these teachers some challenges and difficulties when teaching technical words. The prompt cards were not used until each participant had freely answered the general open-ended questions in the semi-structured interview.

#### 4 Study Results

This study has found generally similar opinions on the extent of the problems that ESPTs say they face when teaching technical words. They were not asked to make a response about the extent of the problems in other teachers' classes. Many ESPTs reported at the beginning of the interviews that teaching technical words should not be viewed as *a problem*, but instead as a *challenge* or a *difficulty*. In this regard, the following answer is typical: *"These are challenges not problems. They provoke me to work [hard] and to exert more effort"*. (ESP NS).

The data analysis indicates that teaching technical words is challenging to ESPTs for different reasons. One of the most frequent reasons can be described as the ESPTs' lack of proper subject knowledge. There were honest, yet interesting, answers when some ESPTs reported that they lack the proper knowledge for teaching technical words and, therefore, view teaching them as a challenge and a difficulty. Many reported that they are language teachers rather than subject ones which means that they need a long time to prepare and study before coming to the classroom. ESP PM, for example, emphasised this issue by saying: *"It sometimes takes me a long time because I don't have that technical knowledge"* (ESP PM). The challenge that ESPTs face, as explained by ESP PM, is mainly caused by technical words with a purely technical meaning, as we discussed in the first category of Nation (2003), which should not be confused with the less technical ones. In the same vein, the issue of the frequency and familiarity of technical words as a source of difficulty was reflected in the answers of the participants and considered an extension for lacking the necessary subject knowledge. ESP WH, for example, believes that technical words are considered to be low-frequency words compared to academic or general service vocabulary, which in turn causes some challenges. He commented that: *"...words like you just mentioned - 'hydraulic', 'clutch pedal', 'crankshaft' - are words I don't use frequently and they are not used commonly. They are used for special purposes and in special places and this is why they are difficult for me"* (ESP WH). As a consequence of their lack of proper subject knowledge, some ESPTs reported that they sometimes feel like students in their ESP classes because they, themselves, think their students know more about technical words than they do. For example, ESP NS, who teaches degree level students, stated: *"Yes, it does happen. I'm sometimes so terrible in knowing the meaning of some technical terms especially mathematical ones. I sometimes sit with some students to teach me about that stuff"* (ESP NS).

A second interesting reason for the difficulties in teaching technical words, reported by all ESPTs, was the participants' lack of experience in teaching a particular course or from new textbooks. They talked about the early years in their careers as the most difficult period they faced when teaching technical words. In this regard, ESP NL said: *"I have been dealing with technical vocabulary for [a] long time and in the beginning years there were some challenges.... It is a real difficulty for new graduates, new teachers"*. (ESP NL). Many ESPTs also talked about the early units and chapters in newly-assigned textbooks and information sheets as being more challenging than the later ones for both experienced and novice ESPTs. They said that novel technical words became easier for them once they were recycled and used more frequently in different classes and lessons. However, some ESPTs think that both novice and experienced teachers are equal in this issue, due to the novelty of the technical words. ESP WH, for example, mentioned that: *"As you see, this is the first time I am teaching this course, right? And I had to spend a lot of hours to familiarise myself and get acquainted with the new technical vocabulary. This is a new course and a new course is like this"* (ESP WH). Teachers reported that they deal with this challenge in different ways. For instance, ESP WH said that he familiarises himself with the novel technical words by finding more information about their form, meaning and use from a dictionary (normally scientific) and through the Internet. The nature of the technical words was also viewed as a source of difficulty by most

ESPTs, especially business ESPTs, due to what they described as the rapid change in technical words. For instance, they believe that there are new business concepts that they are not familiar with and these concepts vary between different English-speaking countries. ESP JB stressed this by saying: *“It is a challenge because business terminology seems to change rapidly and from one country to another country”* (ESP JB).

Similarly, ESP PM does not speak Arabic and he said that he seeks the help of some proficient students who translate the necessary technical words into Arabic after understanding them from their non-Arab teacher. He said: *“It can sometimes take me a long time using a variety of methods, but I always get there in the end and often get the Arabic from the students”* (ESP PM). This actually works if the ESP teacher comes to the word after the subject teacher. According to him, the effort spent to convey the meaning to his students is obviously not easy and also time-consuming, and the risk of giving an incorrect translation via the good student to the poor one is also possible. As far as VDV's go, ESPTs mentioned that they are not allowed to hang wall charts or other illustrations mainly because of strict regulations. They said that the scientific English classes normally need these different types of wall visuals, but they are not allowed to have them due to an administrative decision. The ESPTs were rather careful and concise in their answers as to why the administration restricts using wall charts and the common answer provided by most of them was that although this decision causes some challenges to them they have to abide by the college rules.

