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Abstract:

Research disciplines and subdisciplines are steeped in epistemological beliefs and theoretical assumptions that guide and constrain research. These beliefs and assumptions both enable scientific inquiry and limit scientific progress. Theory and review papers tend to be a means for reproducing ideological assumptions. However, review papers can also challenge ideological assumptions by critically assessing taken-for-granted assumptions. Critical review methods are underdeveloped in the management disciplines. The information systems (IS) discipline must do more to improve the critical examination of its scientific discourse. In this paper, we present a method with guiding principles and steps for systematically conducting critical reviews of IS literature based on Habermasian strains of critical discourse analysis. We provide an empirical example of the method. The empirical example offers a critical review of behavioral information security research with a focus on employees' security behaviors.

Keywords: Critical Discourse Analysis, Literature Review, Theory and Review, Information Security, Security Behavior, Ideological Hegemony.

1   Introduction

Research disciplines are steeped in epistemological beliefs that guide and constrain the assumptions researchers make about phenomena and the way they study phenomena (Fleck, 1979; Kuhn, 2012; Lincoln, Lynham, & Guba, 2011; Orlikowski & Baroudi, 1991). In scientific disciplines, research is often dominated by a small and dominant set of theoretical assumptions that persist until a different set of assumptions prove more useful (Fleck, 1979; Foucault, 1970; Kuhn, 2012). That is, scientific disciplines suffer from ideological hegemony. Ideological hegemony refers to the conscious or unconscious domination of the thought patterns and worldviews of a discipline or subdiscipline that become ingrained in the epistemological beliefs and theoretical assumptions embedded in scientific discourse (Fleck, 1979; Foucault, 1970; Kuhn, 2012). In academic literature, a hegemony may manifest as common framing of research topics and research questions, the domination of theories and research methods that carry similar assumptions, common beliefs about what constitutes the acceptable application of research methods, and common beliefs about how research results should be interpreted. The word hegemony tends to conjure thoughts of intentional structuring of ideologies by powerful elites; however, ideological hegemonies are not necessarily developed intentionally. Although influential figures in a discipline may act as barriers to publishing new ideas in high-quality mainstream journals (Straub, 2009), researchers may innocently and unknowingly reproduce ideological assumptions as they read and build on existing research (Alvesson & Sandberg, 2011; Maxwell, 2013). By ideology, we mean those aspects of a worldview that are often taken for granted and that disadvantage some and advantage others. Ideologies are not falsehoods in an empirical sense, but are a constitutive part of researchers' and research communities' worldview (and anybody else, for that matter) that are removed from scrutiny (Freeden, 2003; Hawkes, 2003). Thus, ideologies can be harmful to individuals who are disadvantaged or marginalized by them, and they can be problematic to scientific research because they represent blind spots.

Literature reviews and theory and review papers may be a major source from which ideologies are reproduced and hegemonies established and maintained (Alvesson & Sandberg, 2011; Maxwell, 2013). Yet, theory and review papers are essential in guiding research in a discipline (Boell & Cecez-Kecmanovic, 2014; Webster & Watson, 2002). Webster and Watson (2002) identify two high-level types of narrative review papers. The first type synthesizes existing literature and is ideal for reviewing mature bodies of research. The second type proposes theoretical foundations for emerging bodies of research. If researchers are blinded by ideological hegemonies, the result of either type of review is likely to reproduce the taken-for-granted assumptions found in prior research. Although reviews that reproduce research perspectives may generate avenues for future research, the identification of research gaps may be constrained by dominant ideological perspectives and may only produce incremental advances in scientific knowledge (Alvesson & Sandberg, 2011). Further, given advice to avoid excessive criticism in IS research (Straub, 2009; Webster & Watson, 2002), reproducing ideological assumptions may be difficult to avoid. Unfortunately, the issue of ideological reproduction is not simple to remedy because reproduction is both harmful and necessary to scientific progress.

Ideological hegemonies penalize and disincentivize research that fails to conform with dominant ideologies (Foucault, 1970; Kuhn, 2012). In this way, ideological hegemonies limit the understanding of phenomena and marginalize some researchers. However, hegemonies must not be viewed as entirely negative. Ideological hegemonies allow for thought to continue across studies. Without ideological hegemonies, incremental advances in theories and scientific procedures would not be possible, and chaos would likely ensue (Foucault, 1970; Kuhn, 2012). Ideological hegemonies do not last forever. Revolutions occur in science and in particular disciplines and subdisciplines (Fleck, 1979; Foucault, 1970; Kuhn, 2012). These revolutions stem from the consideration of ideological assumptions that are incompatible with those supported by the ideological hegemony, or stem from the search for new epistemological foundations to explain disparate findings in the literature (Fleck, 1979; Kuhn, 2012). Thus, exposing ideological hegemony can overcome discursive closures and thereby catalyze and facilitate scientific debate.

As with any discipline, the information systems (IS) discipline is subject to ideological hegemony. For example, Orlikowski and Baroudi (1991) show that the IS discipline was heavily dominated by positivist research. They found that IS researchers mostly adopted a realist ontology and an objectivist epistemology. At the time, IS research mostly neglected interpretive and critical research perspectives, which marginalized a certain population of IS researchers. Since 1991, the discipline has progressed

toward more-diverse inquiry (Klein & Myers, 1999; Myers & Klein, 2011; Walsham, 2006), though the journey continues. Similarly, the IS discipline has been criticized for producing few IS theories, which has prompted calls for more theory and review papers (Markus & Saunders, 2007; Weber, 2003; Webster & Watson, 2002). Subdisciplines in the IS discipline also suffer from ideological hegemonies. Information security (InfoSec) research, for example, has been mostly devoid of theory and weak on empirical insights, is primarily focused on technical topics, and is slow to progress relative to the larger IS discipline (Siponen, Willison, & Baskerville, 2008).

To ensure a discipline's progress, literature reviews must reproduce existing ideologies and challenge ideological hegemony. These dual purposes need not and probably should not occur in a single review paper. Some reviews may be dedicated to synthesizing and reproducing a particular ideological perspective, while other reviews may challenge existing ideological assumptions. Researchers have developed useful mechanisms and schemas for coding and synthesizing research (e.g., Boell & Cecez-Kecmanovic, 2014; Jasperson et al., 2002; Webster & Watson, 2002) through narrative review and statistical meta-analysis (Aksulu & Wade, 2010; Blake & Pratt, 2006; Joseph, Ng, Koh, & Ang, 2007). Generally speaking, these review types reproduce ideological assumptions and only lead to incremental advancement in theories (Alvesson & Sandberg, 2011). However, the management disciplines have not invested heavily in developing systematic mechanisms for conducting critical reviews to challenge ideological assumptions (Alvesson & Sandberg, 2011). Given the need for a systematic critical review process, we propose a critical review method and provide an empirical example of how it might be used.

Our method for conducting literature reviews identifies and challenges ideological hegemony in research, particularly in top, mainstream journals. Mainstream research in top journals carries dominant ideologies to a large audience. Publishing in top journals is also directly related to career progression (Straub, 2009). Thus, the top, mainstream IS journals represent important sources to examine in critical reviews because these publication outlets have the power to sustain ideological hegemonies and limit the careers of scientists who adopt marginalized ideologies. Our critical review method is based on Habermasian strains of critical discourse analysis (CDA) (Cukier, Ngwenyama, Bauer, & Middleton, 2009; Habermas, 1984). We describe our choice to use Habermasian CDA as a foundation for the method in later sections. The principles and steps of our method are meant to act only as guidelines. We encourage researchers to adapt the method to their needs.

This paper contributes a novel way of conceptualizing and implementing reviews of IS research. Theory and review papers are a cornerstone of any academic discipline. We point out that reviews are also containers for ideological hegemony on which entire research disciplines or subdisciplines can be built. By proposing CDA as a means of constructing literature reviews, we provide a method to promote critical reflexivity in bodies of literature. This allows for the exposure of ideological hegemonies that, in turn, can open debate about the taken-for-granted beliefs and assumptions embedded in academic research. The paper's ultimate contribution is to open up novel views of research questions and, thus, facilitate new research avenues. Traditional reviews focus on explicating what is known and how what is known can be extended in future research (Webster & Watson, 2002), which tends to lead to incremental advancements that remain rooted in the dominant assumptions of a discipline (Alvesson & Sandberg, 2011). Our critical review method focuses primarily on identifying what is marginalized. Thus, our method may be able to escape the trap of incremental advancement better than traditional methods by highlighting different ideological assumptions.

To explicate the review method, we continue as follows. In Section 2, we briefly review research on literature review methods. In Section 3, we introduce critical discourse analysis and clarify our critical position. In Section 4, we present the critical review methodology and introduce the key principles and steps to conduct a critical review. In Section 5, we provide an empirical example of the method by examining behavioral information security (InfoSec) research that focuses on employees' security behaviors. Lastly, in Section 6, we discuss the method, its importance, and its future use.

2 Common Literature Review Methods

Developing theory and review papers is a crucial scientific endeavor. Literature reviews provide the means to qualitatively or quantitatively summarize multiple research studies in a discipline or subdiscipline to identify important constructs, theories, and methods, and to highlight areas of research that require further study. Literature reviews create structure in a discipline by identifying a collective representation of what is known and what needs to be known (Boell & Cecez-Kecmanovic, 2014). In information systems

(IS) research, review papers primarily rely on narrative review techniques and statistical meta-analyses. We briefly summarize these two common types of review below.

2.1   Narrative Review

The narrative review is the most common form of review in IS research. Narrative reviews generally rely on qualitative analysis to synthesize and summarize a body of literature and identify areas for future research. Narrative reviews also exist in individual research studies as the literature review section of research papers. Often, narrative reviews examine a particular topic, such as information privacy (Belanger & Crossler, 2011; Smith, Dinev, & Xu, 2011), or a theory, such as the resource-based view of the firm (Wade & Hulland, 2004) and absorptive capacity (Roberts, Galluch, Dinger, & Grover, 2012). Narrative reviews identify several aspects of a topic or theory. For example, narrative reviews explicate important theories, present conceptualizations of key constructs, identify methods and methodological weaknesses, detect major themes in a body of literature, and highlight how understanding about a phenomenon might be extended (Boell & Cecez-Kecmanovic, 2014; Leidner & Kayworth, 2006; Webster & Watson, 2002).

