ZAC Conference Series: Social Sciences and Humanities
(ZACCS: SSH)
https://conf.zenithacademic.co.uk/index.php/zacsssh
ISSN (Print): 3049-7760 ISSN (Online): 3049-7779
3rd International Humanitarian Conference, Baghdad 2024
Volume 001, Issue 01, 2024, pp. 001-53
https://doi.org/10.70516/zaccsssh.v1i1.23

Style of Technical Language: Oil and Gas Discourse

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Abstract. The present paper discusses the style and characteristics of technical language generally and oil and gas discourse particularly and shows the differences between technical and scientific language. The paper starts with providing an overview on technical language and the historical emergence. Then, it shows the difference between technical and scientific language because scads of people think they are the same, which is not the case. The paper proceeds to discuss the style and characteristics of technical language giving examples [along with the Arabic proposed translation] about each characteristic for further clarification, and it moves to discuss oil and gas language showing how this discipline is versatile and interdisciplinary. Finally, the paper recapitulates the characteristics of oil and gas discourse and provides examples [along with the Arabic proposed translations] about each. This paper might be of great benefit for specialist and non-specialist individuals who use technical language, including academics, engineers, technicians, linguists, translators and many more, as it helps to improve understanding of technical texts [which is beneficial for translators] and advance the writing skills of specialist individuals.

Keywords: Technical Language; Oil and Gas Discourse; Characteristics; Style

INTRODUCTION

Given the fact that technical language, including oil and gas, is an inherent element of English and that this language has a special style and characteristics that must be taken into account in any relevant writings and texts, so it is imperative for those who deal with technical language to be acquainted of its specific style and characteristics as well as the differences between scientific and technical language to further enhance their writings, properly set the supporting pillars of their research and effectively convey their message. The present paper sheds the light on technical language and discusses the characteristics and style of technical language and oil and gas discourse, since the latter is a part and parcel of technical language.

OVERVIEW OF TECHNICAL LANGUAGE

Technical language is a specialized language that is used in specific fields or disciplines and uses special terminology and jargon to communicate and convey complex ideas and concepts among specialized individuals in a given technical domain (Ehlion, 2024). Technical language differs greatly from academic language in general, as well as from daily vernacular (Evergreen, 2020). Technical language includes technical words of different types ranging from words that are not frequently found in other fields to words of specialized meanings that are common with other disciplines (Nation, 2001). Technolect is another name for the technical specialized language (Milcu, 2012). Technical Language can be found in a variety of texts including operating manuals, procedural documentations, textbooks, scientific papers, engineering drawings and etc.…

Technical language and communication can be traced back to the world's early civilizations where first scientific observations were recorded. Throughout these scientific records, there are many astronomical

observations that have been preserved in the writings and artifacts of various cultures, such as the Babylonians, Chinese, Egyptians, and Aztecs (O'Hara, 2001).

Ever since, technical language has continued to develop in step with the expansion of human knowledge and science. However, the industrial age, 18th century, was a gamechanger. The start of this century witnessed the emergence of new words associated with the then-nascent technologies, and these words formed the solid basis of technical language. At that time, a great deal of new terminology was created for the new devices, machinery, and systems that were invented; trains, engines, reservoirs, pulleys, combustion, pistons, hydraulic systems, condensers, electricity, telephones, telegraphs, lithographs, cameras, and so forth are examples of such inventions (Ayoade, 2014). Thermometer, telescope, barometer and etc… are examples about the first technical terms evolved at that time. The industrial age also witnessed the emergence of technical printed texts, industrial directories, trade journals and manuals (Johnson, 2006).

In a wide range of industries, technical language is an integral component of communication. By understanding the characteristics of technical language and using it effectively, people can communicate complex ideas and concepts clearly and concisely.

Learning and using technical language can be difficult. This is a result of its frequent complexity and specialization. Nonetheless, a variety of tools are available to assist individuals in learning and efficiently utilizing technical terminology. Technical books, online resources, glossaries, and dictionaries are some of these tools.

