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Use of the Verb *allow* among Mexican Scientists and Native-English Speaking Scientists

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Abstract

Regardless of their experience with English, it is assumed that researchers possess the ability to write in response to the demands of the scientific community (Richards & Miller, 2005); however, research has shown that non-native English speaking (NNES) scientists struggle to write in English and thus publish their works in international scientific journals (Uzuner, 2008; Swales & Feak, 2012; Hidalgo & Funderburk, 2014; Brimley Norris, 2016;). To contribute to the body of knowledge on the challenges of scientific English writing for NNES, this study performs a short comparative analysis of a grammar structure employed by both Mexican scientists and NES scientists. Namely, the study analyzes how the verb *allow (*as a synonym for *permit)* is used by the two groups. The data were collected from two corpora of ten journal articles each, from Mexican scientists and NES scientists, respectively. The results revealed that Mexican scientists use more the verb *allow* than NES scientists. Moreover, in the majority of the cases (i.e. 53%), the way Mexican scientists use the verb *allow* does not fit into any grammar norm. Conversely, in the corpus of NES scientists, only in 2% of the times the verb *allow* does not fit into any category. Such results may contribute to identifying and explaining the grammatical features that can compromise the clarity and thus quality of scientific journal articles written by Mexican scientists.

Keywords: scientific English writing; Mexican scientists; non-native English speaking (NNES) scientists; NES scientists; *allow;* comparative analysis

El uso del verbo *allow* en científicos mexicanos y científicos nativos de habla inglesa

Resumen

Independientemente de su experiencia con el inglés, se infiere que los investigadores son capaces de seguir las normas de la comunidad científica (Richards & Miller, 2005); sin embargo, existe evidencia de que los científicos cuya lengua maternal no es el inglés tienen dificultades para escribir en inglés correctamente y, por lo tanto, para publicar sus investigaciones en revistas internacionales (Uzuner, 2008; Swales & Feak, 2012; Hidalgo & Funderburk, 2014; Brimley Norris, 2016;). Con el fin de contribuir a la investigación sobre los desafíos de la redacción científica en inglés para los hablantes no nativos de la lengua inglesa, el presente estudio realiza un análisis comparativo de una estructura gramatical usada, tanto por científicos mexicanos, como por nativos del inglés. Específicamente, este estudio analiza el uso del verbo *allow* como sinónimo de permitir en cada grupo de hablantes. Los datos fueron recolectados de dos corpus de diez artículos científicos cada uno, los cuales fueron redactados por científicos mexicanos y hablantes nativos del inglés, respectivamente. Los resultados indican que los científicos mexicanos utilizan más el verbo *allow* que los científicos nativos del inglés. Asimismo, en la mayoría de las ocasiones (53%), la manera en la que los científicos mexicanos usan el verbo *allow* no es consistente con ninguna norma gramatical. Por otro lado, las trasgresiones a la norma en el corpus de hablantes nativos del inglés sólo se detectaron en 2% de los casos. Dichos resultados pueden ayudar a detectar y explicar los elementos gramaticales que comprometen la claridad y calidad de los artículos redactados por científicos mexicanos.

Palabras clave: redacción científica en inglés; científicos mexicanos; hablantes nativos de inglés, hablantes no nativos de inglés, análisis comparativo

Introduction and problem statement

Regardless of their experience with the English language, it is assumed that scientists and graduate students enrolled in science programs possess an ability to write in response to the demands of the scientific community (Richards & Miller, 2005). However, empirical and non-empirical research has demonstrated that non-native-English-speaking (NNES) scientists and higher education students struggle to write in English (Uzuner, 2008; Swales & Feak, 2012; Hidalgo & Funderburk, 2014; Brimley Norris, 2016). Moreover, it seems that this struggle increases when they are required to publish their works in international journals (Hanauer & Englander, 2011).

To contribute to the body of knowledge on the challenges of scientific English writing for NNE speakers, this short study performs a grammar analysis to compare the use of the verb *allow* between Mexican graduate students and native-English-speaking (NES) writers. To reach this goal, I compared the use and frequency of this verb in ten unpublished journal articles written by Mexican graduate students with its use and frequency in ten published journal articles written by NES scientists. The obtained results can help us determine whether *grammatical aspects* can affect the quality and thus readability of scientific journal articles written by Mexican graduate students, and thus their successful publication.

