Research Article

https://doi.org/10.5281/zenodo.15829255

Impersonalization in English Scientific Discourse: Calculus of Means and *ESP* Applicability

https://orcid.org/0000-0003-1508-2881 Ionela Ionitiu[1]

[1] Lecturer Dr., Ovidius University of Constanta, Romania

abstract

This article examines the key distinctions between English for Specific Purposes (ESP) and General English (GE), focusing particularly on the concept of impersonalization. Driven by the need to provide undergraduate engineering students with real-world writing abilities, this study looks at how passives and related impersonal style features are used. It seeks to illustrate that impersonal statements in written scientific and academic contexts can be expressed through a variety of linguistic mechanisms, such as agentless passive constructions, impersonal general pronouns, if-clauses, and personification. This research employs a corpus-based methodology to investigate the linguistic tools employed to eliminate any personal references to maintain a more formal or neutral tone in English academic discourse. Additionally, it seeks to analyze the prevalence of impersonality in English research articles spanning multiple fields, such as dentistry, civil engineering, and mechanical engineering. The study specifically aims to address the following question: What are the linguistic structures used to indicate impersonality? Are there notable differences in the ways various disciplines express objectivity, clarity, and formality, which are usually the driving forces behind impersonalization in academic writing? A collection of 30 primary empirical research articles from dentistry, civil engineering, and mechanical engineering was examined using both qualitative and quantitative analyses through the corpus linguistic method.

Keywords: English for specific purposes, impersonalization, agentless passives, personification

Correspondence: Ionela Ionitiu, e-mail: ionelaionitiu@yahoo.com

Received: 07.04.2025 | Revised 12.06.2025 | Accepted: 23.06.2025

1. INTRODUCTION

The importance of English as a global lingua franca, combined with the trends of globalization in fields such as science, education, and commerce, alongside factors like migration arising from political and social turmoil, as well as multiculturalism, has highlighted the need for English for Specific Purposes (ESP) and the development of language skills designed for particular goals. Languages for Specific Purposes (LSP) programs throughout Europe, especially those focusing on English, are driven by the expansion of the common European area, increased job and educational prospects, cross-border business operations, the international framework established by the European Union, and governmental initiatives that promote multiculturalism.

A significant distinction between English for Specific Purposes (ESP) and General English (GE) resides in the utilization of impersonal language. Generally speaking, scientific and academic writing adheres to an objective tone, which is often regarded as absent in General English. The discourse found in scientific papers is characterized by its argumentative nature, aiming to convince the scientific community to embrace the novel knowledge and arguments put forth, ultimately integrating them into the established corpus of 'scientific knowledge' or 'facts' recognized by consensus in the respective field. To achieve this objective, scientific writing intentionally minimizes the researcher's presence within the text, thereby fostering an 'objective' style that appears to allow the facts to be communicated independently. One approach to achieving objectivity involves the application of a communicative technique referred to as impersonalization. Impersonalization, in the context of communication strategies, refers to the avoidance of direct references to specific individuals (Luukka & Markkanen, 1997) and the use of impersonal grammatical constructions (Malchukov & Siewierska, 2011; Siewierska, 2008a, 2008b). Furthermore, Marín Arrese (2002) describes impersonalization by the degree to which the identity of the agent is concealed. This technique shifts the emphasis to the information presented, reducing the attention given to the authors' roles and thereby prioritizing the substance of the discussion over the identities of those presenting it. As a result, it plays a crucial role in fostering a more impartial tone within scientific and academic writing. Additionally, Hyland (2002, p. 1095) observed that the characteristic of impersonality is a fundamental aspect of expository writing, reflecting the positivist view that academic research is inherently empirical and objective. In her exploration of various genres, Berman (2014) indicates that the preference for impersonal structures in expository writing is a common trait of this form of discourse. She suggests a discourse-based continuum of impersonalization, which ranges from interactive conversation at one end, through personal narratives and fictive accounts, to informative texts, expository discussions, and research papers at the opposite end.

However, recent academic research conducted over the past ten years has demonstrated that scientific discourse is not a singular or uniform entity; rather, it differs significantly based on disciplinary norms and cultural expectations (Hyland, 2006). Moreover, research exploring English scientific written discourse has revealed numerous variations among disciplines. These variations encompass aspects such as authorial stance (Kuo, 1999; Bondi, 2005; Groom, 2005), the use of pronouns (Kuo, 1999; Fløttum et al., 2006), hedging and mitigation techniques (Hyland, 1998; Vold, 2006), and the application of questions (Hyland, 2002; Ionitiu, 2025), among others.

In the subsequent sections, I will illustrate various linguistic structures that contribute to establishing an impersonal tone in scientific discourse. This aims to guide and encourage my ESP students to adopt effective strategies for conveying and implementing impersonalization when dealing with a scientific writing task.