Narrative reviews can and should critically analyze a body of literature (Boell & Cecez-Kecmanovic, 2014). However, narrative reviews often fail to challenge and problematize key assumptions (Alvesson & Sandberg, 2011). Reviews that examine a particular theoretical perspective may be particularly susceptible to ideological hegemonies because these reviews begin by adopting the particular theory's assumptions. For example, Wade and Hulland (2004) masterfully review the resource-based view of the firm (RBV) in IS research. They highlight several important directions for RBV research; however, they do not critically challenge other explanations for competitive advantage, the framing of IS as resources, and the idea of value as market share and competitive advantage. Again, reviews of this type are important to the progression of research in a discipline; however, if left unchecked, singular ideas and theoretical perspectives can dominate a research discipline. Further, few papers provide guidance on how to critically assess a body of literature (Alvesson & Sandberg, 2011; Boell & Cecez-Kecmanovic, 2014). Given the lack of guidance in critically analyzing IS research, we develop a critical review method to assist researchers in identifying taken-for-granted assumptions in IS research disciplines.

2.2   Statistical Meta-analysis

The statistical meta-analysis is another form of literature review that is receiving more attention in IS research (King & He, 2005). Meta-analysis is a form of quantitative review that analyzes the empirical results of multiple studies to provide a holistic statistical representation of research results (Glass, McGaw, & Smith, 1981). Meta-analysis allows researchers to identify influential constructs based on their effect sizes, to examine the reliability of constructs, to account for the effects of sample size, and to identify potential moderating variables (King & He, 2005). Meta-analysis can be used in conjunction with narrative reviews to produce qualitative and quantitative assessments of a body of literature (Joseph et al., 2007).

Although meta-analysis provides a useful mechanism for assessing bodies of quantitatively based research, it exhibits several limitations (King & He, 2005). For example, meta-analyses can only assess quantitative studies. Therefore, meta-analyses ignore qualitative research related to the particular research topic. This limitation makes meta-analysis mostly incompatible with interpretive and critical studies, which tend to be qualitatively oriented. Further, meta-analyses are unable to generate deep critical insight about a particular topic. Although the results of a meta-analysis may highlight the need to remove constructs due to effect size or may point to the inclusion of certain moderators, meta-analyses are bound to the theoretical assumptions of the body of literature they examine. Meta-analyses simply statistically summarize research across studies. Thus, meta-analyses, in their current form, are unable to identify deeply rooted ideological hegemonies.

3   Critical Discourse Analysis

Critical discourse analysis (CDA) is another approach that can be used to inform academic literature. From the perspective of CDA, research publications are viewed as a communicative process that occurs in a social setting and, thus, is subject to social structures, norms, and processes (Dant, 1991). Two perspectives on discourse have been hotly debated in academic literature (Kelly, 1994; King, 2009; Stahl, 2008)— Foucault's perspectives and Habermas's perspectives. Although differences exist between the two approaches to discourse analysis, both methods seek to identify hegemony and emancipate

marginalized individuals and ideas. Additionally, both approaches draw from critical and interpretive research paradigms. As such, these critical methods are laden with values and are subject to a researcher's judgments and subjectivity (Denzin & Lincoln, 2005; Klein & Myers, 1999; Lincoln et al., 2011; Myers & Klein, 2011). This is not problematic, however, as subjectivity and intersubjectivity are principles of critical and interpretive research (Denzin & Lincoln, 2005; Lincoln et al., 2011). To account for subjectivity, both methods of CDA are critically reflexive. Critical reflexivity considers how a researcher's worldviews influence the research approach and research conclusions (Denzin & Lincoln, 2005; Klein & Myers, 1999; Lincoln et al., 2011). Thus, we reflexively examine our own position in this paper and include reflexivity in the steps of the review method.

3.1 Foucauldian CDA

From the perspective of Foucault, discourse is viewed broadly as the history of knowledge and practice, and as the process by which knowledge and practice become solidified and normalized (Knights & Morgan, 1991; Stahl, 2008). From a Foucauldian perspective, CDA examines the historical roots of beliefs and practices and the structures and powerful actors that influence the adoption and continuation of beliefs and practices (Foucault, 1970; Foucault, 1988; Kelly, 1994). Power is a crucial element of the Foucauldian perspective because power imbalances lead to hegemonic ideas and structures (Foucault, 1970; Foucault, 1988). The Foucauldian perspective is concerned with emancipating those who are dominated by hegemonic powers. To identify power and challenge it, Foucauldian CDA examines more than just a communicative utterance. Foucauldian analysis also examines the context in which an utterance was uttered by assessing power relationships between actors and the structures and processes that guide behavior and constrain the development of knowledge (Kelly, 1994; Stahl, 2008). Foucauldian CDA also focuses heavily on the history of discourse, which may span centuries (Foucault, 1970).

3.2 Habermasian CDA

From the Habermasian persperctive, discourse is viewed more strictly as utterances between actors in a communicative exchange (Stahl, 2008). Ideas are exchanged using the counterfactual presupposition of an ideal speech situation. An ideal speech situation refers to discourses in which individuals can freely make assertions and assess others' assertions in the absence of coercive, hegemonic powers (Cukier et al., 2009; Habermas, 1984). Ideal speech communities represent a transcendental condition of communicative exchange that rarely exists in practice due to power imbalances (Introna, 1997). The term "transcendental" here means that the ideal speech situation is a condition of the possibility of communication (i.e., any communication requires the assumption that validity claims such as legitimacy or sincerity are met). As such, Habermasian CDA assesses characteristics of discursive exchanges to identify conscious and unconscious hegemonic participation in communication that distances actors from the transcendental condition of the ideal speech situation. Conscious hegemonic participation, also called conscious deception, refers to the active manipulation of communication to conceal the purposes of the communicative act (Cukier et al., 2009). Unconscious hegemonic participation, also called unconscious deception, refers to the adoption of dominating ideologies that an author takes for granted, which draw the author and community away from the tenets of the ideal speech situation (Cukier et al., 2009).

Habermasian CDA identifies hegemonic participation in communication by assessing violations of four validity claims: the communication's comprehensibility, truthfulness, and legitimacy, and the speaker's sincerity. Comprehensibility refers to the "technical and linguistic clarity of communication" (Cukier et al., 2009, p. 179). Truthfulness refers to the propositional content of communication as represented by complete arguments and unbiased assertions (Cukier et al., 2009; Habermas, 1984). Legitimacy refers to the representation of different perspectives; all perspectives should be heard and considered (Cukier et al., 2009; Habermas, 1984). And sincerity refers to the correspondence between what a speaker says and what the speaker actually intends by the communicative utterance (Cukier et al., 2009; Habermas, 1984). It is difficult to assess sincerity when a speaker is engaged in unconscious hegemonic participation because the speaker is operating on taken-for-granted beliefs and assumptions. When studying unconscious hegemonic participation, researchers should examine the sincerity of the larger community, which may dominate individual researchers' worldviews. This examination can be accomplished by examining common metaphor, hyperbole, and connotative language used across discursive utterances (i.e., research publications) (Cukier et al., 2009). These four validity claims are the basis of the method we present later.

3.3   Clarifying Our Critical Position

Our method operates under the interpretive and critical paradigms. Thus, we now reflexively analyze our choice to use Habermasian CDA as the foundation for our critical review method. Foucauldian CDA as a literature review method could do much to reveal the historical roots of IS assumptions and ideologies, and to identify the processes and powerful actors that limit the perspectives of IS research. However, we leave this endeavor for future research. We adopt a Habermasian perspective, a choice we made for several reasons.

First, in this paper, we identify the taken-for-granted ideas and assumptions that dominate a body of literature, and identify alternative ideas and assumptions that are equally feasible and worth considering in open debate. As such, we are less concerned with the historical roots of ideas and with the actors or institutions that coerce a research community to adopt certain perspectives. Instead, we are interested in identifying hegemonic participation, primarily unconscious hegemonic participation, in academic literature that distances an academic community from the transcendental condition of the ideal speech situation. Scientific discourse was designed to closely resemble the ideal speech situation (Dant, 1991). That is, through rigorous debate in the form of academic publications, researchers should be able to present alternative ideas about a phenomena without fear of repercussion or exclusion. Tenure in academic institutions, for example, was established to support the approximation of the ideal speech situation in academia. Tenure was instituted to allow researchers to study unpopular ideas without the fear of negative consequences (e.g., being terminated). Thus, Habermasian CDA fits the objectives and context we have established for the review method.

Second, Foucauldian CDA extends analysis of discourse beyond the utterances of a communicative act (e.g., history, power, processes, and structures) (Knights & Morgan, 1991; Stahl, 2008). Habermasian CDA, however, focuses primarily on the utterances that occur in different communicative forums (Habermas, 1984; Stahl, 2008). Thus, Habermasian CDA more closely resembles the publication-centric narrative review method than does Foucauldian CDA. In fact, our method could be thought of as a critical form of narrative review. Traditional narrative reviews are designed to synthesize existing research, describe the concepts that exist in the body of literature, and identify directions for future research (Weber, 2003; Webster & Watson, 2002). Our critical review method is designed to identify taken-for-granted assumptions in a research community to broaden the community's perspectives. Although traditional narrative reviews extend the boundaries of research, many times traditional narrative reviews fail to extend research beyond the deep and underlying assumptions that exist in a body of literature (Alvesson & Sandberg, 2011). Our method provides a systematic way to critically assess a body of academic literature in which critical insight is the key focus of the method.

Third, we do not incriminate any individual researcher or institution as a result of our review method. Foucauldian CDA is highly critical of powerful actors and institutions and seeks to emancipate the oppressed from those actors and institutions. Although influential figures exist in the IS community (Straub, 2009), we assume that IS communities desire open forums for publication that are free from coercion and exclusion. This assumption is consistent with Habermasian CDA and the concept of the ideal speech situation. For example, the continued acceptance of critical and interpretive research in high-quality IS journals provides evidence that the IS community desires a more open and inclusive forum for publication. The IS discipline was once entrenched in positivist thought (Orlikowski & Baroudi, 1991). However, critical and interpretive research is now more widely accepted by the IS community (Klein & Myers, 1999; Myers & Klein, 2011; Walsham, 2006). Additionally, calls for a larger basket of top IS journals (Clark, Au, Walz, & Warren, 2011) demonstrates the desire for inclusivity. Our method is intended for IS research communities that desire to create a forum for open debate and discussion of taken-for-granted assumptions through academic publications. We believe the IS discipline meets these criteria.

