

Exploring Language of Psychology in Journal Articles and Popularized Online Texts: Does Audience Make a Difference?

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Abstract

Scholars have investigated how authors structure their messages according to their communicative purposes and their intended audience. This article examines whether English research articles (RAs) and popularized texts (PTs) as representations of two different communication purposes and target audiences utilize distinct lexicogrammatical features. The corpus comprised English research articles and science popularized texts in psychology. We examined the distribution of lexicogrammatical features indicating interpersonal and social relationships. The findings indicate that the distribution of linguistic features is different across these two genres. The findings promise implications for writers of online psychology texts and call for further research on psychology texts.

Keywords: Popularized articles, Research articles, Lexicogrammatical features, Communicative purpose

1. Introduction

The growth of hard sciences, human sciences, and interdisciplinary sciences has accelerated in recent years leading to professionalization and specialization in scientific fields. This professionalization and specialization may limit the access of scientific information to those who are not established members of the corresponding field so that they may feel deprived of understanding the content of specialized texts. This calls for a channel which may be reader-

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friendlier and could facilitate the non-experts' access to fresh research findings. This objective is realized through popularized texts which are meant to disseminate research outcomes in the community of non-experts of any special field.

Many scholars are involved in making science and publicizing new findings through the channel of research articles, textbooks, and popularized articles (Halliday, 2004; Myers, 2003). Also, as Halliday (1998), Halliday and Martin (1993), and Swales (1990, 2004) have illustrated, the research articles, and the language of science in general, employ specific rhetorical, grammatical, and stylistic features in presenting new knowledge to the target audience. Myers (1990) maintains that scientific articles communicating science to the community of scientists and popularized articles conveying scientific achievements and fresh findings to the lay-public demonstrate different views of science. Discourse analysts analyzing scientific texts, aim at finding linguistic manifestations of such variations in terms of lexical items or generic structure of different texts addressed to various audiences. Similarly, in genre analysis studies, communicative purpose has been a critical issue and the core of all rhetorical analysis procedures. Further, with respect to communicative purposes of the genres, Martin (1992) emphasizes that "bringing telos [communicative purpose] into contextual theory at this point in no way implies that the text is being interpreted as the realization of the speaker's intentions: genres are social processes, and their purpose is being interpreted here in social, not psychological terms" (p. 503). Therefore, most of the scholars in genre approach to text analysis have paid attention to the way popularized texts exclude the technical details of experimental design, quality and credibility of outcomes of research, as well as the interpretations which have been made regarding research outcomes (Fahnestock, 1986; Gregory & Miller, 1998; Rowan, 1989). Research article, however, is a genre developed with the objective to communicate the scientific knowledge to the community of scholars and scientists. On the other hand, popularized article is a means through which scientific knowledge is demonstrated in a way to be read and understood easily by the non-expert and the lay audience. Therefore, these two genres have different communicative purposes. As Calsamiglia and Ferrero (2003, p. 147) indicate, we need to explore "the different settings in which knowledge circulates, setting out from the supposition that science forms part of the practices of human communities".

Research article and its subsections have been investigated extensively in recent years (Badger, 2003; Hyland, 2001; Hyland, 2003; Samraj, 2002; Samraj, 2005, to cite a few). Also, The significant role of popularized texts in daily communications has been recognized in a number of studies (Fahnestock, 1986; Garcés-Conejos & Sánchez-Macarro, 1998; Myers, 1989). Although the typical approach has examined the differences between popularized texts and research articles in terms of their accuracy and their

information content (Dunwoody, 1982; Gregory & Miller, 1998), most of previous researches on popularized texts have been somehow limited to explorations of hard sciences (e.g., physics, chemistry, biology). For example, Swales (1985) and Halliday (1988) provided data on specific disciplines such as medicine, physics, biology, math and some human sciences such as sociology. However, popularized texts in psychology as highly frequent sources of information among the non-experts and ordinary readers have largely remained under-researched.

In order to examine the linguistic features of research articles and popularized articles and to identify the distinguishing features of these genres, we aim at exploring the distribution of specific lexicogrammatical features in the two contexts in which the scientific knowledge circulates. More specifically, our objective is fulfilled through investigating the way the authors of these two different genres communicate with their audiences. For the analysis of these texts, we draw upon the principles of systemic functional Linguistics developed by Micheal Halliday. According to Martin (1992), in any text, the author has specific objectives and through the choice of specific linguistic features aims at the fulfilment of those objectives. As the linguistic features of each text form its integral components, these features develop a framework for that specific text. In effect, corpus analysts aim at exploring this framework. This framework will provide the authors and the new-comers of the field with more objective criteria for developing such texts. Therefore, it can be claimed that each of these texts are produced as a result of the interplay and interaction among various factors including social aspects and the relationship between the author and the reader and how the text is to be read, considered, and interpreted by the reader. In other words, the research article and the popularized article carry lexicogrammatical features which indicate how the intended readers would react to them. From the point of view of systemic-functional linguistics, every linguistic element is selected purposefully following a delicate semiotic system which is geared to the conventionalized norms of the corresponding discourse community. Hilgartner (1990) defines popularized text as the presentation of scientific knowledge in a way that is understandable to members of the public in a way which is distinct from academic rhetorical conventions and appeals to the public. On the contrary, journal articles are considered as a major vehicle through which novel scientific knowledge is transmitted into the scientific community (Soler, 2007).