2. METHOD

The descriptive comparative approach was used in this study because it seeks to objectively describe and explain linguistic behaviors associated with impersonalization as a communication technique in English research papers. Additionally, quantitative approaches were employed, particularly to identify the frequency and distribution of impersonalization usage across various fields and to produce findings that can be generalized. To reveal the inter-disciplinary nature of our discourse analysis focused on English for Dentistry and English for Civil and Mechanical engineering, we employed methods of corpus linguistics to construct and examine a corpus. In the absence of an existing corpus in these disciplines, we utilized BootCat, a software tool for corpus creation developed by a team of linguists at the University of Bologna in Forli. BootCat functions as a type of "crawler", often referred to as a "spider", which is a software tool that gathers information from web pages through queries. We assembled a basic corpus by using the Google search engine, generating tuples (data structures) for BootCat from keywords such as "dentistry/ dental medicine, civil engineering/ mechanical engineering/ engineering sciences". We meticulously reviewed and aggregated the hyperlinks to enable BootCat to develop a pertinent corpus. This collection provides the researcher with a diverse array of linguistic tools to attain her objectives and address the posed inquiries. The examples are retrieved from a collection of 30 scientific articles in the fields of dentistry, civil engineering, and mechanical engineering, which were published on https://www.sciencepublishinggroup.com/ from 2023 to 2025. The typical article length is approximately 15 pages, contributing to a corpus of around 600 pages of text. Science Publishing Group (SciencePG) operates as an Open Access publisher, featuring over 300 online, peer-reviewed journals that span a diverse array of academic fields. These subjects include but are not limited to chemistry, education, medicine and health, architecture, and civil engineering, as well as electrical, mechanical, and computer sciences, alongside sociology, anthropology, psychology, political science, and administration. We have analyzed the corpus using some linguistic tools such as Voyant Tool and Analyze My Writing, and then manually verified. Though the Voyant tool was used to show some characteristics like the total number of words, the number of word types, the lexical density, and data on the average number of words per sentence, Analyze My Writing was used to verify the reliability of the information provided by the prior instrument, and identify the passive forms and impersonal structures in the corpus. Both tools detected the same number of words used in the corpus, but the main difference lies in the 25 most commonly used words:

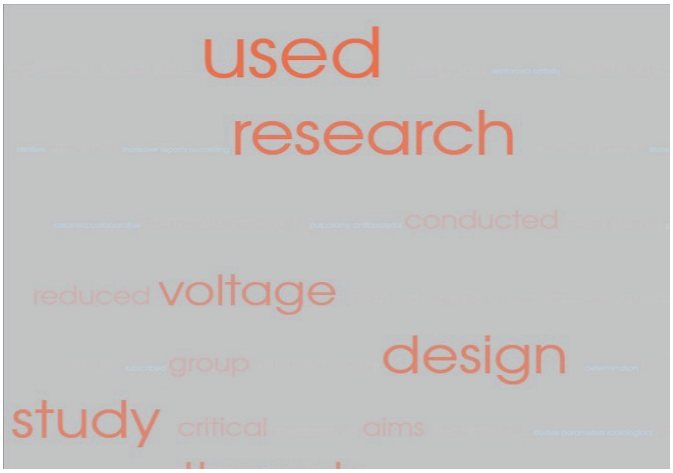

Figure 1. The author's own processing using Analyze My Writing.

Figure 2. The author's own processing using the Voyant tool.

Since Analyze My Writing gave me the possibility to recognize the passive structures as well, we have noted that 24 out of 30, or 80% of our scientific articles, deployed at least one form of passive structure, while the remaining articles employed a variety of impersonal structures such as abstract nouns (paper, study, research, analysis, etc.), impersonal pronouns or it-clauses.

3. FINDINGS AND RESULTS

The linguistic features of impersonalization include agentless passive constructions, commonly referred to as short passives. These can be further categorized into agentless present passives (which may or may not exhibit progressive or perfective aspects), agentless past passives, modalized agentless passives, and impersonal constructions. The latter group consists of impersonal pronouns, 'It-clauses,' and personification. This section will emphasize that agentless passive construction is the most frequently employed among these options. This observation further reinforces the notion that passive constructions are widely utilized in English academic writing (Biber et al., 1999) and have subsequently attained a significant degree of conventionalization (Hyland, 1998; Swales, 1990, 2004). Hyland (1998) stresses how writers use well-established linguistic tools to present themselves and engage with their audience. He talks about how self-mentions, attitude markers, boosters, and hedges are employed in discipline-specific and socially controlled ways. For Hyland, conventionalization includes both structure and interpersonal meaning, namely, how authors position themselves in relation to their audience and statements.

The notion that academic writing is influenced by established communicative goals inside particular discourse groups was first presented by Swales (2004). Here, convention refers to the process by which specific rhetorical forms get normalized across disciplines. In a nutshell, both academics see conventionalization as a socially created process that prioritizes linguistic options and interpersonal relationships in writing, as well as discourse community norms and genre structures.

Writers use the accepted rhetorical and linguistic techniques in scientific publications to fulfill the criteria of their scholarly circle. Linguistic conventions such as the use of passive voice, impersonal language, precise, specialized, and technical vocabulary, or nominalizations contribute to coherence, legitimacy, and clarity.

The widespread use of passive constructions in scientific writing appears to diminish the role of the researcher who undertook various actions, including formulating hypotheses, collecting data, interpreting results, drawing conclusions, and composing the final document. The following examples illustrate the different types of activities:

3.1. Passive construction associated with hypotheses.

Passive constructions are frequently employed in scientific writing, particularly when addressing hypotheses. This tendency arises from the preference to emphasize the action or outcome instead of the individual executing the action. Below are several examples of passive constructions related to hypotheses.

> "Moreover, in relation to what considered literature indicates, the strategy that has already been formally subscribed to and is the result of a collaborative and multistakeholder process that is highly formalized, however perfectible, has been assumed as relevant" (Retrieved from Leo De Daniela and Altamore Sara. "Renewable Energy, Landscape Protection and Tourism Development, a Territorial Plan Experiment in Italy." *Urban and Regional Planning*, *10*(1), (2025): 42-54. https://doi.org/10.11648/j.urp.20251001.12)

> "The antibacterial activity of Aloe schweinfurthii was tested through the parameters of bacterial inhibition." (Retrieved from Mengong Moneboulou Hortense Perpetue et al.. "Antibacterial Activity of Aloe schweinfurthii Gel in the Preservation of Periodontal Ligament Cells of an Erupted Immature Permanent Tooth." *International Journal of Dental Medicine*, *11*(1), (2025): 10-19. https://doi.org/10.11648/j.ijdm.20251101.12)

These examples help to focus attention on the hypothesis rather than on the researcher performing the study.