Although we assume that IS research communities are interested in open and inclusive debates, we are also cognizant that power does play a role in academic communities (Dant, 1991; Fleck, 1979; Foucault, 1970; Kuhn, 2012). Therefore, if a community strays too far from the tenets of the ideal speech situation, and powerful actors or institutions are unwilling to concede to an open discussion forum, then Foucauldian CDA may be a useful tool to identify and challenge power relations. These situations, however, are beyond our scope here.

We frame our Habermasian CDA method as a means to uncover unconscious hegemonic participation. We do not uncover conscious hegemonic participation. Studying conscious hegemonic participation in academic research via Habermasian CDA could be another direction for future research. In an academic

setting, conscious hegemonic participation might be exhibited as falsifying research data, failing to state conflicts of interest in a research study, collaborating with editors and reviewers to gain a favorable position during the review process, and other intentionally deceptive communicative acts. Unconscious hegemonic participation, however, encompasses the taken-for-granted beliefs, assumptions, and orientations in discourse. Further, research communities require a certain amount of trust and respect among colleagues (Webster & Watson, 2002). Therefore, incriminating particular actors may be detrimental to the respect and collegiality necessary to sustain academic communities. Our method can identify ideological hegemony and highlight marginalized assumptions that could offer new perspective to the study of a phenomenon.

By adopting CDA as a review method, we recognize the need for the method to be emancipatory. Emancipating the marginalized and oppressed is an important value in critical research (Myers & Klein, 2011). Habermasian CDA is emancipatory in its ability to identify taken-for-granted assumptions and encourage open discussion and debate. Thus, Habermasian CDA can emancipate researchers from dogmatic assumptions and beliefs. However, we believe that a deeper level of emancipation should be sought in critical reviews. As IS researchers, we must be aware of the way we frame relationships between the entities we study. For example, from a critical perspective, the relationship between employees and their organizations can be tenuous because of power imbalances. Researchers must be cognizant that the way they frame the relationships between employees and organizations can influence the positive or negative treatment of employees. Research ideas are eventually disseminated to students and may also be published as best practices and standards that influence individual and organizational behavior. Researchers must be aware when their ideas lead to the oppression or marginalization of less powerful groups (e.g., employees).

4 A Critical Review Methodology

Researchers use Habermasian CDA to assess the degree to which discourses closely resemble the ideal speech situation. Although communities never reach the transcendental condition of the ideal speech situation, continual improvement of the community is desirable (Habermas, 1984; Stahl, 2008). To monitor the state of a discursive community, the four types of validity claims described earlier should be assessed for all communication under investigation (Habermas, 1984). The critical approach, including Habermasian CDA, relies deeply on values and ethics to guide research conclusions (Denzin & Lincoln, 2005; Lincoln et al., 2011; Myers & Klein, 2011). Common values in critical research include equality, emancipation, and inclusion. Thus, importantly, we note that our method is not free from bias, values, assumptions, and beliefs. Critical studies do not claim to be bias free. Rather, critical studies claim to be reflexive (Denzin & Lincoln, 2005). That is, researchers must carefully examine how they influence the study and how their own beliefs and values guide their research conclusions (Denzin & Lincoln, 2005; Lincoln et al., 2011). Including reflexive statements in critical and interpretive research studies allows readers to determine the researcher's position and to assess whether other positions should be considered and debated. Thus, a critical review paper should not be viewed as an unbiased assessment of a body of literature. A critical review should be viewed as an attempt to identify taken-for-granted assumptions and propose other assumptions. It is unlikely that any researcher will be able to identify all possible positions that should be considered, and a researcher's judgments will be based on that individual's experiences and beliefs. Therefore, the ideas proposed in a critical review should be critiqued and debated as the discipline addresses the issues raised in it.

Although some amount of bias is expected to exist in critical research, Habermas has called for empirical evidence to ground interpretations in the discourse under investigation (Habermas, 2006). In response to this call, Cukier et al. (2009) introduced an empirical element to Habermasian CDA to provide some evidence of judgments made about the four validity claims Habermas identified. The evidence is not intended to do away with judgment. Rather, it is intended to provide support for the judgment claims made about a body of discourse. Including empirical evidence in Habermasian CDA is not a panacea for CDA's value-laden nature. The empirical evidence helps researchers avoid dogmatic statements that are not based in the evidence presented in the text.

4.1 Fundamental Principles

Our review method is founded on the principles of Habermasian CDA. We identify four principles below that should guide critical literature reviews. Again, these principles are guidelines and can be tailored or extended as is appropriate. Given that this method is critical in nature, we do not position it as "the" critical

review method. We encourage the community to further develop this method and to challenge its foundations to develop new critical methods used for other purposes.

Principle 1: Assume that the Publication Process Models the Ideal Speech Situation

Adopting Habermasian CDA as a review method requires assuming that bodies of academic literature represent discursive communities (Dant, 1991). When conducting a critical review, researchers should assume that publications are oriented toward achieving mutual understanding about a phenomenon (Cukier et al., 2009). That is, researchers should assume that a discipline closely resembles the ideal speech situation. This assumption simply requires researchers to accept that the IS discipline is open to debate through academic publication. At the same time, this assumption requires researchers to assume responsibility for monitoring literature to identify unconscious hegemonic participation in the form of ideological hegemony. When a researcher finds evidence that the community is distanced from tenets of the ideal speech situation, the researcher is responsible for identifying the hegemonic participation and proposing solutions to the hegemony (e.g., presenting alternative assumptions). Challenging hegemony and hegemonic participation in academic literature can promote change (Habermas, 1984). As an example, Orlikowski and Baroudi (1991) found that the IS discipline was heavily dominated by positivist research perspectives. Interpretive and critical perspectives were mostly ignored. Their paper challenged this domination. Since 1991, the discipline has worked to engage in and accept diverse forms of scientific inquiry (Klein & Myers, 1999; Myers & Klein, 2011; Walsham, 2006).

Principle 2: Assume that Hegemonic Participation is Unconscious

Deceptive communication can be conscious or unconscious (Cukier et al., 2009; Habermas, 1984). However, our method is concerned only with unconscious hegemonic participation. Our method identifies assumptions that dominate research but does not identify deceptive individuals or institutions that cling to a particular ideology. This focus on concepts rather than authors and institutions is similar to Webster and Watson's (2002) call for concept-centric and not author-centric reviews. The concept-centric focus of our critical review method should affect the writing of the review. Authors trying to identify unconscious hegemonic participation should avoid naming particular authors and studies when making critical remarks. Most assessments of the literature are made at an aggregate level (Cukier et al., 2009; Dant, 1991); therefore, criticizing individual authors or individual studies is contrary to the method's purpose.

Principle 3: Test all Publications for each Validity Claim

Researchers must assess each of Habermas' validity claims in every publication. If a publication or body of publications fail the validity tests, the communication is labeled as deceptive (Cukier et al., 2009). Although individual studies are assessed, larger interpretations should primarily focus on the overall body of literature.

Researchers should emphasize common types of hegemonic participation found across the body of literature (Dant, 1991). If a common perspective is not identifiable across studies, then unconscious hegemonic participation is not an issue. Again, common forms of unconscious hegemonic participation may include common framing of research topics and research questions, the domination of theories and research methods that carry similar assumptions, common beliefs about what constitutes the acceptable application of research methods, and common beliefs about how research results should be interpreted.

Principle 4: Conduct Reviews Within and Across IS Subdisciplines

The IS discipline consists of a variety of diverse subdisciplines. Researchers can use our method to examine IS subdisciplines or the IS discipline as a whole. Examining individual subdisciplines allows researchers to critically assess ideological assumptions particular to a phenomenon, such as IS use, information security policy compliance, or the value creating potential of IS. Researchers can also critically examine literature across IS subdisciplines. Conducting a review across IS subdisciplines would necessitate the examination of higher-level ideological assumptions, such as examining the use of research paradigms. Some topics, such as discourse about the importance or definitions of IT artifacts, influence the entire discipline and should be addressed at the level of the discipline.

4.2   Analysis Steps

The CDA review method in this paper is founded on the steps in Cukier et al.'s (2009) empirical CDA method. We adapt and extend these steps to fit the literature review process. Cukier et al. (2009) identify four steps in conducting empirically grounded Habermasian CDA: 1) defining the body of data to be analyzed, 2) analyzing content and coding, 3) reading and interpreting the text, and 4) explaining the findings. Cukier et al.'s designed their steps to analyze mass media communications. Thus, we contextualize the steps to the context of academic literature and IS research communities. In doing so, we include additional steps and set boundaries for the method to fit the objectives of our study.

We identify seven important steps in conducting a Habermasian CDA literature review: 1) identifying the problem, 2) specifying the literature, 3) developing codes for validity claims, 4) analyzing content and coding, 5) reading and interpreting, 6) explaining the findings, and 7) engaging in critical reflexivity. The process is not linear: steps 3, 4, and 5 may be iterative. In step 3, researchers develop an initial coding schema based on the review's purpose. As researchers code and read publications in Steps 4 and 5, new codes may arise, which requires the researchers to return to step 3 for the newly developed codes.

Step 1: Identifying the Problem

We added Step 1 to Cukier et al.'s (2009) empirical CDA method to ensure that the method fits the task of analyzing academic literature. Review papers require extensive work; therefore, researchers should carefully assess the need to conduct a review (Webster & Watson, 2002). Additionally, some amount of hegemonic domination is expected in scientific discourse to allow for thought to continue across studies and for theories to incrementally improve (Foucault, 1970; Kuhn, 2012). Thus, researchers should only conduct a critical review after they have established that the body of literature strays far enough from the tenets of the ideal speech situation to warrant further examination. Identifying problems in a discipline is ultimately a judgment call. However, we provide some guidelines below.