DIFFERENCE BETWEEN TECHNICAL AND SCIENTIFIC LANGUAGE

In everyday language usage and while discussing translation, science and technology are frequently used interchangeably. nonetheless, technology and science refer to different but connected knowledge disciplines (Olohan, 2015).

Scientific and technical texts are subsumed into the scope of specialized language. The two fields operate in similar scientific-technological domains, encompassing fields like biology, chemistry, and medicine, among others. Additionally, both make use of specialized terminology and abbreviations (Linguaserve, 2021).

Before exploring the main differences between both discourses, we must first dig into the concept and definition of the nouns from which both adjectives were derived, i.e., 'science' and 'technic', in order to shape an overall idea about the difference in its essence.

'Science' is the study of the nature and behaviour of natural things and the knowledge that we obtain about them (Collinsdictionary, 2024), whereas, 'Technic' is a, variant spelling of technique, particular method of doing an activity, usually a method that involves practical skills (Collinsdictionary, 2024). On this basis, it is apprehended that 'science' is a study and knowledge, while 'technic' is a method of practice and an experience. Hence, in terms of intentionality and purpose, scientific texts, predominantly, deal with the dissemination of knowledge, academic studies and theories prepared by researchers, scientists or academics (Linguaserve, 2021), whereas technical texts, mostly, deal with, but not limited to, practical procedures, instructions, reports and etc.. (AbroadLink, 2021), that were prepared by technicians, engineers or specialists based on their experience which is originated from knowledge, academic study and theories, i.e., science. Thus, both disciplines are interconnected and might be regarded as one discipline for laypersons.

The other factor to look at is the disciplines which use technical or scientific language. For instance, scientific language is primarily found the texts related to the fields of medicine, biology, pharmacy, anthropology, bioethics and the like, meanwhile technical language is basically found in the texts pertaining to industry and manufacturing as well as the disciplines of engineering, metallurgy, electronics, telecommunications, computing, automotive and etc.. (Linguaserve, 2021). For this reason, scientific language is used in scientific and academic books, essays, theses and theoretical articles. On the other hand, technical language is used in user manuals, operating and maintenance instruction guides, (material safety) datasheets and etc.. (Linguaserve, 2021).

The other element that needs to be mentioned in this comparison is the use of metaphor in both scientific and technical language. Contrary to popular belief, 'metaphor is also present in specialized language as well as specialized language discourse' (Faber, 2012, p. 7) and is a highly valuable resource for authors of scientific and technical texts (Byrne, 2014); however, according to Byrne (2014, p. 50), metaphor is used 'to a slightly lesser extent' in technical texts. Still, metaphor in specialized language has not attracted as much interest as metaphor in general language (Faber, 2012). Accordingly, the extent of using metaphor is the other difference between scientific and technical discourse. Metaphor is used in scientific discourse in that it is a dynamic process that is utilized not only as an explanation tool but also as a means of elaboration and growth of scientific theories (Faber, 2012), and that science needs to take advantage of metaphor's power (Halloran and Bradford, 1984; cited in Faber, 2012). Some of the 'better known' scientific metaphors are: Black hole, Greenhouse Effect and Double Helix (Byrne, 2014, p. 50).

CHARACTERISTICS OF TECHNICAL LANGUAGE

A number of characteristics define and shape technical discourse in a way that sets it apart from other discourses [literary discourse for instance], so we will discuss further certain features from a linguistic perspective [on the lexical level and syntactic level] and also a general perspective.

Peter Newmark (1988, p. 159) elucidates: 'Lexically, the main characteristic of technical language is its actual richness and its potential infinity.' Thus, one of the most distinctive characteristics of technical language on the lexical level is that it remarkably comprises specialized vocabulary, terminology and acronyms. According to Maeve Olohan (2015), specialized vocabulary is a prominent characteristic of technical and scientific genres, and that such vocabulary is usually not easily comprehended by laypersons who are external to that discourse community.

On the syntactic level, the distinguishing feature of technical language is the use of nominalization, passive voice and compound nouns.