Grammar as a part of clarity

According to experts, grammar contributes to clarity (Lindsay, 2011; Griffies, Perrie & Hull, 2013; Weiss, 2015; University of Leeds, 2017). I identified four common grammar errors in English journal articles written by Mexican graduate students that seem to compromise quality and clarity (Villafuerte, 2017). These errors include subject-verb agreement and misuse of articles, prepositions and gerunds. As regards prepositions and gerunds, they were mainly visible in the use of the verb *allow*, which did not seem to follow the language rules set by the norms. According to *Oxford Dictionaries* (2017), *The Merriam Webster Dictionary* (2017), the *Cambridge Dictionary* (2017), and the *Collins Dictionary*, the verb *allow* can be a synonym for *assert*, *permit*, *concede*, *admit*, *say*, and *state.* However, this study will focus only on the use of *allow* as an equivalent of *permit.*

As a synonym for *permit*, the verb *allow* can be followed by 1) an object, 2) an object and an action, 3) two objects, or 4) no objects at all. When *allow* is proceeded only by an object, no prepositions are used in between. However, when it is followed by an object and then by an action, the preposition following the object is *to* and the action (verb) is in infinitive. When *allow* is proceeded by two objects no preposition is used. On the other hand, when *allow* lacks an object, it is proceeded by the preposition *for* and the action (second verb) in gerund. The following examples best illustrate the norm:

1) Allow + object *(allow something)*
2) Allow + object + action: *(allow someone to do something)*
3) Allow + object + object: (*allow someone something*)
4) Allow without object (*to allow for something*)

Methodology

This section briefly describes how I performed the comparative analysis of journal articles written by Mexican graduate students and NES scientists. The section is divided into two subsections: Data Collection and Data Analysis.

To perform the comparative analysis, I first collected 20 journal articles in English, ten of them written by Mexican graduate students and ten written by NES scientists. All the journal articles were related to three research fields: sustainability, software engineering, and supply chain performance. However, only the articles from the NES scientists have been published, whereas those of the Mexican graduate students are waiting to be accepted. Likewise, the articles were 3,000–4,000 words in length and written by one author only.

To perform the comparative analysis, I employed AntConc, a freeware corpus analysis tool for concordance and text analysis. First, I ran two individual analyses: one on the corpus of NES scientists and the other on the corpus of the Mexican graduate students. The two analyses excluded stop words and estimated the frequency of use of the verb *allow* as well as its percentage of significance within each corpus. Then, I performed a comparative analysis between the reference corpus, and the target corpus. To this end, I

uploaded the NES scientists corpus as the reference corpus (C1), whereas the corpus of Mexican graduate students was considered as the target corpus (C2).

After running the analysis, I estimated the keyness of the target corpus words. Keyness allowed me to determine whether the verb *allow* was a keyword in the target corpus (C2), taking into account the reference corpus (C1). Because AnConc does not provide positive and negative figures for keyness, I performed a log-likelihood test for keyword generation. To this end, I used the keyness figures provided by AntConc and compared them with a threshold value of log likelihood. The threshold value that I used was 3.84, with $P<0.05$. In other words, if the Keyness figure was higher than the threshold, the verb *allow* could be considered a keyword under the 95th percentile (Rayson, 2003).

Finally, I performed a concordance analysis on both corpora to compare the use of *allow* between the target corpus and the reference corpus. The results helped me identify how the verb is used by Mexican graduate students in comparison to English-speaking scientists. To simplify the comparison, I organized the concordances of the two corpora into five categories. The first four categories corresponded to the four grammar norms of use for the verb *allow* (see section 2.1). The fifth category included concordances that fit into neither of these norms.

Results

As previously mentioned, the first step in the methodology was to run two individual analyses to identify the frequency of the verb *allow* in each corpus. Table 1 shows the obtained results. The table shows the identified forms of the verb *allow*, their frequency, the percentage of relative frequency, and the keyness values. Keyness refers to whether a given word is a keyword in the target corpus, considering the reference corpus. As can be observed, four forms of the verb *allow* were identified in the two corpora: *allow*, *allows*, *allowed*, and *allowing*.