Before conducting a full-scale critical review of a body of literature, researchers should assess the likelihood that a powerful ideological hegemony exists in the discipline. A simple review of a representative sample of the literature based on a specific and simple set of criteria may be sufficient to demonstrate the need for a full-scale critical review. A reading of prior literature reviews may also be sufficient to warrant further examination of a body of literature. For example, Orlikowski and Baroudi (1991) note a lack of paradigmatic diversity in IS research. Their findings could have signaled the need for a deeper, critical review of IS literature. Paradigmatic homogeneity is a high-level signal that a community shares a common set of beliefs and has failed to acknowledge other beliefs. Criteria for identifying potential ideological hegemonies might include lack of diversity in the use of research paradigms, theories, and methods, and consistency in definitions of a phenomenon or the lack of conceptual definitions. Depending on the review's purpose, researchers should look for potential signals in particular IS subdisciplines or across subdisciplines as suggested by principle 4.

To ensure that the discipline follows the tenets of the ideal speech situation as closely as possible, researchers should use the criteria above and other relevant criteria as a warrant to conduct a more thorough, critical review of the literature. This action is consistent with principle 1.

Step 2: Specifying the Literature

Consistent with step 1 in Cukier et al.'s (2009) empirical CDA method, researchers must select the text to study. In the academic context, this means that researchers must select an appropriate set of publications to analyze. First, researchers must decide whether to critically analyze discourse in a particular subdiscipline or across subdisciplines. This decision is consistent with principle 4. If discourse is analyzed across subdisciplines, authors should collect papers from all of the subdisciplines suspected to be influenced by an ideological hegemony. Habermasian CDA is concerned with promoting equal representation of ideas (Cukier et al., 2009). When hegemonies affect multiple subdisciplines, researchers should provide a fair sampling of the literature across the subdisciplines.

Second, researchers must choose a set of publication outlets to explore. In most cases, researchers should collect publications from the discipline's top journals. The top journals represent mainstream perspectives (Clark et al., 2011) and tend to exert the greatest influence on tenure decisions (Straub, 2009). Top journals are also more highly read and cited; therefore, top journals are more likely to carry ideological assumptions to a wider audience. Thus, dominant ideologies found in top journals represent a potentially strong and harmful source of hegemonic power that can influence the diversity of scientific

thought and researchers' livelihood. CDA is concerned with identifying entities that exert power to strategically influence communication (Fairclough, Mulderrig, & Wodak, 1997). Thus, a focus on top journals is appropriate for critical reviews.

Selecting outlets should also be considered carefully because the selection process may influence the results of the empirical analysis. For example, if some assumptions are marginalized to lower-tier publication outlets, then reviewing papers from the lower-tier outlets could lead to an underestimation of the strength of the ideological hegemony. However, if the ideological hegemony is pervasive across publication outlets, researchers may desire to include a greater set of outlets to show the full extent of the hegemony. This decision should be based on the research's purpose. Researchers can rely on evolving methods of literature searches to identify appropriate studies (e.g., Boell & Cecez-Kecmanovic, 2014).

Step 3: Developing Codes for Validity Claims

After collecting publications to review, researchers should develop a coding schema to empirically assess Habermas' four validity claims. Cukier et al. (2009) provide a set of codes that researchers can use as a foundation to critically investigate discourse. Table 1 presents their coding schema with adaptations for the context of scientific discourse. While this coding schema represents a starting point for academic research, studies of particular research disciplines may require more detailed and contextualized codes. Thus, we include step 3 as an addition to Cukier et al.'s method. We present an adaptation of their schema as a guideline, but we believe that researchers should actively adapt the schema to fit the purpose of their reviews. Along with the coding schema, codes may arise when initially examining the literature in step 1, similar to open coding in the grounded theory method (Corbin & Strauss, 1990). Researchers should be open to adapting their coding schema as they read the publications. Codes pertinent to the literature may arise during the coding process. If new codes arise, researchers should recode previously coded papers for the new codes.

Table 1. Coding Schema for Analysis of Publications (Adapted from Cukier et al., 2009)

Validity claim	Criteria for ideal community	Potential distortion	Validity test	Speech elements for empirical analysis	*Section of publication to analyze*
Comprehensibility	What is said is audible (or legible) and intelligible.	Confusion	Is the communication sufficiently intelligible? Is the communication complete? Is the level of detail too burdensome for the reader or hearer?	*Undefined theoretical concepts,* *excessive undefined scientific jargon*	*Introduction section,* *literature review section,* *methodology section*
Truth	The propositional content of what is said is factual or true.	Misrepres-entation	Is evidence and reasoning provided sufficient?	Argumentation, *Methodological rigor*	*Theory section,* *methodology section*
Sincerity	The speaker is honest (or sincere) in what she says.	False assurance	Is what is said consistent with how it is said?	Connotative language, hyperbole, metaphor, jargon	*Discussion section*
Legitimacy	What the speaker says is right or appropriate in the light of existing norms or values.	Illegitimacy	Are competing "logics" equally represented?	*Comparison to research in subjugated publication outlets, comparison to related research in other disciplines,* *comparison of concept definitions across publications*	*Entire document*
Note: Italics indicate differences between the schema provided by Cukier et al. (2009) and the current schema					

Comprehensibility claims can be tested by examining definitional clarity in the publications. Researchers conducting a critical review might ask: How many important concepts are left undefined? Additionally, how many scientific jargon words are left undefined? Answers to these questions provide empirical evidence of violations of comprehensibility claims. Unlike Cukier et al. (2009), we are less concerned with issues of sentence syntax. We assume that syntactical errors are resolved during the review and editorial process. However, if researchers examine publication outlets that are not peer reviewed or edited, syntax may be important to consider. Definitions are typically included in a publication's introduction and literature review sections. Methodology sections may also be dominated by overly complicated details and jargon, which diminish comprehensibility. Thus, researchers may focus on these areas of a study as they test comprehensibility claims.

Truth claims can be tested by examining argumentation (Cukier et al., 2009) and methodological rigor in the publications. Methodological rigor must be appropriately defined for different types of research. For example, rigor is different in positivist and interpretive research (Klein & Myers, 1999). Researchers may examine documents to determine whether evidence warrants the claims the authors are making, whether the methods are appropriate to answer the research questions, and whether bias is adequately controlled given the method and research paradigm. Researchers should primarily look to publications' theory and methods sections to analyze truth claims. However, claims made in the theory section should also be assessed. Theory sections contain authors' argumentative claims about a phenomenon. Although coding takes place in each study, the researcher should only interpret patterns across studies. If one study in 30 lacks rigor, this does not indicate systematic and unconscious hegemonic participation. However, if 10 or 20 studies lacked rigor of some common form, this would provide evidence that a systematic form of hegemonic participation might exist in the literature. Ultimately, the researcher must interpret the evidence. Being an interpretive and critical method, exact cutoffs are inappropriate. Exact cutoffs remove the need for interpretation and critical thought, which is contrary to the method's purposes.

Sincerity claims can be tested by examining the existence of connotative language, hyperbole, metaphor, and jargon (Cukier et al., 2009). Violations of sincerity claims are false assurances made in discourse. When examining unconscious hegemonic participation, false assurances reside at the aggregate level of all documents. That is, false assurances represent shared norms of acceptable misrepresentation or false assurance. For example, research communities must be cautious in their claims of causality and generalizability. Common language that exaggerates the causal nature of a study is a form of unconscious insincerity. In positivist research, causality is difficult if not impossible to establish. Experimental designs can approximate causation, but controlling for spurious relationships and the numerous forms of bias is difficult. Survey methods, unless experimental, are even less capable of establishing causality because they often fail to account for temporal precedence. Similarly, in interpretive and critical research, discussions of reflexivity are important (Denzin & Lincoln, 2005). Failing to address how a researcher's biases may affect the co-creation of research results is contrary to the epistemological stance of these research paradigms (Lincoln et al., 2011). Generalizability claims are problematic for all forms of research. Violations of sincerity may occur when language about the generalizability of findings is haphazard or missing in the body of literature. Claims must be bound to the appropriate populations. Thus, research communities must be careful with claims about their results. Publications' discussion sections may be particularly vulnerable to unconscious violations of sincerity. Authors may unconsciously violate sincerity claims as they attempt to summarize results and identify contributions to IS practice. Overstating research results or extrapolating beyond data represent violations of sincerity.

Finally, legitimacy claims can be tested by comparing ideologies in the body of literature to ideologies found in literature from subjugated IS publication outlets or other related disciplines outside of the IS discipline. Thus, critical reviews should be interdisciplinary in nature. Researchers conducting a critical review must assess differences in definitions of key concepts, research paradigms, theories, methods, units of analysis, and other aspects of research that may interest the researcher. The researcher must then assess the extent to which some definitions, paradigms, and so on dominate discussions of the phenomenon in the IS discipline. The researcher should also consider the way social actors are represented. For example, in the context of information security, organizational employees can be framed as either threats or assets to information security efforts. The way social actors are framed may have an effect on the theories researchers use (e.g., stopping negative security behavior through sanctions versus encouraging positive security behavior through education and training), which may ultimately affect how managers approach the issues. The researcher may need to examine the entire document to test legitimacy claims. Many of the directions for future research will stem from assessing legitimacy claims by examining other relevant and marginalized ideas.

Step 4: Analyzing Content and Coding

After collecting publications for the review and developing a coding schema, researchers must code the documents using the coding schema. This action is consistent with principle 3. Step 4 is designed to "identify empirical observations pertaining to validity claims and to determine frequency use of specific arguments" (Cukier et al., 2009, p. 182). Content analysis software can be used to facilitate the coding process. The quantitative observations derived through the analysis and coding process provide support for the qualitative assessments made in step 5. Cukier et al. (2009) suggest that analysis should occur in individual data points and across data points to highlight instances of hegemony and the hegemony's strength. Thus, researchers should examine the frequency of codes in individual publications and across publications.

Researchers might examine empirical counts of words pertaining to important topics and ideas, counts of different definitions of key concepts, counts of theoretical perspectives, counts of methods employed in the papers, counts of jargon words, and counts of other pertinent factors derived from the coding schema. Word counts might also include empirical observations such as counts of positively or negatively framed adjectives and counts of verbs that describe actors' actions. Researchers can adopt or develop dictionaries to facilitate and systematize the coding of word counts.