3.2. Passive construction on the execution of the study.

Such constructions play a significant role in maintaining an objective and formal tone, which is often preferred in academic and scientific writing. The use of passive voice promotes objectivity by focusing on the action or result of the research rather than the researcher. This method makes the writing appear more neutral and devoid of bias. Utilizing the passive voice shifts the emphasis to the results or methods used, rather than highlighting the researcher conducting the study. This aligns well with the aim of emphasizing the research itself. The use of passive voice can assist in maintaining a uniform tone throughout the document, particularly when detailing methods, procedures, and outcomes.

> Destructive tests were conducted on the reinforced concrete specimens shown in Figure 4." (Retrieved from Shimoi, Nobuhiro, Nakasho, Kazuhisa, and Yamauchi Yu. "Comparison of Crack Measurement and FEM Analysis Using Infrared Camera for Concrete Surface of Coating-type Resin Sensor. Journal of Civil, Construction and Environmental Engineering, 10(1), (2025): 27-35. https://doi.org/10.11648/j.jccee.20251001.13)

> 'Daily and accumulated distillate yield for the still distillers have been studied and analyzed". (Retrieved from Oni, Oni, Adam, Hamza Yusuf, and Oguike, Raphael. "Evaluation of Modified Conventional Still Distiller Using Coupled External Passive Condenser: An Experimental Study." Industrial Engineering, 8(1), (2024): 13-19. https://doi.org/10.11648/j.ie.20240801.12)

3.2. Passive Construction on the Execution of the Study

Such constructions play a significant role in maintaining an objective and formal tone, which is often preferred in academic and scientific writing. The use of passive voice promotes objectivity by focusing on the action or result of the research rather than the researcher. This method makes the writing appear more neutral and devoid of bias. Utilizing the passive voice shifts the emphasis to the results or methods used, rather than highlighting the researcher conducting the study. This aligns well with the aim of emphasizing the research itself. The use of passive voice can assist in maintaining a uniform tone throughout the document, particularly when detailing methods, procedures, and outcomes.

> *"*Destructive tests were conducted on the reinforced concrete specimens shown in Figure 4." (Retrieved from Shimoi, Nobuhiro, Nakasho, Kazuhisa, and Yamauchi Yu. "Comparison of Crack Measurement and FEM Analysis Using Infrared Camera for Concrete Surface of Coating-type Resin Sensor." *Journal of Civil, Construction and Environmental Engineering*, *10*(1), (2025): 27-35. https://doi.org/10.11648/j.jccee.20251001.13)

> "Daily and accumulated distillate yield for the still distillers have been studied and analyzed". (Retrieved from Oni, Oni, Adam, Hamza Yusuf, and Oguike, Raphael. "Evaluation of Modified Conventional Still Distiller Using Coupled External Passive Condenser: An Experimental Study." Industrial Engineering, 8(1), (2024): 13-19. https://doi.org/10.11648/j.ie.20240801.12)

> "(...)treatments were conducted according to the procedure of VIPT group and RCT group; follow-up examinations were conducted at 1 year after treatment with the records of clinical and radiological examination." (Retrieved from Liu, Yun and Sun Jin. "Clinical Evaluation of Vital Inflamed Pulp Therapy as Treatment Options for Deciduous Molars with Periapical Periodontitis." International Journal of Dental Medicine, 10(1), (2024): 14-17. https://doi.org/10.11648/j.ijdm.20241001.14)

3.3. Passive Construction Related to the Analysis of Results

The passive voice is often used to emphasize the actions taken and the results produced rather than drawing attention to the individuals performing those actions. This approach aids in preserving an objective and formal tone, which is typically favored in scientific discourse. Here are several examples of the application of passive voice in research papers related to dental, civil, and mechanical engineering.

> *"In the third stage, students' determination, analysis and synthesis studies were focused on the design field, and the results were obtained on how to direct the design by synthesizing the data."* (Retrieved from Dizdar, Safiye Irem. "Building Design in Historical Environment-Periodical Study-Haydarpaşa / Selimiye." *Landscape Architecture and Regional Planning*, *9*(3), (2024): 54-63. https://doi.org/10.11648/j.larp.20240903.11)

> *"Regional and national reports have been analyzed, with insights at the regional and provincial scales from ISPRA-Superior Institute for Environmental Protection and Research, ARPA-Regional Environmental Protection Agency and ISTAT-National Institute of Statistics."* (Retrieved from Leo, Daniela De and Altamore Sara. "Renewable Energy, Landscape Protection and Tourism Development, a Territorial Plan Experiment in Italy." *Urban and Regional Planning*, *10*(1), (2025): 42-54. https://doi.org/10.11648/j.urp.20251001.12)

> *"(....) pulpotomy was performed to expose all canal orifices*." (Retrieved from Chen, Qianer, He, Jiahui, Liu, Yun, and Sun, Jin. "Application of Inflammatory Vital Pulp Therapy in the Treatment of Apical Periodontitis in a Deciduous Molar: A Case Report." *International Journal of Dental Medicine*, *10*(1), (2024): 10-13. https://doi.org/10.11648/j.ijdm.20241001.13)

3.4. Passive Construction Concerning Meta-Text, Specifically the Act of Writing

The use of passive voice in relation to meta-text, particularly in the writing process, can improve the clarity of academic writing, thereby making it more accessible and impactful for readers. Meta-text frequently discusses its own composition, content, or intent. For instance, an author might indicate the arrangement of their essay within the text itself. This offers readers valuable perspectives on how to understand the primary text. It may encompass clarifications regarding the methodology, the reasoning behind specific decisions, or the framework of the document. Furthermore, it elucidates the intention and extent of the text, often responding to possible inquiries or apprehensions the reader may possess. Meta-text is especially beneficial in academic and technical writing, where precision and direction are vital for enhancing the reader's comprehension. The examples provided demonstrate the application of the passive voice to articulate the different stages and actions that comprise the writing process, emphasizing the actions rather than the individuals executing them.

