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Disciplinary variations in English domain-specific personal epistemology: Insights from disciplines differing along Biglan's dimensions of academic domains classification

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ABSTRACT

Studies of cross-disciplinary variations in relation to English have been predominantly focused around identifying lower-level linguistic or structural elements. Variations in the use of these elements are assumed to be associated with the epistemological standards of academic disciplines and reflect differences in the discipline-specific conceptions of the nature of knowledge. However, research in this area has approached disciplinarity mostly from this restricted viewpoint of linguistic surface elements and has seldom explored likely differences in the epistemological stances of learners of other academic disciplines towards English. Therefore, the present study aims to investigate the English domain-specific personal epistemology of students of five academic majors differing along Biglan's *Soft/Hard* and *Applied/Pure* dimensions of academic domains classification. To this end, surveys were administered to 150 senior students of five academic disciplines—Mathematics, Mechanical Engineering, Law, Psychology and English—to explore both their discipline-specific and English-specific personal epistemologies. The data were analyzed using one-way and multivariate analyses of variance and a series of correlations. The analyses revealed significant differences in both discipline-specific and English-domain-specific epistemological stances of the participants across soft and hard academic majors. The analyses further revealed that the participants viewed knowledge of English along the epistemological standards of their own disciplines.

1. Introduction

Studies of cross-disciplinary variations in relation to English have been a regular fixture of research in Applied Linguistics and are set to proliferate in the literature associated with the field (e.g. Hu & Cao, 2011; Hyland, 2005; MacDonald, 1994; McGrath & Kuteeva, 2012). The driving force behind this proliferation can be sought in the ever-growing process of internationalization of higher education and the undeniable influence of English on this process and also in the expanding role of English as the medium of instruction in tertiary level education (Chang, 2012; Kuteeva & Airey, in press). However, much of the work in this stream of research has been focused around examining the linguistic resources—"from specific wordings to structural elements" (Hood, 2011, p. 106)—which academic writers use in their discipline-specific discourses to display the specificity of their disciplinary culture. This line of inquiry is based on the assumptions that there is a close relationship between conceptions of the nature of reality and accounts of that reality (Hyland, 2011) and that disciplinary epistemological

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parameters play a crucial role in shaping disciplinary writing practices (Becher & Trowler, 2001; Hyland, 2005; MacDonald, 1994; McGrath & Kuteeva, 2012). Furthermore, it is assumed that "[v]ariation in disciplinary culture is … reflected in academic writing, leaving its trace in the linguistic and rhetorical features of disciplinary texts" (North, 2005, p. 431).

In the light of these assumptions, a plethora of studies have investigated a wide range of linguistic and discoursal features across a variety of disciplines to document this knowledge/representation interaction. For example, using a systemic functional approach, North (2005) investigated how the use of theme in undergraduate students' essays might vary according to their disciplinary background. The results revealed differences in the ways 'science' and 'arts' students employed themes with the 'arts' students showing a stronger tendency to use themes than their 'science' counterparts. The author attributed this more frequent use of themes to the 'arts' students' higher propensity to present knowledge as constructed and contested, rather than as plain matter of fact (North, 2005, p. 449). In another study, applying Hyland's stance and engagement model to research articles in pure mathematics, McGrath and Kuteeva (2012) found that authors in this field tended to employ a lower number of hedges and attitude markers compared with authors in other hard and soft disciplines. They attributed these frequency patterns to the distinctive epistemology and research practices of the pure mathematics discourse community and the stronger commitment of the community members to knowledge claims and propositions. Other studies have identified a variety of other linguistic features assumed to vary along the epistemological standards of various disciplines. Some of the linguistic features studied include cohesion strategies (Lovejoy, 1991), variations in the grammatical subject (MacDonald, 1992), citation patterns (Hyland, 1999), self-citation (Hyland, 2001), stance and engagement (Hyland, 2005), use of hedging and boosting (Hu & Cao, 2011), among others.