Step 5: Reading and Interpreting

After collecting quantitative empirical data through content analysis and coding, researchers should read through the publications to extract qualitative insight from the documents. That is, researchers should examine the major assumptions and assertions made in the publications and test the assumptions and assertions against Habermas' (1984) four validity claims. This process is interpretive in nature and is, thus, subject to some amount of bias. To account for this bias, researchers should include reflexive statements to identify how their values and worldviews may have influenced their conclusions. Reading the publications should focus on the speakers' general orientation and should not focus on "the level of the sentence or micro-textual level" (Cukier et al., 2009, p. 179). Although individual sentences are analyzed, decisions about the document or body of literature should be made at an aggregate level (Dant, 1991). Additionally, researchers should assess each validity claim separately, but decisions about the communicative intent of the document should be made based on a cumulative understanding of all of the validity claims (Cukier et al., 2009).

The qualitative analysis is the heart of the method, but it is supplemented by the empirical observations collected in step 4 (Cukier et al., 2009). New codes may arise during step 5. Researchers should use any new codes to refine the coding schema developed in step 3. Researchers can then proceed to recode the publications for the newly developed codes to gather additional quantitative support.

Step 6: Explaining the Findings

After gathering quantitative and qualitative data to test publications against the four validity claims, researchers must explain the aggregate findings. First, researchers should highlight the dominant perspectives found in the body of literature. Second, researchers should direct readers' attention to alternative perspectives that are ignored or marginalized. These first two explanations help readers understand the nature of a hegemony that may exist with the discipline. Third, researchers should contemplate how the hegemony may have formed. Processes and practices that might influence the development of the ideological hegemony might include the process of building on other researchers' work, the process of training researchers in PhD granting institutions, and the process and practice of reviewing and editing publications. According to principle 2, researchers should avoid highlighting individual actors and institutions that cause hegemonies unless it is clear that hegemonies cannot be corrected without identifying and challenging the actors and institutions. Finally, researchers should propose solutions to the processes and practices that may influence a hegemony's development (Myers & Klein, 2011). Solutions may be as simple as highlighting the lack of research diversity and calling for more diverse research, or as complex as proposing a method to restructure publication processes.

Step 7: Engaging in Critical Reflexivity

Habermasian CDA and other forms of critical inquiry are interpretive in nature and, therefore, subject to subjectivity (Denzin & Lincoln, 2005; Lincoln et al., 2011). Judgments and subjectivity are integral parts of critical and interpretive research and are not viewed negatively as they are in positivist research. Although

the empirical evidence from step 4 provides grounding for researchers' subjective claims, Habermasian CDA ultimately relies on the researchers' judgment about discursive texts' intention(s) (Cukier et al., 2009). Thus, critical reviews must include reflexive statements by the researcher. Reflexive statements describe how the researcher's personal biases, interests, and experiences may have influenced the interpretation of the text (Denzin & Lincoln, 2005; Klein & Myers, 1999). These reflexive statements allow other readers to understand the researcher's perspective and to critique or extend the researcher's ideas further in subsequent studies. Critical research is ever critical of social phenomena and of critical research itself (Stahl, 2008). Thus, critique does not end with a critical review. Rather, the critical review provides a starting point for an open discussion of assumptions and ideas that have not yet been considered.

Follow up on Progress

After researchers conduct a critical review in an IS discipline, they should periodically evaluate the discipline's progress. These periodic evaluations may be less extensive than the full-scale critical review described in this paper. Given the interpretive nature of Habermasian CDA, it may also be important for other researchers to conduct further reviews to provide additional perspectives. However, care must be taken when continuing to critique a body of literature. Excessive criticism can lead to chaos in a discursive community (Fleck, 1979; Kuhn, 2012). Researchers should be allowed time to adopt new perspectives, refine the perspectives, and compare the new perspectives to existing perspectives. This time allows for academic debate through publications, which is consistent with the transcendental conditions of the ideal speech situation. Depending on the critical mass of researchers in a discipline or subdiscipline, periods between critique may need to be longer or shorter. When several new ideas are introduced in a discipline, a small research community may need more time to adopt and compare the new ideas than a larger and more diverse community. Extra time between periods of critique may be needed because smaller research communities possess fewer actors to assess the multiplicity of new ideas.

5   An Example of The Critical Review Method

We now provide an example of how our proposed method may be used. To do so, we analyze behavioral information security research related to employee security behavior.

Step 1: Identifying the Problem

Information security (InfoSec) research has been criticized for being slow to mature relative to the IS discipline. In general, InfoSec research lacks theory, empirical insights, and mostly ignores management topics (Siponen et al., 2008). Similarly, InfoSec research is primarily positivistic and focused on technical perspectives rather than social or socio-technical perspectives (Dhillon & Backhouse, 2001). However, behavioral InfoSec research related to employee security behavior relies heavily on theory, empirics, and management issues and adopts socio-technical perspectives (Crossler et al., 2013; Willison & Warkentin, 2013). Still, behavioral InfoSec research is in a nascent state (Crossler et al., 2013). Prior reviews of InfoSec research (Dhillon & Backhouse, 2001; Siponen et al., 2008) provide some evidence that ideological hegemonies may exist in behavioral InfoSec research.

To further examine the potential for ideological hegemonies in the literature, we examined compliance-based research in –the top 11 IS journals (MISQ, ISR, JMIS, JAIS, EJIS, ISJ, DSS, CAIS, I&M, JIT, and JSIS) that Clark et al. (2011) identifies. As an initial test of the likelihood that ideological hegemonies exist in the literature, we coded the literature based on research paradigm (e.g., positivist, interpretive, and critical) and the methods employed (quantitative, qualitative, or mixed methods). We found that most of the research adopted positivist epistemological beliefs and employed quantitative methods. Table 2 presents the results of the initial examination of the literature. Prior review papers and our preliminary examination of the literature provide evidence that ideological hegemonies may exist in the studies. Thus, we conducted a full-scale critical review of the literature.

Table 2. Mainstream Security Studies by Paradigm and Methodology

Study	Journal	Paradigm	Method
Boss, Kirsch, Angermeier, Shingler, & Boss (2009)	*EJIS*	Positivist	Quantitative
Bulgurcu, Cavusoglu, & Benbasat (2010)	*MISQ*	Positivist	Quantitative
Chen, Ramamurthy, & Wen (2012)	*JMIS*	Positivist	Quantitative
D'Arcy, Hovav, & Galletta (2009)	*ISR*	Positivist	Quantitative
Dineve & Hu (2007)	*JAIS*	Positivist	Quantitative
Dinev, Goo, Hu, & Nam (2009)	*ISJ*	Positivist	Quantitative
Duane & Finnegan (2003)	*ISJ*	Positivist	Mixed methods
Guo, Yuan, Archer, & Connelly (2011)	*JMIS*	Positivist	Quantitative
Herath & Rao (2009b)	*EJIS*	Positivist	Quantitative
Herath & Rao (2009a)	*DSS*	Positivist	Quantitative
Herath et al. (2012)	*ISJ*	Positivist	Quantitative
Hovav & D'Arcy (2012)	*I&M*	Positivist	Quantitative
Johnston & Warkentin (2010)	*MISQ*	Positivist	Quantitative
Li, Zhang, & Sarathy (2010)	*DSS*	Positivist	Quantitative
Myyry, Siponen, Pahnila, Vartianen, & Vance (2009)	*EJIS*	Positivist	Quantitative
Ng, Kankanhalli, & Xu (2009)	*DSS*	Positivist	Quantitative
Puhakainen & Siponen (2010)	*MISQ*	Interpretive	Qualitative
Siponen & Vance (2010)	*MISQ*	Positivist	Quantitative
Son (2011)	*I&M*	Positivist	Quantitative
Spears & Barki (2010)	*MISQ*	Positivist/Interpretive	Mixed methods
Stahl, Doherty, & Shaw (2012)	*ISJ*	Critical	Qualitative
Vance, Siponen, & Pahnila (2012)	*I&M*	Positivist	Quantitative
Warkentin, Johnston, & Shropshire (2011)	*EJIS*	Positivist	Quantitative
Xue, Liang, & Wu (2011)	*ISR*	Positivist	Quantitative

Step 2: Specifying the Literature

We chose to examine literature in top IS journals because these journals represent dominant, mainstream perspectives about IS topics, are the strongest carries of ideology, and exert the strongest influence on tenure decisions. Thus, we examined literature found in the top 11 IS journals that Clark et al. (2011) identifies. The publications in the 11 journals represent high-quality mainstream research. Also, the Association for Information Systems (a governing body in the IS discipline) acknowledges eight of the 11 journals that Clark et al. (2011) identifies as top mainstream journals. We conducted a search in these 11 journals for publications related to security behavior. We limited our analysis to publications between 2002 and 2012. In 2001, Dhillon and Backhouse made a call for diverse inquiry within the InfoSec discipline. We assume that the call for diverse inquiry corrected major deviations from the ideal speech situation. This decision is consistent with principle 1. We identified 24 papers to review (see Table 2).

Step 3: Developing Codes for Validity Claims

Before examining the data, we developed a preliminary coding schema to guide the analysis. We adopted the schema in Table 1 and made minor adaptations that are particular to research on employee security behavior. Developing a schema is a highly subjective process, but it can be supplemented by coding and reading the literature in steps 4 and 5. For example, in reading and coding the papers, we found that several papers did not define the independent variable. Thus, we included definitions (or the lack therefore) of policy compliance and noncompliance as a test of comprehensibility. Undefined concepts lead to confusion about their intended meanings (DeLone & McLean, 1992).

Different researchers will identify different criteria based on their readings of the literature, which is expected because our method is interpretive in nature. Thus, in step 7, we reflexively analyze the way our beliefs may have influenced the coding schema and later interpretation. Because the method is interpretive and critical in nature, we encourage and expect discussion of our interpretations and further critique and extension of them. We intend the method to prompt debate to emancipate researchers from taken-for-granted assumptions.

Our adaptations in Table 3 focus on comprehensibility claims and legitimacy claims. Adaptations for truth and sincerity claims were not necessary. For comprehensibility claims, we chose to examine definitions of compliance and noncompliance—major concepts in behavioral information security research. For legitimacy claims, we determined to compare research in the top, mainstream IS journals with research from security-centric journals and non-IS disciplines. We used these journals as a means to determine alternative and marginalized perspectives. Researchers could also choose other means of deriving alternative and marginalized perspectives. For example, researchers could compare perspectives in academic literature to interviews with individuals or organizations with knowledge of the research topic. This review is meant only to exemplify the method. Researchers should only use our example as a guideline for their own critical reviews.

