



The role of epistemic perspectives in comprehension of multiple author viewpoints



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ABSTRACT

A key challenge of fostering digital literacy is developing learners' ability to construct knowledge from information sources that present diverse viewpoints. This study investigated the relation between learners' epistemic perspectives and their comprehension of authors' viewpoints. Additionally, the study examined if epistemic perspectives and viewpoint comprehension predict information source integration and explored how epistemic perspectives moderate the impact of conflicts on viewpoint comprehension. 170 participants responded to an epistemic thinking assessment, read conflicting or converging blog-posts regarding a socio-scientific controversy, wrote arguments, and completed tasks assessing viewpoint comprehension. Absolutism and multiplism were found to be negative predictors and evaluativism a positive predictor of viewpoint comprehension. Viewpoint comprehension mediated the relation between epistemic perspectives and information source integration in written arguments. Conflicts between sources improved viewpoint comprehension only in high levels of multiplism and evaluativism. The findings advance the understanding of the relation between learners' epistemic thinking and multiple document comprehension.

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1. Introduction

One of the ongoing challenges of developing learners' digital literacy is fostering learners' ability to construct knowledge from diverse, multiple, and conflicting online information sources (Alexander, 2012; Goldman & Scardamalia, 2013; Leu et al., 2007). Previous research has indicated that learners of all ages find it difficult to construct knowledge from multiple online information sources in critical and meaningful ways (e.g., Brand-Gruwel & Stadler, 2011; Eshet-Alkalai & Chajut, 2009; Eshet-Alkalai & Geri, 2007; Goldman, Braasch, Wiley, Graesser, & Brodowinska, 2012; Walraven, Brand-Gruwel, & Boshuizen, 2008; Wiley et al., 2009). A central difficulty in comprehension of multiple information sources is the tendency to focus on the information presented and to pay low attention to the source of that information (e.g., Bråten, Strømsø, & Salmerón, 2011; Britt & Aglinskias, 2002; Flanagan & Metzger, 2007; Gasser, Cortesi, Malik, & Lee, 2012). More

specifically, often missing from learners' comprehension of multiple information sources is an awareness of the connections between source and content, such as the ways in which authors' viewpoints underlie the construction of knowledge (Rouet, 2006; Wineburg, 1991). This is no minor matter because, as several researchers have argued, comprehension of authors' viewpoints is necessary for knowledge construction from multiple information sources (Bråten, Britt, Strømsø, & Rouet, 2011; Britt & Rouet, 2012). For example, in order to make sense of conflicting online accounts regarding a socio-scientific issue, one needs to understand how these accounts are shaped by the viewpoints of diverse experts and stakeholders.

Author viewpoints are the situated and distinct ways in which authors perceive the issue at hand. Author viewpoints can reflect their stances toward that issue (e.g., pro or con), their disciplinary perspectives (e.g., environmental or economic), and more. Comprehension of author viewpoints entails constructing a representation that captures the important aspects of these viewpoints. Although understanding authors' viewpoints is assumed to be necessary for comprehending diverse information sources, we know very little about the factors that might contribute to author viewpoint comprehension.

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Previous studies have shown that learners' epistemic thinking—that is, thinking about knowledge and about how people know—plays a significant role in learning from multiple information sources (e.g., Barzilai & Zohar, 2012; Bråten, Britt, et al., 2011; Ferguson, Bråten, & Strømsø, 2012; Mason, Ariasi, & Boldrin, 2011; Pieschl, Stahl, & Bromme, 2008). This study extends prior research by examining the relation between learners' epistemic perspectives, defined as “theories-in-action” regarding knowledge and knowing (Kuhn & Weinstock, 2002), and the comprehension of multiple author viewpoints when reading online information sources. We conjectured that epistemic perspectives may predict author viewpoint comprehension because one needs to acknowledge the constructed nature of knowledge in order to appreciate the impact of authors' viewpoints on their writing. An epistemic perspective that situates the source of knowledge in a reality that is directly knowable might downplay the role of authors' viewpoints in knowledge construction. In contrast, an epistemic perspective that locates the source of knowledge in human minds might emphasize the role of authors' viewpoints in knowledge construction. Therefore, learners' epistemic perspectives may affect how much effort they devote to understanding author viewpoints as they read and how they evaluate the significance of these viewpoints. Consequently, comprehension of author viewpoints might help explain the relations found in prior studies between epistemic thinking and comprehension of multiple information sources.