The purpose of this article is to analyze research articles (RAs) and popularization texts (PTs) and to compare the frequency of certain lexicogrammatical features as well as the similarities and differences of these texts in terms of the distribution of such features. Moreover, we aim at investigating the way social relations are dealt with in research articles and popularization articles. More specifically, the researchers sought the answer to the following research question:

Do the lexicogrammatical features (i.e. nominalization, impersonalization, agentless passive, modality, and lexical density) of PTs differ significantly from those of RAs?

2. Theoretical framework

Given the premise of Systemic Functional Linguistics (SFL) which considers language in context and how things are done through the use of language, we draw upon it as the theoretical framework for analysis. Following SFL, we focused on the lexicogrammatical features of modality, impersonalization, nominalization, agentless passive, and lexical density for analysis of the two genres under study. Some quick illustrations of the aforementioned features are presented below.

Modality refers to speaker's attitude towards the truth of proposition expressed by a sentence/utterance and to the situation or event described in that sentence/utterance (Simpson, 1990). The use of modality indicates possibility in what is asserted rather than considering them as indisputable facts. Halliday and Martin (1993) explored the role of nominalization in scientific language in considerable detail. It is argued that nominalized entities appear in scientific language for a number of reasons: to create technical terms, to create cause-and – effect relationships between disparate phenomena, to synthesize and systematize detailed information, and to create measurable entities (Martin and Christie, 1997). The passive feature is characterized by the fact that the subject is not the agent that carries out the action expressed by the verb; the passive structure signifies mystification of agency. Impersonalization is another linguistic feature of scientific articles. As Biber et al. (1999, p. 477) note, in news reports, the agent “may be easy to infer, uninteresting, or already mentioned”. But this exclusion may also be the result of obscuring agency, and its responsibility (Fairclough, 1989). Accordingly, the passive phenomenon allows not only for mystification of agency but also for claiming ignorance about the identity of the agent, thus obscuring responsibility for actions. Lexical density is identified as the number of lexical items as a proportion of the total number of running words Ure (1971). Halliday (1994) puts forward a more revealing measure for lexical density which is total number of lexical words as a ratio of the total number of clauses.

As pointed out above, the rationale behind drawing upon the principles of SFL is that SFL considers language as a well-organized system in which the choice of linguistic elements from among other alternatives is quite systemic and purposeful. Therefore, such an analysis of language provides us with a deep and profound understanding of the text. It will reveal the functions fulfilled through using specific lexicogrammatical features in each genre. Also, SFL pays attention to the context of language and considers the choices as purposeful and meaning-based representations of the strategies of

communication within the corresponding sociocultural context. So, the relation between language use and context is attended to in this approach. Also, as Coffin (2001) points out: “One of the most important features of SFL is the way its theoretical framework is designed to explain the interrelationships between culture, society and language use.” (p. 95). So, the analysis of a text is the attempt the analyst makes to uncover why those linguistic features were selected from among others and how they are related to the social context of the text. To this end, systemic functional linguistics examines three dimensions of language including field, tenor, and mode. Field deals with the subject matter of the text. Tenor focuses on the social relations between the author of the text and the reader. Mode is concerned with the channel of communication (i.e. oral or written). Each aspect is embodied through the selection of specific elements and the action and interaction of all these elements leads to the realization of a text. In this paper, we have focused on tenor and how reader and author are socially related in each text.

3. Method

3.1. Materials

A descriptive design was adopted in this study. The corpus comprised 60 texts including 30 popularized texts (PTs) which were selected from among the articles available in NyTimes website. Two criteria guided our selection of texts. First, PTs are intended to provide the users with some instructions and guidance; so we selected them from among the articles in the HEALTH GUIDE section. Second, the content was limited to psychological disorders.