Table 3. Coding Schema for Analysis of Behavioral InfoSec Publications

Validity claim	Criteria for ideal community	Potential distortion	Validity test	Speech elements for empirical analysis	Section of publication to analyze
Comprehensibility	What is said is audible (or legible) and intelligible.	Confusion	Is the communication sufficiently intelligible? Is the communication complete? Is the level of detail too burdensome for the reader or hearer?	*Definitions of compliance and noncompliance*, excessive undefined scientific jargon	Introduction section, literature review section, methodology section
Truth	The propositional content of what is said is factual or true.	Misrepresentation	Is evidence and reasoning provided sufficient?	Argumentation, methodological rigor	Theory section, methodology section
Sincerity	The speaker is honest (or sincere) in what they say.	False assurance	Is what is said consistent with how it is said?	Connotative language, hyperbole, metaphor, jargon	Discussion section
Legitimacy	What the speaker says is right or appropriate in the light of existing norms or values.	Illegitimacy	Are competing "logics" equally represented?	*Comparison to research in security-centric publication outlets, comparison to criminology research, descriptions of employees and managers roles across publications*	Entire document
Italics indicate differences between the schema in Table 1 and the current schema					

Step 4: Analyzing Content and Coding

We conducted a manual and computer-aided (NVivo 10) analysis of the literature to identify empirical evidence to support the reading and interpretation in step 5. The counts and evidence provided in step 4 are intended to support   interpretations in step 5. Ultimately, the evidence is meant to keep the researcher's interpretations grounded in the text. Appendix A provides some of the assumptions and perspectives we analyzed in the literature. Empirical observations suggest that various distortions exist in the body of literature.

First, we found empirical evidence of violations of comprehensibility claims demonstrated by the lack of definitional clarity. Ten of the 24 papers failed to define the dependent variable (i.e., compliance/noncompliance intentions and computer abuse). Thus, the concept of compliance and noncompliance is unclear in the literature. Lack of conceptual clarity is a form of unconscious hegemonic participation that can bias researchers' views of a concept. Researchers cannot argue from a strong position without first defining what they are arguing about.

Second, we found some violations of truth claims; however, they were minimal. Some minor violations of truth claims included the overuse of self-report methods and confusion between behavior and behavioral intention. Nearly all of the studies relied on self-report surveys to test the research hypotheses, and few surveys were completely anonymous. When used in this manner, these methods may be subject to common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) and desirability biases (Posey, Bennett, Roberts, & Lowry, 2011; Posey, Roberts, Lowry, Bennett, & Courtney, 2013). Additionally, the literature focused heavily on behavioral intentions rather than on behavior itself, yet references to actual behavior are found in studies that examine behavioral intentions. Behavior and behavioral intention are not the same constructs and should not be confused. Behavioral intention is a motivational state that occurs prior to behavior (Siponen & Vance, 2010). The confusion between behavior and behavioral intention occurred most frequently in the discussion section as authors related their findings to organizational practice.

Third, we found empirical evidence of violations of sincerity claims in the form of connotative language. The literature uses connotative language that suggests that the bureaucratic normalization of behavior through policy creation and extrinsic enforcement is good and right. We used word counts in NVivo 10, including stemmed words, to find empirical evidence of violations of sincerity claims. The word "policy" was the third most frequently used word in the literature, with 1,787 instances of the word across the 24 papers. The first and second most frequently used words were "security" (4144 instances) and "information" (2901 instances). The focus on security and information draws attention away from employees and their rights in relation to information security. Additionally, the word "compliance" in association with the word policy was used more than 1,000 times, the word "control" was used more than 900 times, the word "punishment" was used more than 600 times, and the word "sanction" was used more than 400 times. These terms are among the 50 most used words in the papers. Terms that represent alternative perspectives to controlling information security behavior (e.g., persuasion, influence, and social norms) were not found among the top 50 most used words in the papers. The term "motivation" only occurred 424 times across the papers and many of these references refer to extrinsic motivation, such as sanctions.

Finally, we found evidence of violations of legitimacy claims in the form of homogenous epistemological beliefs and theoretical assumptions across studies. The literature primarily adopted a positivist perspective. Only three studies adopted a non-positivist paradigm. Similarly, only four studies used qualitative research methods. Further, most of the studies viewed policy as canonical. That is, the studies commonly viewed policy as static and unquestionable (Cohen, 2002). In other bodies of literature, policy is framed in other ways (Cohen, 2002; Dracup & Meleis, 1982). These perspectives are missing from behavioral InfoSec research. Policy was also the central feature of much of the literature. Policy was the third most common word across studies and was mentioned 1,787 times. Studies of compliance with social norms were far less prevalent. Although social norms were represented in some studies (e.g., Guo et al., 2011; Herath & Rao, 2009a; Herath & Rao, 2009b; Johnston & Warkentin, 2010), the representations were simplistic. Only one or two variables were included with three or four measures. A deep and substantive analysis of security values and norms did not exist in the papers we reviewed.

Step 5: Reading and Interpreting

After finding empirical evidence of violations of the four validity claims, we proceeded to read the publications to understand their general orientation (in aggregate) pertaining to each validity claim. We highlight some of the findings in the following paragraphs. Remember that these are judgments of the literature. Critical reflexivity of our judgments is provided in step 7. The judgments are intended to spur debate and further comparison and analysis of different perspectives.

First, the literature violated comprehensibility claims. The studies used a large amount of scientific terminology, but scientific jargon is mostly unproblematic in academic literature because researchers and scientists are papers' primary audience. Scientific jargon, however, is problematic if an outlet intends to target practitioners. Additionally, some key terms in the papers were not clearly defined. In particular, the literature was mostly unclear about the definition of the terms compliance and noncompliance. Unclear definitions of dependent constructs can be highly detrimental to a research area (DeLone & McLean, 1992). Many papers mentioned the word compliance or noncompliance without referring to its underlying dimensions and did not formally define the variable. Other studies defined policy compliance and noncompliance by simply using synonyms for policy and compliance (e.g., rule-following behavior). The lack of clear definitions and the presence of overly simplistic definitions in the literature masks the complexity of compliance and noncompliance. The lack of definitional clarity also creates confusion about how comparable empirical results are across studies. To compare studies, researchers would need to interpret the items for compliance and noncompliance in each study. The interpretation could introduce unwanted bias into these positivistic studies. Definitional clarity is important to academic research (Bagozzi, 2011; MacKenzie, Podsakoff, & Podsakoff, 2011). Thus, the body of literature violated comprehensibility claims.

Second, truth claims were mostly supported with only minor deviations. Methodological rigor is highly valued in top IS journals, which explains the lack of violations of truth claims in the studies. Studies in lower-tier journals may suffer more from violations of truth claims caused by lower methodological standards. The only minor violations of truth claims were the overuse of self-report methods and the occasional confusion of behavior and behavioral intention. Self-reports of negative behavior are subject to desirability biases, particularly when anonymity cannot be guaranteed and direct forms of questioning are employed (Posey et al., 2011; Posey et al., 2013). Many of the studies could not provide anonymity due to recruitment methods; however, most studies ensured participants' confidentiality. Self-report surveys were a common method, and in the behavioral InfoSec literature, the surveys primarily relied on a single data source (i.e., employees). Many studies' reliance on common methods and a single data source leave them vulnerable to common method bias, which can influence results in unintended and undesired ways (Podsakoff et al., 2003).

Further, employees' self-reports of security phenomena are not highly relevant to developing and improving organizational security controls. However, many studies claimed that the study results are relevant to managers. Employees' perceptions of control do not capture how controls can be adapted at an organizational level to influence employee behavior. For example, many studies suggested that the certainty and severity of sanctions can influence security behaviors. However, the characteristics of sanctions that influence perceptions of the certainty and severity of sanctions are not actually measured in many deterrence studies. Yet, many studies claimed that managers can use the results of deterrence studies to improve compliance or deter noncompliance. Given that the studies did not capture the antecedents of perceptions of sanctions, these claims are slightly overstated. Including a section about contributions to practice is a common in IS research, which may force researchers to exaggerate their contributions. Additionally, behavioral intention is not the same as behavior and only represents a motivation that exists prior to behavior (Siponen & Vance, 2010). The influence of actual controls on actual behavior cannot be adequately ascertained from self-report surveys of behavioral intention. Thus, some studies overstated managerial implications. That is, evidence did not support the strength of the claims made in many discussion sections. Further, some of the papers that studied behavioral intention wrote about actual behavior in the theory development and discussion sections of the papers. Referring to actual behavior when a study examined behavioral intention is somewhat misleading because behavior and behavioral intention are not the same construct.

Third, some violations of sincerity claims existed in the body of literature. These violations occurred primarily in the form of connotative language. For example, the literature highly valued bureaucracy and normalized and idealized formal means of control. Studies heavily emphasized policy, punishment, and management control. However, these claims are debatable. Other research criticizes formal, bureaucratic

control and calls for more intersubjectively and socially defined and devised forms of control (Barofsky, 1978; Lange, 2008). Similarly, studies often viewed employees as requiring external motivation to prompt secure behavior. The literature focused heavily on sanctions and training to induce secure behavior, and mostly viewed punishment positively. This focus is also contestable. According to self-determination theory (Ryan & Deci, 1985; Wall, Palvia, & Lowry, 2013), intrinsic behavior is possible when individuals feel control over their choices. Further, intrinsically driven behavior can lead to better outcomes than extrinsically driven behavior (Deci, Koestner, & Ryan, 1999; Ryan & Deci, 1985). Note that not all of the studies in our review ignored the possibility of intrinsic motivation. However, these studies were a minority.

Last, several violations of legitimacy claims existed in the body of literature. For example, behavioral InfoSec research was highly positivistic in that it assumed realist ontological perspectives and objectivist epistemological perspectives. Because of the positivistic nature of the research, policy was highly canonical in behavioral information security research. Policy is canonical when it is perceived as authoritative, static, and unquestionable (Cohen, 2002). Canonical perspectives of policy are just one possible perspective. Transactional perspectives of policy, for example, argue that policy is socially negotiated and is dominated by powerful actors' perspectives (Cohen, 2002). Transactional perspectives fit more closely with interpretive and critical research paradigms. Since critical and interpretive research was mostly absent from the body of literature, transactional perspectives of policy were missing, too. By adopting a canonical perspective of policy, mainstream behavioral InfoSec research has assumed that employees who become aware of security policy have two options: follow policy or violate policy. However, subcultures in an organization do not always adopt the organization's values and beliefs (Leidner & Kayworth, 2006; Trice, 1993). Thus, behavioral InfoSec research needs a more nuanced view of policy and compliance.