While these linguistic features are closely associated with the knowledge standards and epistemological parameters of a discipline (Becher & Trowler, 2001; Hyland, 2005; McGrath & Kuteeva, 2012), and variations in their use reflect "differing conceptions of the nature of knowledge" (North, 2005, p. 433), the question of disciplinarity has been mostly approached from the perspective of variations in these linguistic surface elements. Such a perspective, though significant in its own right, views differences among disciplines as purely language-bound without taking researchers closer to appreciating "differences in knowledge problems or ways of addressing such problems" (MacDonald, 1994, p. 21 as cited in Hood, 2011, p. 106). In Hood's (2011) own words, "an intuitive leap is required to move from descriptions of frequency in form to variations in meaning at the level of epistemology" (p. 106). Although there is no hint found in the relevant literature that the suggestion to investigate meaning at the higher level of epistemology should necessarily involve the study of epistemological parameters outside the context of academic writing, it can be taken as a hint at the possibility and necessity of investigating more abstract conceptions of knowledge across disciplines. One of these abstract conceptions of knowledge which has been studied across disciplines, mainly in mainstream education, is epistemology, particularly disciplinary epistemology. This line of enquiry has, however, been largely ignored as it relates to English.

2. Theoretical framework

Epistemology is characterized as a theory of human knowledge and the nature of knowing. It is originally a branch of philosophy dedicated to the study of origins, limits, scope, structure, acquisition, nature and the validity of human knowledge (Hofer, 2002). It has a long tradition dating back to the early Greek philosophers and specifically explains questions such as how knowledge is acquired by human beings and from what sources, how this knowledge is represented in their minds, what it means for a person to know something, how one differentiates truth from falsehood, etc. (Muis, Bendixen, & Haerle, 2006).

Inspired by work in the field of philosophy, educational psychologists have, over the past decades, presented a new perspective on epistemology, conceptualized as a set of perceived beliefs, implicit theories and conceptions a learner holds regarding the nature, acquisition process, structure, sources and justification of knowledge. Research in educational psychology has presented two major perspectives on conceptualizing epistemology—*Developmental and Multidimensional*—(Yilmaz-Tuzun & Topcu, 2008). The former perspective conceptualizes epistemology as a coherent unidimensional structure with a uniform developmental trajectory (Lodewyk, 2007) which develops alongside a person's cognitive development progressing from naïve to sophisticated beliefs about the nature of knowledge (Perry, 1970). Conversely, the latter perspective stresses the multidimensionality of personal epistemology (Lodewyk, 2007) meaning that a collection of beliefs—including beliefs about the structure, certainty and sources of knowledge, as well as beliefs about the control and speed of knowledge acquisition—form an individual's epistemology, while acknowledging the more or less independency of these beliefs that may or may not develop in synchrony (Boden, 2005). These beliefs, it is argued, influence a person's processes of thinking and reasoning, especially in academic settings (Hofer & Pintrich, 1997). Accordingly, they have been investigated in relation to a wide range of learner-related factors including attitudes towards schools (Schommer & Walker, 1997), academic goal setting (Bråten & Strømsø, 2004), study techniques (Hofer & Pintrich, 1997), learning approaches (Lonka & Lindblom-Ylanne, 1996), language learning beliefs (Mori, 1999), grammar achievement (Karimi, 2014), among others.

Aside from the above-mentioned factors that are believed to be affected by an individual's personal epistemology, there has been another dimension to research on epistemology that relates this construct to disciplinarity. Currently, there is a growing recognition of the idea that a person's academic major constitutes a sub-environment that (re)moulds his personal epistemological stance (Mercan, 2007; Paulsen & Wells, 1998; Schommer, Crouse, & Rhodes, 1992; Tsai, 1998). Accordingly, studies have been conducted suggesting the existence of differences in the personal epistemology of students within and across various academic domains. This line of research is based on the premise that "individuals' epistemological beliefs in a