Table 1. *Use and significance of the verb "allow"*

Term	Freq. in C1	R.F. (%)	Freq. in C2	R.F. (%)	Keyness
allow	20	0.06	35	0.1%	1.669

allows	57	0.18%	89	0.3%	2.086
allowed	9	0.02	14	0.04%	0.319
allowing	13	0.4	9	0.03	0.1595
Total	99	0.3%	147	0.5%	4.2335

According to the results, Mexican graduate students rely more on the verb *allow* than NES writers, although in both corpora the frequency of this verb is low. Also, considering that each corpus was composed of ten texts, it can be estimated that this verb –in any of the four forms – appeared, in average, 9.9 times in every paper from NES writers and 14.7 times in every paper from Mexican graduate students. Also, the table demonstrates that in both corpora the form *allows* represents the highest frequency, and it is then followed by the infinitive form, *allow*. Interestingly, between *allowed* and *allowing*, the former appeared more frequently in the corpus of Mexican graduate students, whereas the latter seemed more recurrent in the corpus of NES writers.

As for keyness, none of the forms of the verb *allow* in the target corpus is a keyword by itself, since all keyness values are lower than the threshold (3.84). However, when adding the values of the four forms of the verb, the keyness value is higher than the threshold. Therefore, we concluded that, in general, the verb *allow* is a keyword in the corpus of Mexican graduate students (Rayson, 2003).

The concordance and comparison analysis was performed as discussed in the methodology section. Table 2 shows the results of the analysis of both corpora: the corpus of NES writers and the corpus of Mexican graduate students. According to these results, NES scientists employ more the structure *allow* + object + action in infinitive (*to allow someone to do something*) than any other form. In fact, the frequency of this norm in C1 (i.e.44) accounts for almost half of the total frequencies (i.e.99). As for the corpus of Mexican graduate students, more than 50% of the concordances (i.e. 78) do not fit into any of the categories corresponding to the norms. This phenomenon will be thoroughly explained in future sections.

The second most current structure in the reference corpus refers to *allow*+object, with 33 concordances in total (33% freq.), and it is then followed by structure *allow* without object (*allow for something*), with 17 concordances (17.2% freq.). On the other hand, the second structure most commonly employed in the target corpus is allow+object (allow

something) with 46 concordances (31.3% freq.). It is then followed by the structure *allow*+object+action. This norm accounts for 14.3% of the total frequencies of the verb *allow* in the target corpus. Finally, the results revealed that the least employed structure in C1 was *allow*+object+object, showing only three concordances and representing only 3% of the total frequencies of the verb *allow*. As for C2, interestingly, the same structure did not report any frequency.

Table 2. *Concordance and analysis of use of the verb "allow"*

Norm/category	Concordances in C1	Concordances in C2	Examples
Allow + object (*to allow something*)	33	46	"*...improvements ... that would* ***allow*** *better automated classification of documents.*" (C1) "*...capabilities that* ***allow*** *more detailed descriptions in a more naturalistic approach.*" (C2)
Allow + object + infinitive (*allow someone to do something*)	44	21	"*This classification process* ***allowed*** *enablers... to be identified." (C1)* "*...the model is useful when* ***allowing*** *an investor to drive planning decisions...*" (C2)
Allow + object + object (*allow someone something*)	3	0	"*...* ***allows*** *users a more user-friendly experience with the application.*" (C1)
Allow without object (*to allow for something*)	17	2	"*... Declarative languages that* ***allow*** *for easy integration...*" (C1) "*... it* ***allows*** *for the use of different spatial and temporal scales...*" (C2)
Others	2	78	"*...an interesting application that* ***allows*** *tourists interactively share...*" (C1) "*...these applications* ***allow*** *enhance the interaction and communication...*" (C2)
Total	99	147	

As previously mentioned, more than 50% (i.e. 78) of the concordances found in the corpus of Mexican graduate students did not fit into any of the norms previously identified (see section 2.1). This subsection mainly summarizes these additional concordances that characterized the corpus of Mexican graduate students. However, the results of Table 2 also demonstrated that two concordances of the corpus of NES writers were also outside any category. Therefore, Table 3 shows all the additional categories found in the analysis.