The corpus of research articles (RAs) included 30 research articles selected from PubMedCentral website. In order to ensure comparability of the two kinds of genres, the topical contents of the texts were similar and restricted to depression, disorder, anxiety, phobia, parental loss, and stress. That is, we initially skimmed and scanned the texts to ensure similarity of content as a major sampling criterion. The second criterion for selection of research articles was having the conventional IMRD (Introduction, Method, Results, and Discussion) sections in the RAs. Since this study focuses on two rhetorical sections of Result and Discussion, it was of utmost importance to include articles with these clear rhetorical sections. Moreover, in majority of the articles, the conclusion part was also integrated in the discussion under the title of Discussion, However, in some articles, the concluding section appeared as a separate subheading following the Discussion. In some articles, limitations of the study were included in the discussion part but for consistency reasons we deleted them prior to analyzing texts.

In text analysis, it is axiomatically believed that time may influence the style of writers and through posing this time limit. Therefore, to control the possible

effect of time of publication, we selected RAs and PTs from among those published within 2004-2005.

3.2. Scheme of Analysis

Initially, both corpora were converted to text files and then inserted into UAMCorpus Tool software for analysis.

UAMCorpus Tool analyses texts for Lexical density and word count as well as some other features which were not the focus of this study. This software was developed by O'Donnell (2008) for the annotation of text corpora. Also, it allows the user to annotate a corpus of text files at a number of linguistic layers, which are defined by the user. First the texts are fed into the software and then a page pops up providing information on the word count and lexical density of the text which is the ratio of content words to the number of clauses in the text.

Also, both corpora were hand-annotated for the linguistic features under study including impersonalization, nominalization, agentless passive, and modality. The annotations were performed by the researchers and a colleague who was briefed about the scheme of analysis and served as a coder in this study. The authors conducted a four-hour training course for the coder. Afterwards, she was asked to practice coding the linguistic features under study in the texts. Then the authors and the coder went through the texts to identify any coding disagreements. Inconsistencies in coding led to discussion, and clarification of the criteria for coding texts and eventually agreeing on analyses.

3.3. Procedure

To answer the research question posed in this study, first, popularized texts dealing with psychological problems were downloaded from NYTimes website and then all text guidelines and authors' names were stripped off the texts. Then, they were converted to text files. Also, research articles corresponding the content and date of publication of popularized texts underwent the same stages. In research articles, only the Results and Discussion sections were analyzed due to the fact that the content of these sections contained the overall content of the corresponding popularized text. The texts were analyzed for the distributions and frequencies of impersonalization, nominalization, agentless passive, modals manually and their lexical density and word counts were measured using the aforementioned software.

4. Results

The results of analyses using UAMCorpus Tool and hand-annotations are displayed Table 1 below. The figures show that the frequency of each feature

varies across the two corpora. To begin with, in popularized texts the frequency of occurrence of nominalization is 3757.9, while the research article corpus presents a frequency of 2890.8. These figures indicate that nominalization can be regarded as a distinguishing feature of popularized texts.

Modal expressions contain modal auxiliaries such as can, may, might, etc. Modals indicate degrees of commitment to the truth value of a statement and relate to the tentativeness of the expressions. Comparing the frequency of occurrence of modal structures in the research article corpus and the popularized article corpus, we found out that this lexicogrammatical feature has a more crucial role in popularized texts than in research articles. The research article corpus presents the frequency of occurrence of modal structures of 395 while the frequency of this feature in popularized article corpus is 795.5. These figures mean that the modality feature is approximately 2 times more frequent in the popularized article corpus than in the research article corpus. Impersonalization which is embodied in the use of expressions in which non-humans do the actions which need a human to be performed indicate objectivity and detachment. Considering the occurrence of impersonalization in the two corpora, we found out that both corpora included an almost equal number of this feature. Therefore, this feature does not act as a distinguishing feature between these two genres. Lexical density refers to the ratio of content words to the number of clauses in each text. This feature leads to the production of more prestigious texts. The comparison of lexical density in the research article corpus and the popularized article corpus, indicated that this feature plays a more crucial role in research articles than in popularized texts. The popularized article corpus presents a lexical density of 1715.67 while the research article corpus presents a lexical density of 1759.75. Similarly, noticed that in RAs the sentences were mostly long, complex sentences including subordinate clauses but in PTs the sentences were mainly short sentences including lots of nominalizations. Nominalization which is the use of nouns instead of adjectives and verbs is able to compact information and lead to a more concise text. In order to probe the statistical significance of the differences in frequencies of the lexicogrammatical features between the two genres, a Chi-Square test was run. The results revealed that there is a significant difference between research articles and popularized texts at the .000 level of significance (Table 2)

Table1. Frequency of lexicogrammatical features in the research article corpus and popularized article corpus

Article Genre	Nominalization	Impersonalization	Agentless Passive	Modality	Lexical density
Research article (RA)	2890.8	388.6	849.2	395	1759.75
Popular psychology Texts (PSTs)	3757.9	397	807.9	795.5	1715.67

Table 2. Results of Chi-Square test

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.477E2 ^a	4	.000
Likelihood Ratio	149.492	4	.000
Linear-by-Linear Association	21.122	1	.000
N of Valid Cases	13759		