> "In this study, the Soil Conservation Service Curve Number loss method was selected to estimate direct runoff from a specific or design rainfall as also adopted in [17]." (Retrieved from Adedokun, Adebayo, Adewara, Monsur, and Adaradohun, Oluwayemisi. "Flashflood Hazard Assessment in Yewa South Lga." Journal of Civil, Construction and Environmental Engineering, 10(2), (2025): 49-59. https://doi.org/10.11648/j.jccee.20251002.11)

> "This research was designed using an experimental method, where 1 battery module equipped with a passive cooling system in the form of a box that gives the PCM (paraffin + bamboo carbon + TiO2) which is used to absorb heat that occurs in the battery due to the work of the battery used to drive the motor." (Retrieved from Made Arsawan, I., Dewa Gede Ary Subagia, I., Putu Sastra Negara, I., Nengah Ludra, I., Bagus Puspa Indra, I. "Utilization of Biomaterial (Bamboo Carbon) as Phase Change Material (PCM) for Electric Vehicle Batteries Cooling Media." American Journal of Science, Engineering and Technology, 8(4), (2023): 199-205. https://doi.org/10.11648/j.ajset.20230804.14)

> "The data supporting the outcome of this research work has been reported in this manuscript." (Retrieved from Apinsathanon, Pongsakorn. "Utilizing Intraoral Scanning and Computer-Aided Design/Manufacturing for Creating a New Dental Crown to Match an Existing Removable Prosthesis: A Case Report." International Journal of Dental Medicine, 10(1), (2024): 1-4. https://doi.org/10.11648/j.ijdm.20241001.11)

The occurrence of the passive voice, as noted by Lachowicz (1981), enables the authors to present their work in a manner that is receptive to various interpretations. Statistical analysis by Swales (1990) reveals that a minimum of one-third of the predicative verbs found in ESP texts are articulated in the passive form. The regular employment of passive constructions aligns with the characteristics of source materials that emphasize objectivity, brevity, and a coherent progression of ideas. The initial step in recounting and analyzing scientific texts requires an objective tone, which is significantly strengthened through the application of the passive voice. Moreover, in scientific literature, the object of the action frequently holds greater significance than the subject executing it, and the passive voice enables the object to take a central and prominent role within the sentence structure. In addition, concentrating on the subject of the action often improves both the brevity and clarity of scientific writing. Moreover, this grammatical structure enables authors to maintain a degree of detachment from their assertions, as emphasized by Hyland (1998). Huddleston and Pullum (2002) suggest that the agentless passive voice is intended to reduce direct ownership of ideas by the author. This approach is commonly perceived to enhance the objectivity of the text in comparison to works that feature first-person expressions. These constructions may be further classified depending on the finiteness of the verb, distinguishing between finite and non-finite passive constructions. The passive constructions that employ finite verbs can be additionally organized into present passive constructions, past passive constructions, and modalized passive constructions. Common examples from various sections of scientific publications identified using Analyze My Writing are listed below:

3.5. Agentless Present Passives (with or without progressive or perfective aspects)

"These challenges, however, are being addressed through ongoing research into AI algorithms that improve system adaptability and the development of more cost-effective robotic solutions" (Retrieved from Omar, Ebrahim Ansa. "Systematic Review of Innovative Approaches in Tunnel Construction and Design." American Journal of Construction and Building Materials, 8(2), (2024): 20-34. https://doi.org/10.11648/j.ajcbm.20240802.11)

"Participation in the study was voluntary, and participants gave their written or oral consent before being interviewed." (Retrieved from Asekere, George, Ampiah, Vida, Letsyo, Emmanuel, and Hlovor, Ishmael Kwabla. "Reimagining Road Safety: Leveraging Technology to Combat Road Fatalities in Ghana." *International Journal of Science, Technology and Society*, *13*(1), (2025): 25-34. https://doi.org/10.11648/j.ijsts.20251301.13)

"To address the complexity of this procedure, several approaches have been introduced, including direct methods, indirect methods, and direct-indirect techniques" (Retrieved from Apinsathanon, Pongsakorn. "Utilizing Intraoral Scanning and Computer-Aided Design/Manufacturing for Creating a New Dental Crown to Match an Existing Removable Prosthesis: A Case Report." *International Journal of Dental Medicine*, *10*(1), (2024): 1-4. https://doi.org/10.11648/j.ijdm.20241001.11)

3.6. Agentless Past Passives

"Discussions were held on how these determinations could provide input to the design in the process of studio education, and evaluations were made on how spatial and social change could take place." (Retrieved from Dizdar, Safiye Irem. "Building Design in Historical Environment-Periodical Study-Haydarpaşa / Selimiye." *Landscape Architecture and Regional Planning*, *9*(3), (2024): 54-63. https://doi.org/10.11648/j.larp.20240903.11)

"The nonlinear buckling critical load was found to be 20.5% lower than the linear critical buckling load, demonstrating that early geometric flaws had a considerable impact on the pipe's bearing capacity." (Retrieved from Chuxiang Lin, Weili Wang, Yongmei Zhu, Jian Zhang, Suzhou Zhang, et al. "Design and Mechanical Characteristics Analysis of Deep Sea Manifold System." *Engineering Science*, *8*(1), (2023): 6-13. https://doi.org/10.11648/j.es.20230801.12)

"A branch oral salivary suction device was designed to improve the efficiency of diagnosis and treatment and the comfort of patients." (Retrieved from Jie Zhou, Qing Yuan, Xue-Jing Lin, Zheng-Rou Wang, Yang Yang, et al. "The Utility Model Relates to a Branch Salivary Suction Device for Oral Cavity." *International Journal of Dental Medicine*, *9*(2), (2023): 45-47. https://doi.org/10.11648/j.ijdm.20230902.13)

3.6.1 Modalized Agentless Passives and Subjectless Modal Constructions

Modal constructions and modalized agentless passives are related but not the same. Subjectless modal constructions are usually passive and have no subject, featuring a modal verb. Modalized agentless passives are a type of passive sentence that purposely omits the agent, often using a modal to express necessity or possibility.