One final reason for the difficulty some ESPTs face when teaching technical words is the lack of a proper needs analysis, which is an essential aspect in ESP in general and technical words selection and teaching in particular. Almost all ESPTs reported that no needs analysis was not carried out to ascertain the actual ESP needs of the students prior to the beginning of the course. They added that they usually teach technical words without knowing whether they do/do not crop up in the subject classes. ESP PM, for instance, mentioned that: *“I would say a lot of the technical vocabulary we teach probably is superfluous to the students' needs... There hasn't been proper needs analysis”* (ESP PM). ESP PM's view can be supported by other institutional constraints, such as the lack of coordinated teaching plans that combine ideas and lists of technical words specifically prepared by both ESPTs and subject teachers for YIC students.

## **5 Discussion**

In general, the study found that teaching technical words is not a problem but a challenge for ESPTs at YIC which goes in line with many studies. For example, this general finding conforms to Lou and Garner (2020) and Kwaileh (1996) who argue that teaching technical words means teaching specialized knowledge which is not an easy job for teachers who lack the proper scientific preparation. This also agrees with Dudley-Evans and St. John (1998), who argue that the ESPT is not the 'primary knower' of the carrier content (i.e., the specialised knowledge) but instead, helps through the language of the carrier content. The use of the term 'difficulty' instead of 'problems' by ESPTs indicates that they feel capable of teaching technical words, but they cannot ignore the continuous effort that escorts teaching this type of words.

The reasons that ESPTs provided for the challenge they face in teaching technical words can be classified into seven reasons with three main categories: (1) a lack of needed necessary teaching requirements: lack of specialized knowledge, lack of teaching experience, lack of proper teaching VTS and VDVs, lack of proper needs analysis (2) time constraints: teaching early units in newly-assigned textbooks and work sheets, early years of teaching (3) issues of authority: knowledge of advanced students of science and YIC regulations. All the challenges mentioned in the three categories conform to the findings given by Khwaileh (1996). However, the issue of students' superiority found in this study might differ from that introduced by Khwaileh (1996) and Bramki and Williams (1984) in the sense that it can be questioned as to what extent an ESPT feels like a student in the ESP classroom. Many variables, such as the level of the students, the degree of technicality of technical words and the teachers' specialised pre- or on-job training all play an important role in this matter and determine to what extent an ESPT feels like a student in their own ESP classes. Therefore, it can be said that the challenge of having advanced student in an ESP classroom is more likely to align with the studies conducted by Moody 1975, Robinson 1991 and Tabatabaei 2007 who all

argue that student of science 'may' know the specialised technical words more than their ESPTs without emphasising this situation due to the different educational and contextual factors from one area to another. The overall impact of the challenges ESPTs face in teaching technical words can be described as it comes in the studies conducted by Spack, 1988; Dudley-Evans and St. John, 1998; Basturkmen, 2010, Alghamdi, 2011 which all agree that the problems can negatively influence the performance of ESPTs, if not hinder it on occasions. The only concern is that these studies describe them as problems whereas the participants in this study view them as challenges that they can solve by working hard and preparing themselves to encounter difficult technical words. The issue of lacking the proper needs analysis and textbooks designing as a challenge for ESPTs in this study contradicts with the findings of Khwaileh (1996) who stresses that among the responsibilities of ESPTs in the Arab World is being needs analysts and course designers. Teachers at YIC were not responsible of exploring the learners' needs. The reason for this contradiction, in my opinion, can be attributed to the rules introduced by YIC which is not identical to its equivalent in other similar institutions. All in all, it can be said that this study was found to be similar to a great extent to other studies in the type of challenges ESPTs face in teaching technical words. However, it has some slight discrepancies which is expected due to the nature of the educational policies, institutional rules, teachers' qualifications, contextual factors and issues of workload and work payments.

## **6 Conclusion**

This study examines the case of teaching technical words in a Saudi Arabian industrial College called YIC to find out the extent to which ESPTs view this task as a problem. All in all, the study found that ESPTs believe that teaching technical words is not a problem but rather a challenge that they can overcome. The challenges that ESPTs face were mainly lack of the proper subject knowledge especially with purely technical words, being students in their ESP classes, lack of experience, lack of opportunities to employ critical VTS and employing reliable VDV. The findings of the study provide empirical evidence about the challenges ESPTs face in a Saudi leading industrial college which can be used to understand the case in other similar institutes in the country. It also opens doors for further studies that combine ESP studies with L2 vocabulary instruction to explore the challenges teachers encounter in this domain. The study also provides opportunities for the concept of collaboration and cooperation between the stakeholders (i.e., ESP teachers, subject teachers, advanced subject student and administration). The study also provides a reliable chance for comparing technical word teaching strategies and vocabulary delivery vehicles with their equivalent in general English words. Much can be done by bringing together experts in the area of ESP and L2 vocabulary instruction to discuss and give advice on the best practices for both novice and experienced teachers in the ESP domain. The study emphasized that the topic of technical words instruction and ESP context challenges is neglected in the L2 literature. That said, we highly encourage researchers to conduct future studies about this large topic from different dimensions such as ESPTs training programs, ESP course designing, team-teaching in ESP domain, importance of needs analysis prior to enrolling to vocational and industrial institutes.

## **7 Declarations**

### **7.1 Competing Interests**

The author declares that no conflicts of interest exist in this work.

### **7.2 Publisher's Note**

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