Table 3. *Other concordances found in corpora*

Category	Concordances in C1	Concordances in C2	Examples
Allow + infinitive (*allow to do something*)	1	35	"*Metafor is a tool that allows to abstract necessary elements…*" (C2) "*…generative programming allows to work with particular domain proper languages.*" (C2)
Allow + to + object + base form (*allow to somebody to do something*)	0	14	"*Grtner is a tool that allows to the user to create elements…*" (C2) "*…, allowing to the users to continue their operations naturally.*" (C2)
Allow + base form (*allow do*)	0	14	"*Aspects allowed encapsulate these scattered elements*." (C2) "*…because they allow enhance the interaction.*" (C2)
Allow + object + base form (*allow somebody do something*)	1	8	"*…an interesting application that* ***allows*** *tourists interactively share…*" (C1) "*…a middleware that allows the remote calls behave like normal.*" (C2)
Allow + clause (*allow* + that)	0	4	"*… domain specific languages that allow that abstractions are used by the programmer.*" (C2) "*…it allows that a class feature can be added to another.*" (C2)
Allow + to object + base form (*allow to somebody do something*)	0	2	"*Java allows to the user write dynamic code.*" (C2) "*GP is a computational paradigm which allows to the user produce an entire…*" (C2)
Allow + to + object + gerund (*allow to somebody doing something*)	0	1	"*software that allows to the user decreasing intervention.*" (C2)
Total	2	78	246

Notice that two concordances for the verb *allow* in the corpus of NES writers fit into the categories allow + infinitive (*allow to do something*) and allow + object + base form (*allow somebody do something*). These "unusual" concordances account for 2.02% of the total frequency of the verb *allow* in the reference corpus. As regards the corpus of Mexican graduate students, the structure *allow* + infinitive (*allow to do something*) reported the largest number of unusual concordances, and thus the highest frequency. Then followed the use of *allow* + *to* + object + base form (*allow to somebody do something*) and the use of *allow* + base form (*allow do something*). The concordances in these three categories represent 78.2% of the total concordances found in the unusual categories. Also, they represent 41.5% of the total number of concordances for the verb *allow* in the entire target corpus.

Less prominent categories in Table 3 include: *allow* + object + base form (*allow somebody do something*), *allow* + clause (*allow that*), *allow* + *to* + object + base form (*allow to somebody do something*), and *allow* + *to* + object +gerund (*allow to somebody doing something*). All of them were identified only in the target corpus.

Discussion and conclusions

The comparative analysis of the two corpora (NES writers and Mexican graduate students) revealed that Mexican graduate students use more the verb *allow* than NES writers. Moreover, in the majority of the cases; that is, 53% of the times, the way Mexican graduate students use the verb *allow* does not fit into any grammar norm. On the other hand, only in 2% of the times, *allow* in the corpus of NES writers does not fit into any category. In other words, the corpus of NES writers is 98% times grammatically correct in the use of the verb *allow*, according to the norms, whereas the corpus of Mexican graduate students is grammatically correct only 47% of times. Such results may contribute to explaining the grammatical features that can compromise the clarity and thus quality of scientific journal articles written by Mexican graduate students.

Experts argue that the English writing performance of non-native English speakers reveals way more than merely linguistic deficiencies. Much of what NNES writers write is transferred from their mother tongue (Hyland, 2009). In other words, Mexican graduate seem to copy patterns from their writing skills in the mother tongue when writing in English (Crawford, 2010; Santos, 2010). A major implication of this assumption is that the categories of unusual concordances that I found in this study correspond to grammatical and syntactical norms of the Spanish language. This could be confirmed in future works after analyzing and comparing the writing performance of Mexican graduate students in their mother tongue and in English.

Research limitations

As its major limitation, this study relies on a reference corpus of already–published journal articles. This implies that prior to their publication, some of – if not all – the papers might have undergone an additional editing process following the journal reviewers' verdict in

order to discard not only undetected style-related issues, but also inconsistencies in terms of cohesion and coherence (including grammar). Hence, as further research, it would be suitable to perform a comparative study of both the reference corpus and the target corpus before the articles are submitted to the journals and once they are accepted. Such a comprehensive study would allow us to better understand English grammar patterns of both NES scientists and NNES scientists, as well as the impact of these patterns on the scientists' writing performance of scholarly articles.

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