

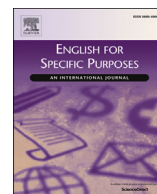


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Writing descriptions of experimental procedures in language education: Implications for the teaching of English for academic purposes



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ABSTRACT

In the writing of experimental research reports in social sciences, one of the challenging components that learners need to include is associated with procedural descriptions. Nonetheless, owing to the lack of related exposure to rhetorical and language conventions, learners frequently encounter difficulties in using appropriate language resources to report such procedures. Motivated by the need to provide learners with some materials that genuinely reflect the language choices expected by expert members of an academic community, this study looks into how published writers use a broad spectrum of linguistic strategies to present experimental procedures in research reports published in high-impact journals on language education. Based on a genre-based analytical framework and pertinent data elicited from specialist informants, this paper reveals how language instructors can make informed choices in the preparation of teaching materials by taking note of various lexico-grammatical choices, especially recurrent parallel structures, agentless passive structures exhibiting varying degrees of obligation, and specific adverbials in different sentential positions. The findings have accentuated the need to consider some major differences between published advice presented in a manual and the actual practice of expert writers in EAP lessons aimed at raising learners' consciousness of the language resources needed for reporting experimental procedures.

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1. Introduction

University students in many parts of the world are often expected to write their experimental research reports as part of the requirements in their academic programmes. In some countries where English is recognized as an important second language, graduate students are also urged to publish their research reports in English in a bid to boost international visibility. Such a need to encourage and train students to write their reports in English appears sensible and understandable. For instance, universities which are concerned over their rankings need to ensure that their academics' and graduate students' works are published in journals with impact values, and in this regard, most of the journals carrying such values are published in English. In addition, academics and graduate candidates who intend to make known their findings to a broader range of

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audience across the globe understandably need to be encouraged to publish their works in English, which over the past few decades, has steadily developed as “an academic lingua franca” (Mauranen, Hynninen, & Ranta, 2010, p. 183).

While the central role accorded to English is widely acknowledged, gearing English courses towards the specific needs of novice academic researchers in non-English-speaking countries remains a difficult task to accomplish. In this context, genre-based investigations appear to reveal recurrent language resources to be acquired by both novice writers and learners in academic research, and provide specific instances that lucidly illustrate how language expressions can be used by novice writers and second language learners to accomplish the various communicative functions in academic genres, such as research reports (Lim, 2014). Studying these linguistic regularities in academic writing is important in that we need to ascertain how related features are presented and understand “why particular features seem to be so useful to writers that they become regular practices” (Hyland, 2000, p. 2).

Given the importance of delineating the language resources of the communicative moves in research reports mentioned above, the degrees of thoroughness to which linguistic choices have been studied merit attention for two reasons. First, much effort has been made to study the overall distribution of selected linguistic features, such as types of nouns (e.g., Charles, 2003; Flowerdew, 2003), verb forms (e.g., Bloch, 2010; De Waard, & Pander Maat, 2012; Tarone, Dwyer, Gillete, & Icke, 1998; Thomas & Hawes, 1994; Williams, 1996), adjectives (e.g., Soler, 2002) adverbs and adverbials (e.g., Charles, 2011; Grant, 2011; Lei, 2012; Warchal, 2010; Zareva, 2009), and pronouns (e.g., Fortanet, 2004; Gray & Cortes, 2011; Hyland, 2001; Mur Duenas, 2007); however, relatively little emphasis has been placed on studying the language resources needed to accomplish specific rhetorical moves in detail. While these studies into the general distribution of selected linguistic features have captured the interest of applied linguists devoted to the study of writers’ overall tendencies in language usage, other studies (e.g., Lim, 2010, 2012, 2014; Nwogu, 1997; Williams, 1999; Wong & Lim, 2014) have explicitly highlighted how a rhetorical move is realized by specific language resources. Second, although some research was conducted to study the specific linguistic features of individual moves in research reports, most of these studies were related to the Introduction sections (e.g., Hirano, 2009; Joseph, Lim, & Nor, 2014; Lim, 2012; Ozturk, 2007; Samraj, 2002, 2005), Results sections (Brett, 1994; Williams, 1999; Yang & Allison, 2003) and Discussion sections (e.g., Basturkmen, 2012; Hopkins & Dudley-Evans, 1988; Peacock, 2002), while scant attention has been devoted to other sections, particularly the Methods section.

The importance of the Methods section varies across disciplines and research paradigms. There is no denying that some writing researchers have pointed out the extent to which the Methods section has been downplayed in certain disciplines. Berkenkotter and Huckin (1995), in particular, highlighted that Methods sections in Biology and Physics were brief and short and at times relocated to the end of a research report. More specifically, in regard to natural sciences, Englander (2014, p. 47) pointed out that due to changes in technology, “methods in the printed text are reduced to little more than a paragraph, and an explanation is provided as a link on the journal’s website.” The downplaying of the Methods section, however, cannot be over-generalized across all disciplines in hard sciences. For instance, Gledhill’s (2000) investigation into 150 Pharmaceutical Science research articles (focusing on cancer and medicinal chemistry) revealed that 27.5% of the entire corpus was related to the Method sections, thus showing that the Methods sections could be almost as long as the Results sections (constituting 27.6%) and even more elaborate than the Introduction and Discussion sections (constituting 11.8% and 26.7% respectively). The Methods sections have also been considered important in some applied sciences. For example, so far as experimental research in Medical Science is concerned, “the methods section is the most important part of a research paper because it provides the information the reader needs to judge the study’s validity” (Kallet, 2004, p. 1232). The writer of an experimental research report in Medicine “must provide a clear and precise description of how an experiment was done, and the rationale for the specific experimental procedures chosen” so that “the experiment could be repeated by others to evaluate whether the results are reproducible”, and “the audience can judge whether the results and conclusions are valid” (Kallet, 2004, p. 1229).

While it is clear that the Methods sections may be important in at least some hard sciences, genre analysts have compared their significance with that in soft sciences. Swales (2004, p. 223), in particular, suggested that the Methods sections are “clipped” in certain hard sciences such as Physics, Chemistry and Biology, but “elaborated” in soft sciences such as Education and Psychology. Overall, the downplaying of the Methods sections in certain hard sciences stands in contrast to the detailed and lengthy methodological descriptions found in social sciences, illustrating why writing the Methods sections in the soft sciences generally remains difficult for learners (Lim, 2011a, 2011b). As Swales (2004) has opined, “writing Method(s) sections is often thought to be a comparatively easy and straightforward part of RA (research article) construction” but “with regard to social science, it is not easy.” Owing to the difficulty involved, it behooves us to conduct a thorough study into how communicative resources are used to accomplish certain major communicative functions in the Methods sections of research reports in a social science domain, such as language education.

It needs to be first acknowledged that language education is an area which language instructors appear to know best; however, through my experience in teaching learners of English for academic purposes (particularly to students majoring in the teaching of English a second language), I have discovered the need to obtain data which clearly demonstrates the extent to which our general assumptions about the frequencies of certain language choices are justifiable. Such data relating to language education is likely to help us minimize overgeneralizations about the occurrences of specific language resources (specific linguistic items and structures) in the field, and more importantly, they could provide an inceptive point of reference with which other data in different academic disciplines can be compared in future studies to enlighten us on cross-disciplinary differences.

In this study, I have opted to focus on the descriptions of experimental procedures in the Methods sections of research reports on language education for three reasons. First, “experimental research often forms a sizeable component of research

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