Additionally, the literature focused heavily on punishment and formal control. Most studies described control as a formal and management-oriented phenomenon. However, this is just a single perspective. Informal social control is an important and often untapped source of control in organizations (Lange, 2008). Self-controls that drive employees to intrinsically monitor their own behavior without intervention also exist (Lange, 2008). Further, behavioral InfoSec research highlighted cognitive explanations of control (e.g., rational choice theory) and administrative explanations of control (e.g., general deterrence theory and fear appeals theory). Other explanations, such as affective explanations and social/informal explanations of control, were lacking or poorly represented. The general lack of diversity in the literature calls for a major reform and broadening of theoretical perspectives. For example, theories of informal social controls (Akers, 1985; Sutherland, 1947) and self-controls (Lange, 2008) should be examined. Researchers should also examine security phenomenon from the perspective of social negotiation and social creation of meaning (Barofsky, 1978; Dracup & Meleis, 1982). Creating diversity is particularly important to this area of research given its nascent state. Emerging areas of research should allow for diverse perspectives to avoid the early and unnecessary development of an ideological hegemony.

Step 6: Explaining the Findings

Overall, the studies tell a reasonably consistent story. The common story suggests that management is responsible for controlling employees' security behaviors and has the right to do so. Further, the story posits that punishment, training, and fear inducements are the primary means to control employee behavior. Finally, the story suggests that employees and managers share a common understanding of information security through training and awareness programs (i.e., a canonical perspective). Of course, a few variations of the common story exist (e.g., Stahl et al., 2012); however, the purpose of the critical review method is to identify the aggregate and common story that represents the ideological hegemony. Interpreting the literature in relation to the validity claims provides further insight particular to each claim.

The violations of comprehensibility claims (namely, the lack of definitional clarity) may be a byproduct of the violations of legitimacy claims. By failing to acknowledge different perspectives on policy, InfoSec researchers have taken for granted the complex nature of these phenomena. This failure signals a need to adequately explore the meaning of compliance and noncompliance in security settings. Guo (2013) provides a good starting point, but further discussion of this important topic should continue. The lack of definitional clarity in behavioral InfoSec studies presumes that compliance and noncompliance are simple phenomenon. However, research in other disciplines suggests that compliance and noncompliance are complex and multifaceted phenomena (Barofsky, 1978; Dracup & Meleis, 1982; Philippe & Durand, 2011; Smith, Organ, & Near, 1983). For example, compliance can be viewed as socially negotiated (Dracup & Meleis, 1982) and policy as socially constructed (Cohen, 2002). Further, inadequate conceptual definitions

create numerous problems in scientific research that may lead to invalid claims (Bagozzi, 2011; MacKenzie et al., 2011). Fortunately, comprehensibility issues are easily remedied. Researchers must clearly define concepts such as policy, compliance, and noncompliance. Researchers should also be willing to adopt different perspectives of policy, compliance, and noncompliance and explore how different conceptualizations influence research results.

Researchers can strengthen truth claims by engaging with a more diverse set of methods. Behavioral InfoSec researchers should begin to adopt methods other than self-report surveys. For example, games may provide an avenue for studying behavioral InfoSec phenomena (Ho, 2009). The design of online systems may also provide means to examine security phenomenon in new ways (Crossler et al., 2013; Lowry, Moody, Galletta, & Vance, 2012). Additionally, researchers should engage in more multi-level and multi-method research. For example, researchers could ask security managers to assess organizational controls and ask employees to assess their own attitudes toward the controls or vice versa. Researchers should also engage in more mixed-methods and qualitative research. Qualitative research is mostly missing from the studies we examined. Qualitative research can provide rich detail about security phenomenon, rather than shallow relationships between concepts.

Researchers can address sincerity claims by acknowledging that diverse perspectives on security phenomena exist. Researchers should avoid presenting a one-size-fits-all approach for writing about security phenomenon. Traditional bureaucratic controls (e.g., formal policy, formal sanctions, training) only represent one form of control. Security research should identify other important types of control, such as informal social controls and self-controls. Formal controls, for example, may be inadequate for motivating behavior in post-bureaucratic organizations (Lange, 2008). In post-bureaucratic organizations, informal social norms and values often regulate behavior because business relationships are ad-hoc and are not hierarchical. Additionally, research should question whether organizations have the right to control employees' security behaviors. Not all theories and ideologies view bureaucracy and control as positive. Researchers should begin to openly acknowledge that other perspectives exist. The existence of a competing perspective does not necessarily negate the importance of any other perspective. In fact, some perspectives may be complimentary.

Finally, legitimacy claims were highly violated in the literature. Competing logics were not equally represented in the literature. Behavioral InfoSec research was highly positivistic and viewed policy, compliance, noncompliance, control, and other security phenomena from an organizational perspective. Although the studies examined employees' perceptions, they failed to frame the outcomes from the perspective of the employees. Rather, the studies examined how managers can influence employee perceptions to maintain compliant security behavior or deter noncompliant behavior. Research should truly seek to understand security phenomenon from employees' perspectives. The negative impacts of security policies and controls on employees are not heavily explored in mainstream IS research. Thus, we call for a reexamination of the meanings of compliance, noncompliance, policy, and control from different perspectives. Importantly, behavioral InfoSec research is not blind to alternative perspectives. However, these seem to be marginalized to other journals. Across the top, mainstream journals, only three studies adopted a non-positivist perspective and only four studies used qualitative methods or mixed methods. However, some security-specific journals have published many interpretive and qualitative studies (Karyda, Kiountouzis, & Kokolakis, 2005; Kolkowska & Dhillon, 2013; Liginlal, Sim, Khansa, & Fearn, 2012; Rezgui & Marks, 2008).

Violations of each of the claims are likely to be culturally and historically situated. Behavioral InfoSec researchers are part of the greater IS discipline. The IS discipline has been slow to adopt diverse research methods and paradigms (Orlikowski & Baroudi, 1991). Thus, it is unfair to assume that behavioral InfoSec research should be highly diverse. The IS discipline and its subdisciplines are still working to develop a repertoire that employs diverse inquiry. Further, because researchers are mostly steeped in a common ideology, PhD students are likely to be indoctrinated in the same research perspectives. The potential for indoctrination in a narrow set of scientific beliefs calls for a thoughtful examination of PhD curriculum. It may be necessary to require students to learn multiple methods, both quantitative and qualitative, even if they must take seminars from other departments (e.g., sociology). Students may also benefit from a seminar on the philosophy of science, with a focus on multiple and diverse ontological and epistemological perspectives.

Step 7: Engaging in Critical Reflexivity

Critical reflexivity is crucial to critical and interpretive studies (Denzin & Lincoln, 2005; Lincoln et al., 2011). Thus, we now analyze our own values and subjective judgments that have influenced our interpretation of the behavioral InfoSec literature.

All of the authors of this paper have a certain affinity for critical research and a concern about power relationships in organizational settings. We acknowledge that our training and experiences have influenced our interpretations of the literature. Based on our willingness to adopt the perspectives of critical research, emancipating the marginalized and oppressed is important to us. This explains our interest in identifying alternatives to bureaucratic controls. We seek to identify controls that are friendlier and more participatory but that still accomplish their intended purpose (i.e., protecting organizational information). We recognize that someone with less interest and experience in critical studies would likely spend less attention on issues of power between employees and their managers and organizations. Certainly, others will disagree with our position. However, part of this paper's purpose is to open debate. We encourage and welcome discussion of the worldviews we have presented in our analysis. We believe that such discussion, whether for or against our positions, will lead to a deeper understanding of the phenomena.

We also acknowledge that our development of the coding schema in step 3 is limited by our experiences and worldviews. For example, the first author is particularly interested in the framing of theoretical concepts. Thus, including definitional clarity as a way to assess comprehensibility claims was of particular interest to the analysis in this paper. Additionally, we examine security-specific journals and other non-IS journals to identify marginalized perspectives due to our focus on literature review. We recognize that other ways of identifying marginalized perspectives exist, such as interviews with marginalized groups. We encourage future research to consider such perspectives. The reliance on literature was intuitive to us given the paper's purpose.

From a critical perspective, some may critique whether our analysis of the research has gone too much in the direction of functional research. The critical tradition is characterized by its non-performative intention (i.e., the explicit rejection of the view that organizational research exists to further organizational objectives) (Whittle & Spicer, 2008). In the behavioral InfoSec area, a functional view would suggest that organizations have the right to protect their information assets and that security policies and controls are a legitimate means for organizations to exercise this right. Such a view fails to question whether organizational claims to this right are legitimate, and whether the means employed to exercise this right (i.e., security policies and controls) are justified. Our critique has not gone to the extreme of challenging the legitimacy of organizational rights to secure the information they possess. We focus on identifying "friendlier" types of security control. We acknowledge that some critical researchers may take issue with this focus. Although we recognize the importance of critiquing organizations' claims to certain rights, we also believe that information security breaches are devastating to many innocent bystanders (i.e., consumers). Thus, we take a perspective that sits between a functional and critical perspective. We hope our analysis will spark debate from both extremes of the critical and functional perspectives.

6   Discussion

This study introduces a method for developing critical theory and review papers. Theory and review papers are highly valuable to research disciplines (Webster & Watson, 2002). However, literature reviews can generate and reinforce ideological hegemony (Alvesson & Sandberg, 2011; Maxwell, 2013). Ideological hegemonies are both necessary and harmful to science (Foucault, 1970; Kuhn, 2012). Review papers must reproduce theoretical and ideological perspectives to allow for the incremental improvement of the theoretical perspectives, but review papers must also provide the means for paradigmatic shifts in thought around a topic by critically analyzing taken-for-granted assumptions. Systematic critical review methods are not heavily employed in the management disciplines (Alvesson and Sandberg, 2011), though calls have been issued for critical thought in review papers (Boell & Cecez-Kecmanovic, 2014). We propose a critical review method based on Habermasian strains of CDA (Cukier et al., 2009; Habermas, 1984) that can identify unconscious hegemonic participation in bodies of academic literature to move toward ideal speech communities. Scientific communities are intended to function as ideal speech communities (Dant, 1991). Thus, Habermasian CDA provides a solid foundation for critical review papers.