"Port cities, situated between land and sea where two distinct flow spheres converge, can be described as interfaces linking forelands and hinterlands, creating intercontinental crossroad connections" (Retrieved from Samarani, Samer. "Exploring Port City Porosity and Flows within Port Regions: The Case Study of Port of Malaga and Port of Beirut." Landscape Architecture and Regional Planning, 9(3), (2024): 64-72. https://doi.org/10.11648/j.larp.20240903.12)

"From this it can be concluded that when lightning stroke happens to shield wire or tower body, operating voltage or phase voltage will be decreased as insulator voltage goes beyond operating voltage thereby reducing phase voltage to very small value." (Retrieved from David, Adebayo Adeniyi, et al. "Earthing System Analysis for Steel Tower Carrying 33kV Line." Engineering Science, 9(2), (2024): 21-38. https://doi.org/10.11648/j.es.20240902.11)

> *"The risk of aerosol transmission can be reduced through good scientific protection, standardized operation, rinsing and disinfection, and the use of isolation and strong suction equipment."* (Retrieved from Chu-Han Song, Xiang Guo, Xian-Yan Lin, Jin-Mei Guo, Ya-Xin Bai, et al. "Potential Risk Factors for Aerosol Transmission in the Dental Office and Strategies for Prevention and Control." *International Journal of Dental Medicine*, *9*(2), (2023): 32-37. https://doi.org/10.11648/j.ijdm.20230902.11)

> *"The results* obtained *can be used for changing the company's strategic plan (...) The paper also illustrates how the model can be used and enhanced."* (Retrieved from Mutahar, Abeer Mubarak and Tarhan, Ibrahim Ethem. "Strategic Planning Model for a Construction Company in the Event of an Earthquake." *Journal of Civil, Construction and Environmental Engineering*, *10*(1), (2025): 1-15. https://doi.org/10.11648/j.jccee.20251001.11)

A widely used structure in English academic writing for achieving impersonalization is personification, which confers agency upon inanimate or abstract entities. This method also facilitates the deflection of responsibility onto non-human subjects such as *tables, figures*, and *documents*. Moreover, non-living entities such as *paper, study, discussion*, and *analysis* serve as the subjects that take cognitive action verbs as their predicates. Various studies that have examined the occurrence of these metonymies in scientific English have yielded differing outcomes. Myers (1992) observed that such constructions occur infrequently and categorized them as a marginal phenomenon. Conversely, Swales (1990) argues that they are, in reality, rather common in English. In my corpus, every document features sentences of this nature, especially within the introductory and concluding sections. The most common words identified within our corpus by Voyant-tool and Analyze My Writing were:

Rank	Word	No. of occurrences	Percentage
1.	analysis	21	1.89%
2.	research	21	1.89%
3.	study	18	1.62%
4.	paper	9	0.81%

Table 1. The author's own processing using Voyant and Analyze My Writing

This particular form of grammatical metaphor, which identifies the *paper*, *study, discussion*, or *analysis* as a metonymic agent, possesses an impersonal characteristic. Given that the activities of discussing, proposing, focusing, and exploring are all cognitive processes performed by the researcher, the use of this grammatical metaphor allows the author to avoid specifying the true agent, consequently minimizing their presence in the text. The frequent use of this construction supports Banks' (1996) claim that, together with the passive voice, it exemplifies a feature of English academic discourse that aims to diminish the visibility of human agents. Consequently, there exists a prevailing notion that scientific writing is inherently objective, impersonal, and focused on providing information, designed to obscure the author's identity while emphasizing factual content and the pursuit of an independent truth.

> *"The research showed building B2 showing optimum seismic performance against earthquake force from any direction." (*Retrieved from Adyeel, Abu Huraira Mohammed, et al. "Comparative Analysis of Seismic Performance of RC Buildings with Variation of Column Size and Orientation." *American Journal of Civil Engineering*, 13(1), (2025): 1-9. https://doi.org/10.11648/j.ajce.20251301.11*)*

> *"Finally, the paper indicates that NDT techniques are critical for assuring the safety, durability, and preservation of concrete structures, thereby significantly contributing to the upkeep of our built environment."*(Retrieved from Tefera, Belay Bayu and Tarekegn, Abrham Gebre. "Non-Destructive Testing Techniques for Condition Assessment of Concrete Structures: A Review." *American Journal of Civil Engineering*, *13*(1), (2025): 10-31. https://doi.org/10.11648/j.ajce.20251301.12)

> *"Furthermore, this study provides a comprehensive roadmap for future research initiatives aiming to fully utilize the capabilities of technology design teams."(*Retrieved from Gomaa, Attia Hussien. "Digital Twins for Improving Proactive Maintenance Management." *Engineering Science*, *9*(3), (2024): 60-70. https://doi.org/10.11648/j.es.20240903.12)

> "*This review aims to summarize the current knowledge on the use of zirconia ceramics in dental implant prosthodontics and assess its potential to replace titanium while maintaining high success rates.*" (Retrieved from Aguirre-Osorio, Andres Filipe. "The Role of Zirconia Implants in Implantology: Potential Benefits and Challenges." *International Journal of Dental Medicine*, *11*(1), (2025): 1-9. https://doi.org/10.11648/j.ijdm.20251101.11)

The employment of such metonymies serves not only to cultivate an appearance of objectivity but also to create a certain distinction between the researcher and the research itself. This method frames the research as a separate entity, independent of the researcher themselves. It is a common practice in academic discourse to describe the process of drawing conclusions as an intrinsic aspect of the natural world rather than as an intentional behavior performed by researchers. The conclusions are articulated in a way that suggests they are directly derived from empirical evidence (see Hyland, 1998, p. 18). This method effectively obscures the researcher's involvement by highlighting a truth that arises directly from the reality rather than showcasing the researcher's subjective interpretation of that reality. The examples below illustrate the use of scientific language in verbs like indicate, suggest, demonstrate, reveal, find, show, and give rise to.