Nominalization, in simple words, means that verbs or adjectives are changed into nouns or noun phrases; thus, actions or events (verbs) or descriptions of nouns and pronouns (adjectives) are transformed into things, concepts or people (nouns). Nominalization is of two types: nominalization of verbs [as in produce; production] and nominalization of adjectives [as in appropriate; appropriateness].

The need for preciseness, objectivity, and simplicity in science and technology is another factor contributing to the tendency of nominalization in technical language. Nominalization is accurate, succinct, instructive, and clear.

As a result, the objective influence is increased while personal themes are avoided. According to Scheppegrell (2004, p. 72), nominalization "allows a lot of information to be packed into the theme/subject." Moreover, normalization is employed in technical writing to allow lengthy technical procedures to be condensed (Schleppegrell, 2004).

Additionally, Ravelli (1996, cited in Schleppegrell 2004, p.72) points out:

“Nominalisation is usually associated with other, related linguistic features including complex nominal group structure, with many pre and post modifiers, the use of embedded clauses, and lexical choices which are prestigious, technical and formal, rather than coming from a more everyday realm.”

The following is an example about nominalization:

- CO2 Injection is a method of Enhanced Oil Recovery that increases the Production of oil from a given Well by injecting the Reservoir in question with carbon dioxide, thereby reducing the Viscosity of the oil contained therein (Book of Jargon: Oil and Gas, 2016, p. 2).
- يُعد حقن ثاني أوكسيد الكاربون طريقةً لتعزيز عملية استرداد النفط إذ يعمل على زيادة انتاج النفط من بئر مُعين وذلك من خلال حقن المكمن المطلوب بثاني اوكسيد الكاربون وبالتالي تقليل لزوجة النفط الموجود في ذلك البئر.

Another fact about technical language is that it concentrates on factual items, phenomena or processes that are described, thus the passive voice is the best servant in these occasions as it draws reader's attention to the concrete details provided and facts communicated. Kinneavy (1971, cited in Schleppegrell 2004) and Smith & Frawley (1983, cited in Schleppegrell 2004) refer that first-person pronouns are avoided in scientific writing, and there is a propensity to employ the passive voice and avoid conjunctions.

Furthermore, owing to the fact that being objective and impersonal is the goal of technical writers, thus almost every statement in technical writing is the passive voice (Herbert 1965, cited in Master 1991).

The following is an example about the passive voice:

- Drilling-fluid systems are designed and formulated to perform efficiently under expected wellbore conditions (PetroWiki, 2023, b).
- تم تصميم أنظمة سوائل الحفر واعدادها لتعمل بكفاءة في ظل الظروف المتوقعة لتجويف البئر.

Also, technical texts tend to use compound and complex structures to describe complicated ideas, concepts, or fundamental principles, which results in long sentences. According to Faber (2012, p. 8), 'specialized language units are generally represented by compound nominal forms.'

On the one hand, compound sentences are the sentences which have two or more main clauses joined by coordinating conjunctions such as: for, and, nor, but, or, yet and so (FANBOYS). These sentences can also be connected using punctuation such as a semi-colon or a colon. On the other hand, complex and often uneven relationships between thoughts are described by complex sentences. Subordinate conjunction [like while, when, if and although] is employed to 'subordinate' one thought to the main thought, and that one thought is 'dependent' upon the other one for logical consistency and completeness. A complex sentence consists of at least one dependent clause and one main clause (Grammarly, 2023).

In English, compound sentences can be employed to convey complicated ideas. Non-finite verbs, prepositional structures, subordinate structures, and parallel structures can all be used to elongate English phrases indefinitely. This type of sentences is common in the professional texts in technology, science, law, business, medicine and other areas of specialized discourses (Master, 2003).

The following are two examples; one about a compound sentence and another about a complex sentence:

- Good slinging practice must ensure that the load is as safe and secure in the air as it was on the ground and that no harm is done to the load, lifting equipment, other property or persons (LEEA, 2011).
- يجب أن تضمن ممارسات الرفع الجيدة تأمين الحمولة في الهواء وسلامتها كما كانت على الأرض، وعدم حدوث أي ضرر على الحمولة أو معدات الرفع أو غيرها من الممتلكات أو الأشخاص.
- If you witness improper use on or around a scaffold, you should stop what you are doing and notify a supervisor (Jones, 2020).
- في حال ملاحظتك لتصرفٍ غير صحيح على السقالة أو حولها فيجب عليك ايقاف عملك وإبلاغ مشرف العمل بذلك.

