An investigation of source use in the results and the closing sections of empirical articles in Information Systems: In search of a functional-semantic citation typology for pedagogical purposes

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ABSTRACT

This paper presents an analysis of how behavioral science researchers from the soft domain of Information Systems (IS) engage prior knowledge of the field to construct research claims in journal articles. Data was drawn from the Results and the Discussion sections of 40 IS research articles published in one research journal (MIS Quarterly, $N = 20$) and one applied-research journal (Information Management, $N = 20$). To perform the analysis, the Results and the Discussion sections of the articles were first parsed into moves, and citations in each of the moves were classified according to their rhetorical functions and the types of knowledge cited (semantic content). Based on the classification, a functional-semantic citation typology was developed. Counts of the citations in each category represented in the typology were then subjected to a series of statistical analyses to examine their distribution across the two journals as well as the two target sections. The results reveal that while all the citation categories in the typology were present in both journals, they appeared only sparingly in the IM articles, and cross-sectional differences in their distribution were statistically significant in the MIS Quarterly corpus only. Pedagogical implications will be presented.

1. Introduction

As a key persuasive tool of scientific discourse (Berkenkotter & Huckin, 1995; Gilbert, 1976, 1977; Myers, 1990; Prelli, 1989; Small, 1982), citation has been vigorously researched in various disciplinary domains. Within the field of Applied Linguistics, attention has been directed mostly to citations in texts produced by expert writers (e.g., Buckingham & Neville, 1997; Harwood, 2009; Hyland, 1999, 2000; Myers, 1990; Swales, 1986, 1990; Thompson & Ye, 1991). In recent years, there are increasing concerns in the field about ineffective source use by apprentice writers in different rhetorical parts of a research text. A classic problem which has received some attention is the inadequate control of source ideas in the literature review (Kamler & Thomson, 2006; Pecorari, 2008; Ridley, 2008). The problem stands in sharp contrast to the under-referencing in the other parts. Thesis supervisors interviewed in the study by Bitchener and Basturkmen (2006), for example, commented on writers' failure to connect their findings to the existing literature in the Discussion section of their theses. Similar

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observations were also made by Bunton (1998) and Thompson (1998), who found very few references cited in the closing sections of the theses that they studied. Swales (2004) offers the following remark about the phenomenon:

> A relatively low level of citations in many dissertation drafts is, I suspect, a familiar enough phenomenon to supervisors and advisors. Certainly, advisors will meet students who believe that they have "got done" with prior research in the literature review section or chapter and therefore have little need to refer to it in the data-collection, methodology, and results chapters. (Swales, 2004: 120)

But, what is it that needs to be referred to in these other chapters or sections, and what roles do citations play there? These questions are seldom addressed in writing manuals. Where instruction in source use is provided, attention tends to be given to the Introduction and the Literature Review. A similar void can also be found in the citation research literature, which has seldom attended to source use in specific rhetorical parts of research writing produced by expert writers. The small-scale study reported in this paper is an attempt to address both voids. One of its aims is to identify the following two aspects of the citations found in the Results and the Discussion sections of a group of articles published in two journals in Information Systems (IS): 1) the types of semantic content carried by the citations, and the 2) the roles that the different types of semantic content play in the sections. The ultimate goal of the analysis is to develop a functional-semantic typology that can describe the citations in the Results and the Discussion sections of the articles for pedagogical purposes and that may also be further validated in future studies. Another aim of the study is to examine how the above two aspects of citations may vary across the two IS journals.

2. Conceptual framework

This section will present the conceptual framework that has been established to guide the analysis of the current study. In particular, it will provide the operational definitions of three key notions – citation, semantic content of a citation, and citation role.

2.1. The notion of citation and the semantic content of a citation

One central notion involved in the study is citation, which is used to refer to a text segment that carries a unit(s) of meaning attributed to a named source(s) using a particular style of citation. This unit(s) of meaning is what has earlier been referred to as the semantic content of a citation.

The semantic content of citations in research texts has seldom been systematically explored. However, from previous studies of citation functions as well as move analyses, we can deduce that semantic content of citations tends to be associated with three kinds of epistemic entities. The first kind is concerned with methodology and subsumes items such as research instruments (e.g., a questionnaire or a machine) or research procedures (e.g., a particular protocol) (see, e.g., Lim, 2006; Moravcsik & Murugesan, 1975; Peritz, 1983; Small, 1982). The second kind consists of conceptual or theoretical matters (Harwood, 2009; Hyland, 2000; Moravcsik & Murugesan, 1975; Small, 1978, 1982), which include constructs, formulas, models, and theories. The third kind pertains to research activities carried out in a field (Lim, 2006; Swales, 1990, 2004).

The epistemic entity with which a citation is associated determines the types of details that get cited. For example, a citation about a research instrument may include details such as the name of the instrument, its structural characteristics attributes and its purposes. The types of detail found in the citation about a theory may include a claim, a hypothesis, or a schematic representation of a model. In a citation of a prior study, details of its aims, the method used and its key findings may be included.

The amount of a particular kind of detail that gets cited can also vary greatly across citations that make references to the same entity or the same source (Cronin, 1994; Swales, 1986), depending on where a citation is located, the purpose it serves, and the reader's knowledge of the entity. For instance, when referring to a key study in a Literature Review section that examines prior research done, a writer may summarize the aims, the methods, and the major findings of the study (see, e.g., Swales 1990, 2004). However, when comparing his/her own findings with those of the same study in a Discussion section, another writer may only refer to one of its key findings (see, e.g., Basturkmen, 2009; Yang & Alison, 2003). Likewise, when characterizing a research instrument in a Methodology section, a writer may only refer to specific attributes of the instrument. However, when justifying his/her own use of the instrument, another writer may cite claims about its strengths as well (Lim, 2006; Peritz, 1983). In some cases, only the name of an entity (e.g., a research instrument, a formula, a theoretical notion) is cited as shorthand for the entity (see also, Harwood, 2009; Small, 1978, 1982), which is a common citation strategy used to create space for discussion especially when the entity is widely known (Harwood, 2009). In sum, it is posited that citations in a research article carry some of the types of semantic content represented in Fig. 1, which constitutes one part of the conceptual framework guiding the analysis in the current study.

2.2. Roles of citations

The role of a citation refers to the function that its semantic content fulfills in relation to the generic rhetorical goal of the specific section (or a part thereof, e.g., a move or a step) in which the citation is located. Thus, for example, the role of a citation found in the comment of a result refers to how the semantic content citation contributes to the rhetorical goal of commenting.