> *"This study aims to demonstrate the harmful effects of textile mill effluent on the soil.(...)The investigation has shown that toxic colors and significant levels of organic pollutants are present in the effluent produced by textile processing facilities (...)"* (Retrieved from Dhaker, Nirma, Mehta, Preeti., Sen, Pankaj, Mehta, Rajeev, and Bhatt, Abhilasha. "Impact of Textile Dyeing Effluent on Soil Quality Parameters." *Industrial Engineering*, *9*(1), (2025): 1-8. https://doi.org/10.11648/j.ie.20250901.11)

> *"The study found that the introduction of rubber dam isolation reduced particulate matter in the air by 70% around a diameter of about 1m."* (Retrieved from Jie Zhou, Qi-Yan Lin, Qing Yuan, Xue-Jing Lin, Mu-Yuan Dai, et al. "A Rubber Protective Barrier for Oral Protection Against Accidental Swallowing." *International Journal of Clinical Oral and Maxillofacial Surgery*, *9*(1), (2023): 1-3. https://doi.org/10.11648/j.ijcoms.20230901.11)

> *"Moreover, in relation to what considered literature indicates, the strategy that has already been formally subscribed to and is the result of a collaborative and multistakeholder process that is highly formalized, however perfectible, has been assumed as relevant*" (Retrieved from Leo De Daniela and Altamore Sara. "Renewable Energy, Landscape Protection and Tourism Development, a Territorial Plan Experiment in Italy." *Urban and Regional Planning*, *10*(1), (2025): 42-54. https://doi.org/10.11648/j.urp.20251001.12)

Scholarly writers (Alley, 2018; Taylor et al., 2018; Morris, 2024; Skrylnyk, 2024) frequently employ personification as a means to avoid explicitly presenting themselves as the responsible parties, thus attributing responsibility to non-human elements. These elements include various abstract nouns such as *idea, process, methodology, illness, action, metrics, initiative*, and *forecast*. The commonly used abstract nouns that serve as subjects include *study, result, analysis, data*, and *research*.

> "*The data obtained from this research suggest that the designated truck lane reduced CO2 emissions along the Cuesta Grade*." (Retrieved from Edward Tang, Hatem Abou-Senna, Anurag Pande, Robert Bertini. "High-Resolution Modelling of Carbon Dioxide Emissions Before and After the Implementation of a Designated Truck Lane." *American Journal of Traffic and Transportation Engineering*, *7*(1), (2022): 19-27. https://doi.org/10.11648/j.ajtte.20220701.13)

> *"All data in this study were statistically processed using Statistical Package for the Social Sciences (version 26.0). Descriptive analysis was used for general data, and quantitative data are presented as means ± standard deviations. Analysis of variance was used for data analysis of three or more groups, the chi-square ($\chi 2$) test was used for comparison of counting data, and Kappa analysis was used for consistency analysis."* (Retrieved from Chen, R., Zhang, J., Dai, Y., Tan, X., Liu, Y., et al. "Correlation Between Ultrasound Manifestations and Traditional Chinese Medicine Syndrome Differentiation of Breast Nodules." *International Journal of Chinese Medicine*, *8*(1), (2024): 7-14. https://doi.org/10.11648/j.ijcm.20240801.12)

The activity undertaken by the researcher is interpreted as a noun (such as *examination, analysis, investigation*, or *observation*) and assumes the syntactic function of the subject. Even though these nouns stand for activities the researcher performs as part of his scientific work, these words accurately convey the notion that the actions are not completely dependent on the observer. Rather, it suggests that the data leads to an undeniable conclusion that is easy to make. Additionally, this impersonal approach broadens the scope of agency to encompass the reader. Consequently, the researcher, who engages in the activities of *examination, investigation,* and *observation*, effectively encourages the reader to participate alongside her, thereby facilitating a shared journey toward identical conclusions.

> *"Further investigation is needed to determine the conditions under which 3D scanned geometries provide more accurate results than idealized geometries."* (Retrieved from Pack, Adam, Barfuss, Steven, and Sharp, Zachary. "Using Experiments, 3D Scanning, and CFD to Analyze the Variance in Energy Losses Through Pipe Elbows." *Applied Engineering*, *8*(2), (2024): 69-79. https://doi.org/10.11648/j.ae.20240802.12)

> "*Through a thorough examination of contemporary research and methodologies, this paper aims to enhance the academic and professional discourse concerning the future of steel structures*." (Retrieved from Azanaw, Girmay Mengesha. "Revolutionary Steel Structures: A Comprehensive Review of Current Trends and Future Directions." *Applied Engineering*, *8*(2), (2024): 89-101. https://doi.org/10.11648/j.ae.20240802.14)

> "*On day 15 (group 8), observations of the NiCr metal surface immersed in saliva with a pH of 7 revealed a corrosion pattern characterized by the presence of smaller cracks and holes, along with a discernible oxide layer*." (Retrieved from Pratiwi, Putri Dhianita, Indrastuti, Murti, and Ismiyati, Titik. "Exploration of Metal Ion Release from Nickel-Chromium Denture Material: The Role of Saliva pH and Immersion Duration." *International Journal of Dental Medicine*, *10*(2), (2024): 18-30. https://doi.org/10.11648/j.ijdm.20241002.11)

Siewierska (2008a, 2008b) posits that impersonalization is intrinsically associated with the concept of agent-defocusing, with the term "agent" denoting "the causal participant of an event, also referred to as the actor, instigator, or initiator" (2008a, p. 7), whereas the concept of defocusing is characterized as diminishing "the prominence or salience of what is considered to be the norm" (2008a, p. 7). In addition, Siewierska contends that agent-defocusing encompasses instances in which (a) the agent is not completely defined, (b) the agent's significance is diminished in relation to its typical subject or topic role, or it may include both of these elements. Furthermore, impersonal pronoun use (*they/you*) is seen as a site of cross-linguistic diversity, while passive voice constructions (such as agentless passives) are often regarded as a major agent-defocusing mechanism across languages.