From a general perspective, Peter Newmark (1988, p. 151) states that technical language 'is usually free from emotive language, connotations, sound-effects and original metaphor'.

It's worth noting that this area of knowledge is at the cutting edge where you need to be the most current because technology is exploding and growing tremendously (Peter Newmark, 1988). The exponential growth of technical discourse is another unique characteristic that makes it distinctive from other discourses. Owing to the fact that technical discourse is closely connected to science and technology, and that each year new technologies and advancements are introduced to our world and such technologies are associated with new neologisms and terminologies, hence technical language tends to grow and change each year.

Another characteristic of technical discourse is the specific goal it serves and the audience it targets (White, 2012). This means that sometimes technical discourse serves an informative purpose to provide clarification and information about a device, equipment, software, system and etc..., and other times it serves an instructive purpose to give directions and instructions [including dos and don'ts] about [including but not limited to] the operation, start-up, shutdown, maintenance or replacement of a device, equipment, software and etc.…

Additionally, the level of discourse to be employed in both aforesaid purposes, whether a highly technical level or a simple one, is dependent on the targeted audience ranging from laymen to experts.

OIL AND GAS LANGUAGE

Like all other trades and professions, the oil and gas industry has its own unique terminology and language (Owhoko, 2020). However, this language [which is deemed a specialized and technical form of English and is used by professionals in the industry] is versatile and incorporates a wide range of disciplines and professions like petroleum, mechanical, electrical, IT and civil engineering, HSE and geology, in addition to legal, commercial, financial and administrative disciplines.

Petroleum engineering is a major discipline and concerned with subsurface and surface operations like exploration, extraction, production and processing of crude oil, so drilling and workover operations, water injection operations and crude processing operations are all [besides other activities] included within this field (Honeycutt & McLeroy, 2023).

HSE [health, safety and environment] discipline is a broad one and is almost concerned with and controls every step and operation taken place within oil and gas industry and facilities to ensure safety of personnel and plants, reduce job-associated hazards as much as practically possible and spread and champion the zero-incident culture in all sites and that safety mustn't be compromised whatsoever (UNEP, 2023).

Geology discipline, within oil and gas industry, focuses primarily on exploration operations including subsurface geologic formations [in which crude is present], reservoir properties, well modelling, geological characterization and well logging interpretations (Selley, 2003).

Every one of the aforesaid technical disciplines is separate and has its own terminology and discourse. Seeing that all of these domains are included within the oil and gas language, hence, it is deemed a broad, interdisciplinary and difficult discourse. For this reason, the technical translator within this field must have good knowledge of a wide set of disciplines, so that he/ she would build the pragmatic knowledge that enables him/ her to be acquainted with the text, he/ she translates, and get the whole message as much as possible to render it effectively and precisely and avoid overlapping of terminology.

CHARACTERISTICS OF OIL AND GAS LANGUAGE

Seeing that oil and gas language stands under the umbrella of technical language, thus all [lexical and syntactic] characteristics of technical language apply to oil and gas discourse. However, the 'use of jargon' must be added to the list, since oil and gas industry has its own unique jargon, or slang. This jargon can be used to refer to specific equipment, processes or people who are assigned to do specialized jobs. For example, terms such as 'roughneck', 'mudlogger' and 'frac job' are all examples of oil and gas jargon.

Owing to the fact that we have unraveled these characteristics [of technical language] earlier in details, so it is suffice to mention two examples only about each characteristic.