5. Discussion

The findings of this study suggest that there are differences between research articles and popularized texts in terms of lexicogrammatical features. The most striking difference between these two genres lies in the frequency of nominalization and modality with higher frequencies in popularized texts. Some previous studies on nominalization and modality indicated a different pattern. For instance, Chafe & Danielewicz (1987) reported that nominalizations appeared more frequently in academic papers, 92 occurrences per 1,000 words as compared to 27 per 1,000 in conversations, 56 per 1,000 in lectures and 55 per 1,000 in letters. Also Parkinson (2002) indicates that both science textbooks as a token of popularized texts and science research articles are similar in terms of use of nominalization. In the present study, the frequency of nominalization in popularized texts is 3757.9, while in research articles it is 2890.8. To interpret the findings on frequency of nominalization, we may argue that, as indicated in the relevant literature, nominalization deletes agency, tense and modality. It reduces the whole clause into its nucleus, the verb, and then turns it into a noun; thus, it yields a tone of formality and impersonality. This syntactic reduction may also suppress face threatening details as Agent and Patient and present a complex relation in a single lexical item (Fowler & Kress, 1979). Moreover, as Halliday & Matthiessen (2004) suggested, nominalization probably appeared first in scientific and technical registers and then gradually spread into other areas of discourse and became a mark of prestige and power. However, our data are not in complete agreement with these explanations. Also, Parkinson (2002) indicated that because objectivity is not established in popular texts through removal of human participants, nominalization and passivisation are not employed in popular texts for avoiding agent. Text books and research articles show solidarity with the reader through the use of technical language and nominalization.

As for modality feature, our data analysis revealed that modality has a higher frequency in popularized texts than in research articles. Parkinson (2002) comparing discourse features of popular science with research article, maintains that popular science articles view scientific findings as provisional

rather than as incontrovertible fact. Also Quirk (1985) indicates that "modality may be defined as the manner in which the meaning of a clause is qualified so as to reflect speaker's judgment of the likelihood of the proposition it expressed being true." (p. 219). These explanations apply to the findings of this study, as the purpose of popularized psychology texts is to provide the reader with some general information rather than expert knowledge and the use of modality fulfils this objective.

Regarding agentless passives, research articles presented higher frequency of this feature. In the literature this feature has been reported to be a main feature in academic papers with the objective of detaching the author from the research he has done. As Myers (1989) states, in scientific writing the social distance between individuals must be treated as very great. Also, Myers (1989) indicates that the community of scientists must be more powerful than any single individual in it and, therefore, an individual researcher must always prove humble before the community of researchers. This implies that, in these interactions, making the author's presence in the texts very dominant might be considered a Face Threatening Act (Brown & Levinson, 1987). Similarly, Myers (1989) states that "the making of a claim threatens the general scientific audience because it is a demand for communally granted credit. The claim also threatens the negative face of other researchers because it implies a restriction on what they can do now" (p.5). In this study, the frequencies of agentless passives were 849.2 for research articles and 807.9 for popularized texts, respectively. This pattern confirms Myer's assumptions as the high frequency of agentless passives in research articles results in an objective text. Also, as Sarcevic (2000) maintains, "using passive forms is one of the most common methods of emphasizing the impersonal in a language" (p. 177). Therefore, the use of agentless passive is the realization of impersonalizing the text.

Finally, Halliday and Martin (1993) defined lexical density as one of the main characteristics of scientific texts. Halliday (1994) also uses lexical density to compare written and spoken texts in English. He demonstrates that written texts typically contain a higher degree of lexical words than spoken texts. Some explanations for lexical density have been presented in the literature. One of them is that lexical density leads to a more complex text and produces a prestigious text. Comparing lexical density in our corpora, we found out that the lexical density of research articles is higher than that of popularized texts. Lexical density makes the text more prestigious and this finding is in line with the results of the previous researches in which scientific texts demonstrated a higher lexical density compared to popular texts.

6. Conclusion

In conclusion, the findings indicated that the authors of English scientific research articles and popularized texts of psychology adapted their discourse to

the purpose of communication as well as the target audiences. We could document the variations in texts in terms of lexicogrammatical features under study. The most striking difference between these two genres lies in the frequency of nominalization and modality with higher frequencies in popularized texts. Also, agentless passives were more frequent in research articles than popularized texts.

This study examined the differences between English research articles and popularized texts of psychology exclusively in terms of tenor dimension of language use within SFL. We could not include all lexicogrammatical features which may be distinctive in the two genres of psychology under investigation. Further research may follow up this study and incorporate more lexicogrammatical features as well as the variations corresponding to the mode of discourse, i.e. oral and written discourse of psychology addressed to various target discourse communities.

7. References

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