The main contribution of our review method is that it exposes ideological hegemony, which allows researchers to open up new vistas for research. Through an empirical example, we provide evidence to

suspect that strong underlying beliefs and assumptions exist in and drive mainstream behavioral InfoSec research. Based on the review, we identify new research areas that challenge the dominant ideological hegemony. We call for researchers to examine alternative streams of behavioral InfoSec research and for reviewers and top mainstream journals to include these new streams in the academic discourse they review and publish. We now list the high-level conclusions drawn from the example critical review of the behavioral InfoSec discourse to chart what research in the future could look like. We include more-specific conclusions in previous sections.

1. Identifying research problems should cover a broader understanding of security that points to its societal context and consequences. A broader perspective would require researchers to explicitly define key terms and, thus, focus on identifying the problem to be investigated. For example, behavioral InfoSec research has primarily adopted a canonical perspective of policy. Yet, other equally plausible perspectives exist (e.g., transactional and socially negotiation perspectives). Further, compliance in organizations may be a negotiated phenomenon (Barofsky, 1978). This was mostly unexamined in the literature.

2. Alternative views on behavioral InfoSec topics may require different ways of perceiving and interpreting the phenomena in question. We believe that this will entail a conscious decision to engage with positions in the philosophy of science that differ from the prevailing orthodoxy of survey-based, quantitative, positivist research. Different types of data-collection methods, such as ethnographic and interpretive studies, or games and experiments may help achieve this goal. Where traditional research methods remain in use, their assumptions and limitations should be considered explicitly.

3. Researchers should problematize the non-explicit assumptions of research to develop novel streams of behavioral InfoSec research. For example, researchers should begin to question the meaning of ownership and control in security contexts. Not only do we need to define these concepts better, but it would be useful to understand how these ideological concepts drive organizational security concerns and how they are used to stabilize existing bureaucratic structures, such as the legitimacy of managerial control.

We believe the insights in this paper provide important directions for behavioral InfoSec research. The review method we present in this paper can be used to study other important IS phenomena as well. It is unlikely that behavioral InfoSec research is the only IS subdiscipline to experience ideological hegemony. Thus, we call for IS researchers to critically examine the various bodies of literature in the IS discipline by applying systematic methods, such as CDA. Critically examining IS literature in this way may lead to a greater diversity in research perspectives and the identification of new research ideas.

Although we believe we have made a good case for a novel approach to literature review, we realize that a move toward such novel research is based on external factors that need to be in place for such research to succeed. A critical reading of the literature and the resulting development of novel research avenues will require a willingness to face ideological hegemony, even where this infringes on researchers', universities', organizations', and publication outlets' vested interests. This willingness to engage with alternative accounts needs to be reflected in organizational and institutional structures in academia (e.g., in research training curricula and in journal review and acceptance criteria). Further, it requires reviewers to understand that alternative perspectives exist and that the different perspectives are no less legitimate. Reviewers must avoid viewing research in the manner that is most comfortable to them. Theory and review papers do not have to be passive reflections of dominant ideologies, but can raise awareness for new ideas and therefore pave the way for new approaches. This effort will take the cooperation of the entire IS community.

Given that the method in this paper is inspired by critical research and that one of the key components of such research is reflexivity (Alcadipani & Hassard, 2010; Cecez-Kecmanovic, 2001; Whittle & Spicer, 2008), it is appropriate to undertake some reflections on the method itself. When proposing the use of CDA for developing critical review papers, we are not trying to replace one ideological hegemony with a new one. Exposing ideological hegemonies is not a task that can ever be completed. An ideology-free view of the world does not exist. Rather, exposing ideological hegemony is an ongoing activity that requires a new effort in every re-reading of the literature. Thus, we are aware that our approach inevitably contains ideological hegemony (e.g., hidden in the choice of terminology that is closely linked to Marxist critique) and welcome feedback to highlight such instances of ideology. This paper is meant to spark critical debate about literature review methods and the ideologies embedded within research.

A further ideological aspect of this paper is the adoption of aspects of the positivist ideological domination we have critiqued in parts of the paper. Style and presentation of the paper follow very much the detached observer's tradition of objectivist science, which we believe to be part of the dominant ideology. We also include empirical evidence of validity claims that could easily be construed as striving for positivistic objectivity. However, as discussed, we do not intend for the empirical analysis to create a feeling of objectivity. Our method is ultimately subjective. The empirical analysis is designed to keep the interpretations close to the text. As we outline earlier, however, we realize that we operate in an environment where we have to conform to some expectations and have to demonstrate that we understand the rules.

6.1   Implications

Researchers must become aware of the assumptions that guide their research. However, research assumptions are often hidden from researchers because of their scientific training and scientific norms (Fleck, 1979; Kuhn, 2012). Critical review methods provide a means to assess researchers' assumptions; however, critical review methods are underdeveloped in the management disciplines (Alvesson & Sandberg, 2011). Critical reviews provide the means to critically assess assumptions and search for alternative research perspectives. Thus, critical reviews can prompt scientific revolutions in a discipline. Scientific revolutions are generally started by young researchers or researchers who are new to a research discipline (Kuhn, 2012). These researchers are not as deeply steeped in the traditions of the discipline as seasoned scholars. Our critical review method may provide the means for seasoned scholars to contribute to the development of novel research avenues. The method provides a systematic means to assess research assumptions, which may provide seasoned scholars with the ability to step outside of their epistemological traditions and view phenomena from a different perspective. This idea should be tested.

The critical nature of our review method also provides important implications for the practice of IS research. Critical theories draw attention to different research paradigms and alternative ways of thinking about phenomena. Diverse inquiry provides nuance and perspective to research that a single method of inquiry cannot (Orlikowski & Baroudi, 1991). Critical methods also seek to establish a more ideal state of being by rectifying power imbalances and deception in communication (Fairclough et al., 1997; Habermas, 1984). The solution-oriented nature of critical theories helps to promote progress and change (Myers & Klein, 2011). Thus, critical reviews can promote progress and change in scientific discourse (Dant, 1991).

6.2   Limitations and Future Research

Compared to other paradigms, critical research is novel and underdeveloped (Dant, 1991), particularly in IS research (Myers & Klein, 2011; Orlikowski & Baroudi, 1991). Thus, researchers should be concerned with improving critical methodologies. In this paper, we extend the boundaries of critical theory in IS research. By using it in other studies, researchers can refine and improve the method we present in this paper. Although we examine a nascent research area, the method needs to be employed to study a mature research area. This method might be used in future research to examine more mature bodies of literature, such as IS adoption. The method also needs to be used to study topics that influence multiple IS subdisciplines. For example, the importance and mandatoriness of information technology (IT) artifacts in IS research is a common belief (Orlikowski & Iacono, 2001). The mandatory inclusion of IT artifacts in IS research provides a topic for critical reviews. The nature and diversity of IT artifacts also offers an interesting staging ground for this method.

Much can be done to improve critical methods and theories. As researchers adopt this particular review method, they should be critical of how they use the method. The principles and steps in this paper are guidelines and should not be viewed as an ideal method for all situations. For example, the method in this paper does not focus on powerful actors and conscious hegemonic participation. At times, it may be necessary to challenge researchers or research institutions. Another method should be used for this type of analysis. Further, our method does not provide a systematic process for identifying alternative perspectives. When assessing legitimacy claims, researchers must explore alternative perspectives. However, the process of identifying alternative perspectives is not well established. Our method might be combined with other methods (e.g., Alvesson & Sandberg, 2011) to add greater nuance to the steps in the overall review process.

7   Conclusion

Research disciplines are steeped in ideologies that guide and constrain scientific thought. Researchers may be unaware of these beliefs, which may blind them to alternative research perspectives. When an ideological perspective dominates research in a particular discipline, ideological hegemonies form. Research should continue to find ways to identify and challenge ideological hegemony to allow for diverse inquiry and perspectives in research. This paper provides insights into how a particular method (namely, critical discourse analysis) can help identify ideological hegemonies. By applying these ideas to the current discourse on information security, we show that there are discursive closures and systemic limitations to the way academic discourse is currently undertaken. We show that this new way of interpreting information security research opens up new research avenues that have the potential to be theoretically interesting and empirically relevant. We conclude by underlining that we understand that there is more than one way of achieving this task. CDA, and in particular the Habermasian flavor we employed, is not an exclusive way of gaining these insights. Introna's (2003) use of a Foucauldian approach to demonstrate the establishment of regimes of truth follows a similar logic. We nevertheless hope to have shown that this is a plausible way, but invite the IS community to consider alternative means to identify and challenge ideological hegemony.

Acknowledgments

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Appendix A: Examples from the Empirical Content Analysis

Table A1 presents examples extracted during the content analysis step of the method.

Table A 1: EXAMPLES FROM THE EMPIRICAL CONTENT ANALYSIS

Validity claim	Underlying assumption/perspective	Testing criteria	Evidence of distortion
Comprehensibility	Compliance is a simple concept	Lack of definitional clarity.	More than 10 studies failed to clearly define compliance/noncompliance.
Truth	Self-report surveys capture reality	Common method bias	Heavy use of common methods and a single data source. Focus on self-report methods. Few multi-level studies.
Sincerity	Naturalizing behavior through policy is good	Connotative language	Heavy focus on policy, control, and punishment as necessary. Policy, control, and punishment viewed as mostly positive. Word counts for these words were in the top 50 most used words.
	Employees' behaviors are not and should not be self-directed		Motivation, particularly intrinsic motivation, was rarely mentioned in the literature.
Legitimacy	Ontology and epistemology	Lack of diverse perspectives	Only 3 studies adopted a non-positivist approach.
	Focus on employee perceptions		Few multi-level studies. Heavy focus on self-report methods.
	Policy as canonical		Policy was mostly viewed as static and unquestionable.
	The meaning of compliance/noncompliance is shared by the organization and employees		Compliance/noncompliance was mostly viewed from organizations perspective. Socially negotiated views of compliance were missing from the literature.
	Focus on punishment and control		More than 600 occurrences of the word punishment, more than 400 occurrences of the word sanction, and more than 900 occurrences of the word control across studies. All three words were in the top 50 most used words.

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