ACRONYMS

- For the pilot and geotechnical holes and the upper sections of the wells, it is proposed to use PHB sweeps and a WBM of the same specification and environmental performance as used for previous SD wells. (Shah Deniz 2 Project Environmental & Socio-Economic Impact Assessment, 2013, p. 14)
- بالنسبة للثقوب التجريبية والجيوتقنية والأقسام العلوية من الآبار، يُقترح استخدام عمليات انزياح بالبنتونيت المُشبع بالماء (PHB) بنفس المواصفات والأداء البيئي المستخدم في آبار شاه دنيز السابقة (WBM) وأطيان حفر مائية.
- To evaluate the model response of the HCDP, the flow set point of FIC-5 stepped down from 1.2 to 1.7 MMSCMD at sample time 240. (Y. H. Al-Naumani et al., 2016, p. 6)
- لتقييم الاستجابة النموذجية لوحدة نقطة بدء تكثف الهيدروكاربونات، فتم تغيير نقطة ضبط التدفق لجهاز السيطرة على مؤشر التدفق (رقم 5") من 1.2 لتكون 1.7 مليون متر مكعب قياسي باليوم الواحد عند وقت اخذ العينات "240.

NOMINALIZATION

- Following drilling, casing, cementing and displacement, the well is temporarily suspended by filling it with treated brine, which will protect it from any pressurized formations. (Shah Deniz 2 Project Environmental & Socio-Economic Impact Assessment, 2013, p. 20)
- بعد عملية الحفر وانزال أنابيب البطانة والتسميت والإزاحة يتم تعليق البئر بشكل مؤقت عن طريق ملئه بمحلول ملحي خاضع للمعالجة لكي يحميه من أية تكوينات حاوية على ضغوطات.
- Plugging and Abandonment is the process of permanently closing and relinquishing a Well by using cement to create plugs at specific intervals within a Wellbore to prevent the Migration of Hydrocarbons inside (and up) the Wellbore. (Book of Jargon: Oil and Gas, 2016, p. 81).
- إن عملية وضع السدادات على البئر وهجره هي عملية إغلاق بئر مُعين والتخلي عنه بشكل دائم عن طريق الاستعانة بالأسمنت الذي يُستخدم في عمل سدادات على مسافات محددة داخل تجويف البئر لمنع انتقال الهيدروكربونات داخل البئر والى أعلى البئر.

PASSIVE VOICE

- Based on the vessel configurations, the oil/gas separators can be divided into horizontal, vertical, or spherical separators. (PetroWiki, 2023, a)
- بالإستناد الى تصميم الوعاء، يُمكن أن تُقسم عازلات النفط والغاز الى عازلات أفقية أو عمودية أو كروية.
- Following removal of the corrosion cap, the production tree will be installed and brines will be circulated in the well to remove any remaining solids. (Shah Deniz 2 Project Environmental & Socio-Economic Impact Assessment, 2013, p. 21)
- بعد ازالة غطاء حماية رأس البئر، سيتم تنصيب شجرة الانتاج وتدوير المحاليل الملحية في البئر لإزالة أي مواد صلبة متبقية.

COMPOUND AND COMPLEX SENTENCES

- All soils excavated from the pits will be placed aside and stored so that it may be used for later reinstatement of the route, in order to maintain the environmental characteristics of the area. (Shah Deniz 2 Project Environmental & Socio-Economic Impact Assessment, 2013, p. 53)
- إن جميع الأتربة التي يتم استخراجها من الحُفر سيتم وضعها على جنب وتخزينها لكي يُمكن استخدامها لاحقاً في عملية ارجاع الطرق الى وضعها الطبيعي وذلك من أجل الحفاظ على الخصائص البيئية للمنطقة.
- The deliquilizers are used to remove dispersed droplets from a bulk gas stream; while the degassers are designed to remove contained gas bubbles from the bulk liquid stream. (PetroWiki, 2023, a)
- تُستخدم أجهزة ازالة السوائل في عزل القطيرات المتفرقة عن مجرى الغاز السائب، بينما تُستخدم عازلات الغاز في عزل فقاعات الغاز المحبوسة عن مجرى السائل السائب

CONCLUSIONS

The paper concludes that the characteristics of oil and gas language resembles those of technical language, and that oil and gas discourse is interdisciplinary and abundant with terminology and acronyms which makes the task more challenging for translators and non-native specialists when it is pertinent to understanding oil and gas texts.

CONFLICT OF INTEREST

The author declares no conflicts of interest regarding the current research.

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