3.7. Impersonal Pronouns Referring to an Unidentified Human Agent

The employment of generic personal pronouns like "*one*" and "*we*" allows for the reference to unspecified individuals in such contexts. The pronoun "*one*," which indicates "people in general" (Quirk et al., 1985, p. 353), is used more commonly than "*we*" to achieve a sense of impersonalization:

> "*If you take into account that the ratio of the rates of these reactions is determined by the equation (22), one can state equal concentrations of CO2 and H2O in the studied mixtures at 800 K after reaching the equilibrium stage of these two mutually reversible radiation chemical processes*." (Adapted from Khagani Mammadov. "The Initiators of the Appearance of Organic Compounds on Earth, the Distribution of Natural Radionuclides in the Plant Mass." *Journal of Energy, Environmental & Chemical Engineering*, *6*(1), (2021): 16-23. https://doi.org/10.11648/j.jeece.20210601.13)

The English pronoun *one* is typical of formal communication and is often regarded as prompting the listener to "identify with the group at issue" (Haas 2018a: 174) to a lesser extent than the pronoun *you*. Additionally, it has been noted that *one* is often found in NEVER contexts (e.g., Moltmann 2010: 463-466; Rudolf 2016: 115), although this association has diminished in prominence over time (Haas 2018b).

3.8. It Clauses:

As described by Hewings and Hewings (2002), it clauses feature a construction that initiates with 'it' which is functioning as a non-referential and anticipatory subject (Biber et al., 1999, pp. 155, 332; Quirk et al., 1985, p. 1391). Such constructions can aid in rendering statements more general and less direct which is advantageous in formal writing or speeches. It-clauses have the ability to alter the focus or emphasis within a sentence. They frequently underscore the action or the complement instead of the subject, allowing for the formulation of general statements without the need to identify the actor performing the action. In formal contexts, the relatively infrequent impersonal constructions, specifically those containing it-clauses, can be extended into the structure It + is + adjective + that. The commonly employed adjectives in this configuration include possible, likely, and clear. Additionally, another pattern involves the use of the linking verbs appear and seem, however, we haven't found any examples with 'seem' or 'appear' within our corpus.

> "From this, it is clear that factor 1 accounted for considerably more variance than the remaining four factors before rotation." (Retrieved from Amao, Funmilayo Lanrewaju. "Factors Influencing Residents' Perception of Privacy Across-Selected Public Housing Estates in Ibadan." Urban and Regional Planning, 10(1), (2025): 1-41. https://doi.org/10.11648/j.urp.20251001.11)

> "It is known that ionizing radiation can simultaneously decompose numerous molecules of carbon dioxide and water, which are very difficult to decompose under the influence of other initiators." (Retrieved from Khagani Mammadov. "The Initiators of the Appearance of Organic Compounds on Earth, the Distribution of Natural Radionuclides in the Plant Mass." Journal of Energy, Environmental & Chemical Engineering, 6(1), (2021): 16-23. https://doi.org/10.11648/j.jeece.20210601.13)

> "(...) it is inevitable that aerosols carrying pathogenic microorganisms will be dispersed in the air through dental cleaning operations once the patients themselves originally carry pathogenic microorganisms, exposing health care workers and the next patient working in this environment to potentially dangerous aerosols that may cause infection." (Retrieved from Chu-Han Song, Xiang Guo, Xian-Yan Lin, Jin-Mei Guo, Ya-Xin Bai, et al. "Potential Risk Factors for Aerosol Transmission in the Dental Office and Strategies for Prevention and Control." International Journal of Dental Medicine, 9(2), (2023): 32-37. https://doi.org/10.11648/j.ijdm.20230902.11)

As technical and scientific articles are full of information, which is to be expected given that written texts tend to be more explanatory, and as a result, they will naturally have more lexical terms that carry information, increasing lexical density, our primary goal as teachers is to encourage ESP students to employ a language that is impersonal, cautious, and factual, utilizing specific and technical vocabulary, as well as passive voice constructions, to express their results objectively. In medical and engineering sciences papers, impersonal style features like passives are more prevalent and useful than in many other registers, and students' writing often shows misapplication of these elements, hence making them worthy of study when teaching, for example, writing skills.

4. CONCLUSIONS

This study, which employs a corpus-based methodology analyzing scientific articles in dentistry, civil, and mechanical engineering, uncovers a range of impersonal constructions characteristic of this genre. These consist in the deployment of subjectless or agentless modal constructions, the passive voice forms, and various applications of grammatical metaphors.

The results of this study will aid researchers in comprehending how to cultivate interest and curiosity in scientific subjects among ESP students through agentless passive constructions, impersonal general pronouns, it-clauses, and personification. Moreover, the examples discussed in this article contribute to a deeper understanding of various linguistic structures and functions employed to express impersonalization in English, especially in dentistry, civil, and mechanical engineering. This knowledge will support non-native writers in crafting research papers in English that maintain a suitable level of objectivity, allowing them to focus more on the informational content of their work than on describing their personal involvement in the research activities conducted.