However, the characteristics of online information sources may also impact their comprehension. Specifically, recent studies proposed that conflicts between information sources can lead learners to pay more attention to sources and to their characteristics (Braasch, Rouet, Vibert, & Britt, 2012; Stadler & Bromme, 2014; Strømsø, Bråten, Britt, & Ferguson, 2013). This seems to suggest a promising instructional approach for improving author viewpoint comprehension by introducing conflicts between viewpoints. However, learners whose epistemic perspectives dispose them to downplay author viewpoints might also be less attentive to discrepancies between these viewpoints. Such learners may therefore benefit less from the introduction of conflicts between sources.

Hence, several related objectives guided the current study. First, we sought to examine the relations between learners' epistemic perspectives and author viewpoint comprehension in order to better understand the contributors to viewpoint comprehension. Second, we wanted to test if author viewpoint comprehension indeed predicts better integration of multiple information sources, and if it can thus help explain the relations between epistemic perspectives and multiple document comprehension. Third, assuming author viewpoint comprehension might be related to learners' epistemic perspectives, we wondered whether introducing conflicts between viewpoints can improve author viewpoint comprehension, when learners' epistemic perspectives are taken into account.

In the following sections, we provide a succinct overview of multiple document comprehension, address the importance of author viewpoint comprehension, and describe some of the factors that might impact viewpoint comprehension. We then focus on one of those factors, epistemic thinking, and present the prior research that led to this study.

1.1. Multiple document comprehension

Critically constructing knowledge from multiple and diverse information sources is a core competence for learning in the information age (Alexander, 2012; Goldman & Scardamalia, 2013; Leu et al., 2007). Multiple document comprehension research has grown in recent years, as investigators endeavor to understand the processes of multiple document comprehension and the roles of

learning conditions, learning tasks, and learner characteristics in the enactment of these complex processes (for recent reviews and summaries see Bråten, Britt, et al., 2011; Britt & Rouet, 2012; Goldman & Scardamalia, 2013; Rouet, 2006; Stadler & Bromme, 2013). To clarify the terminology used in the current study, we use the terms “document” and “information source” interchangeably to refer to varied informational artifacts (Britt & Rouet, 2012). The term “source” is reserved for the author, setting, and form features of the document (Britt & Rouet, 2012).

The challenge of comprehending multiple documents stems from the fact that documents often do not provide a single coherent account of the issue or situation at hand, but rather may provide partially or wholly inconsistent accounts and describe multiple possible situations (Rouet, 2006; Wineburg, 1991). Indeed, Bråten and his colleagues define multiple documents comprehension as involving the “building of a coherent mental representation of an issue from the contents of multiple texts that deal with the same issue from different perspectives” (Bråten, Ferguson, Anmarkrud, & Strømsø, 2013, pp. 322–323). A prominent framework for analyzing this complex task is the Documents Model framework initially proposed by Perfetti, Rouet, and Britt (1999) and further developed by Rouet, Britt, and their colleagues (Bråten, Britt, et al., 2011; Britt & Rouet, 2012; Britt, Rouet, & Braasch, 2013; Rouet, 2006; Rouet & Britt, 2011).

In brief, the Documents Model framework extends the situation model theory of text comprehension (Kintsch, 1988) to cases in which learners read multiple documents that provide diverse accounts of the same situation. In such cases, readers need to construct not a single situation model but rather a multiple *situations model* that represents the agreements and discrepancies in the accounts they read. The situations model has more recently been referred to as the *integrated mental model* (Britt & Rouet, 2012; Britt, Rouet & Braasch, 2013). Importantly, in addition to representing the content, the Documents Model framework proposes that readers also construct an additional layer of representation, called the *intertext model*, which includes information about document features, such as author, genre, audience, and so forth. These features are represented as *document nodes* that are connected to the situation model content (source-to-content links) and to other *document nodes* (source-to-source links). The steps involved in construction of a documents model are detailed in the Multiple Documents – Task-based Relevance Assessment and Content Extraction (MD-TRACE) model (see Bråten, Britt, et al., 2011; Rouet & Britt, 2011).

Thus, in order to understand multiple documents that deal with the same issue, readers need to build a coherent mental representation of the information described in the documents as well as to represent where that information came from and how the sources of information are interrelated (e.g., in opposition or agreement). The tagging of information to sources enables readers to differentiate between documents, to evaluate the contribution of each document to the global representation of the situation, and to understand why different sources provide divergent accounts of the event or phenomenon in question (Rouet, 2006). As this description makes clear, multiple document comprehension is a complex task that entails multiple components and processes. In the current study, we focused on the relation between viewpoint comprehension and one of these processes – integration of multiple documents. Integration involves organizing and combining information from multiple documents to form an integrated model of the issue at hand (cf. Goldman, Lawless, & Manning, 2013).

1.2. Author viewpoint comprehension

Understanding how different points of view come into play in written discourse is vital for multiple document comprehension.

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