REFERENCES

Alley, Michael. *The Craft of Scientific Writing*. Springer New York, NY, 2018.

Banks, David. "The passive and metaphor in scientific writing." *Cuadernos de Filología Inglesa*, 5(2), (1996): 13–22.

Berman, Ruth. "Revisiting impersonal constructions in Hebrew: Discourse-based perspectives", In A. Malchukov and A. Siewierska (eds), *The Typology of Impersonal Constructions*, (2011): 323 – 356.

Biber, Douglas, Johnson, Stig, Leech, Geoffrey, Conrad, Susan, and Finegan Edward. *Longman grammar of spoken and written English*. Longman, 1999.

Bondi, Maria. "Metadiscursive practices in academic discourse: Variations across Genres and Disciplines", In J. Bamford and M. Bondi (eds), *Dialogue within Discourse Communities*, Tubingen, Niemeyer, (2005): 3–30.

Conrad, Susan. "The use of passives and impersonal style in civil engineering writing". *Journal of Business and Technical Communication*, 32(1), (2018): 38–76. http://dx.doi.org/10.1177/1050651917729864

Fløttum, Kjersti, Dahl, Trine, and Kinn Torodd. *Academic Voices*, Amsterdam /Philadelphia, John Benjamins, 2006.

Groom, Nicholas. "Pattern and meaning across genres and disciplines: An exploratory study", *Journal of English for Academic Purposes*, vol. 4, no. 3, (2005): 257–77.

Haas, Florian. "You can't control a thing like that": Genre and change in modern English human impersonal pronouns. In R.J. Whitt (ed.), *Diachronic Corpora, Genre and Lan-guage Change*. Amsterdam: Benjamins, (2018a): 171-194.

Haas, Florian. "Changing human impersonal pronouns in English: A corpus study." *Paper at Societas Linguistica Europaea 51*, Tallinn, (2018b): 1-31.

Hewings, Martin and Ann Hewings. ""It is interesting to note that…": a comparative study of anticipatory 'it' in student and published writing." *English for Specific Purposes* 21 (2002): 367-383.

Huddleston, Rodney and Pullum, K. Geoffrey. *The Cambridge grammar of the English language*. Cambridge University Press, 2002.

Hyland, Ken. "Boosting, hedging, and the negotiation of academic knowledge." *TEXT, 18(3),* (1998): 349- 382.

Hyland, Ken. "Authority and invisibility: Authorial identity in academic writing", *Journal of Pragmatics*, vol. 34, (2002): 1091–112.

Hyland, Ken. "Disciplinary differences: Language variations in academic discourses", In *K. Hyland and M. Bondi (eds)*, (2006): 17–45.

Hyland, Ken. *Second Language Writing.* Cambridge University Press, 2019.

Ionitiu, Ionela. An analysis into the realm of specialized languages. English for civil and mechanical engineering, Editura Universitara, Bucuresti, 2025. ISBN: 9786062819521.

Lachowicz, Dominika. "On the use of the passive voice for objectivity, author responsibility and hedging in EST." Science of Science, 2(2), (1981): 105–114.

Luukka, Minna-Ritta, and Markkanen Raija. "Impersonalization as a form of hedging." In R. Markkanen & H. Schröder (Eds.), Hedging and discourse: Approaches to the analysis of a pragmatic phenomenon in academic texts, Walter de Gruyter, (1997): 168-187.

Kuo, Chih-Hua. "The use of personal pronouns: role relationships in scientific journal articles", English for Specific Purposes, vol. 18, no. 2, (1999): 121–38.

Malchukov, Andrej, and Siewierska, Anna. (Eds.). Impersonal constructions: A cross-linguistic perspective. John Benjamins, 2011.

Marín Aresse, I. Juana (Ed.). Conceptualization of events in newspaper discourse: Mystification of agency and degree of implication in news reports. Universidad Complutense de Madrid, 2002.

Moltmann, Friederike. "Generalizing detached self-reference and the semantics of generic one." Mind & Language 25(4),(2010): 440-473.

Morris, Timothy. "Addressed to Science: Poetry, Personification and Metaphor." The Use of English, 75(3), (2024): 47-68.

Myer, S. Greg. "In this paper we report…': Speech acts and scientific facts", Journal of Pragmatics, vol. 17, (1992): 295–313.

Quirk, Randolph, Greenbaum, Sidney, Leech, Geoffrey and Svartvik, Jan. A Comprehensive Grammar of the English Language. London: Longman, 1985.

Rudolf, Olga. Human Impersonal Strategies in English and Russian: A Comparative Corpus Study. Jena: University of Jena PhD dissertation, 2016.

Siewierska, Anna. "Introduction: Impersonalization from a subject-centred vs. Agent-centred perspective." Transactions of the Philological Society, 106(2), (2008a): 1–27. https://doi.org/10.1111/J.1467-968X.2008.00211.X.

Siewierska, Anna. "Ways of impersonalizing: Pronominal vs. Verbal strategies." In M. González, J. L. Mckenzie, & E. Álvarez (Eds.), Current trends in contrastive linguistics: Functional and cognitive perspective, John Benjamins, (2008b): 3-26.

Skrylnyk, Serhii. "Impersonalisation as a Cognitive Tool in Simultaneous Interpreting". Advanced Linguistics, 14, (2024): 18-25.

Swales, M. John. Genre Analysis: English in Academic and Research Settings. Cambridge: Cambridge University Press, 1990.

Swales, M. John. Research genres: Explorations and applications. Cambridge University Press, 2004.

Taylor, Cynthia, Dewsbury, Bryan M. "On the problem and promise of metaphor use in science and science communication". Journal of Microbiology & Biology Education. 2018. Vol. 19. № 1. P. 19.1.46. DOI: 10.1128/jmbe.v19i1.1538.