

# What do researchers cite in their Literature Review sections? An exploratory study of citations in Information Systems research articles

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## Abstract

The Literature Review (LR) section is an integral part of a research article (RA) where the author needs to develop a theoretical groundwork to anchor his/her own study. However, the part-genre always eludes novice writers, which involves deciding what to cite from relevant past literature and what goals cited ideas serve therein. Insights are thus necessary into how experienced/expert writers address such issues. Unfortunately, there has been a dearth of research into this topic, with existing work focusing mainly on formal features and generic functions of source use. Motivated by the gap and the pedagogical need and grounded in Swales's (1990) CARS model and Kwan and Chan's (2014) semantic typology of citations, this study is an attempt to examine semantic attributes of source ideas that get cited in different parts of LR sections of Information Systems RAs following a behavioral science research (BSR) paradigm. Findings reveal that distinct types of source ideas are cited, which are associated with the specific moves/steps of the LR sections and the BSR paradigm. A comparison of some of the cited ideas with the original ones from the source texts demonstrates that the latter have been re-contextualized to varying degrees to advance the arguments that the writers make in their LRs. Taken together, the study's outcomes suggest that using a move-specific approach can yield useful insights into source use in LRs. Implications for citation teaching and future citation research will be drawn.

**Keywords:** citation content, literature reviews, move analysis, Information Systems, re-contextualization

## Resumen

### *¿Qué citan los investigadores en la sección de revisión bibliográfica? Un estudio exploratorio de las citas en los artículos de investigación del área de Sistemas de información*

La revisión bibliográfica es una sección fundamental de un artículo de investigación en la que el autor necesita desarrollar una base teórica para sustentar su propio estudio. Sin embargo, esta sección, que implica decidir qué citar de la bibliografía previa y a qué objetivos responden las ideas citadas en ella, tiende a eludir los artículos de escritores noveles. Por ello, es necesario saber cómo los escritores experimentados o expertos abordan estas cuestiones. Lamentablemente, la investigación sobre este tema es escasa y los trabajos existentes se centran principalmente en las características formales y en las funciones genéricas del uso de las fuentes. Teniendo en cuenta este vacío y su necesidad pedagógica, este estudio, basado en el modelo CARS de Swales (1990) y en la tipología semántica de citas de Kwan y Chan (2014), trata de examinar los atributos semánticos de las ideas fuente que se citan en diferentes partes dentro de la sección de revisión bibliográfica en artículos del área de *Sistemas de información*, siguiendo un paradigma de investigación de las ciencias del comportamiento. Los resultados revelan que se citan distintos tipos de ideas fuente que se asocian con los movimientos/pasos específicos de las secciones de revisión bibliográfica y el paradigma de investigación de las ciencias del comportamiento. Una comparación de algunas de las ideas citadas con las originales de los textos fuente muestra que estas últimas han sido recontextualizadas en diferentes grados para avanzar en los argumentos que los escritores presentan en sus secciones de revisión bibliográfica. En conjunto, los resultados del estudio sugieren que utilizar un enfoque específico en el movimiento puede generar información útil sobre el uso de las fuentes en las revisiones bibliográficas. Además, se extraen implicaciones para la enseñanza y para la futura investigación sobre la citación.

**Palabras clave:** contenido de las citas, revisión de la bibliografía, análisis de movimientos, Sistemas de información, recontextualización.

## 1. Introduction

The Literature Review (LR) in research writing has drawn much attention among EAP scholars in recent years (Kwan, 2006; Kwan et al, 2012; Bruce, 2014; Chen & Li, 2019; Gil-Salom & Soler-Monreal, 2014; Peng, 2019; Xie, 2016) owing to its strategic importance in various research genres. One of the key functions of the LR is to signal to the reader the wider research

community to which the writer's study belongs. In some LRs, writers present and defend their theoretical frameworks and other important aspects of their studies (Berkenkotter & Huckin, 1995; Hart, 1998). These functions call for a critical engagement with past literature and hence a heavy reliance on source use.

Citing in LRs often presents different sorts of challenges to novice writers, which are manifested in various forms of anomalies. Bibliomaniac referencing (Belcher, 1994), laundry-listing of citations (Rudestam & Newton, 2007), and indiscriminate citing (Ridley, 2012) are those highlighted in the literature. The problems point to writers' lack of authorial control over what they cite (Ridley, 2012; Kamler & Thomson, 2006) and, more importantly, a misconception of LRs. Rather than seeing it as a strategically developed narrative of existing scholarship to advance their studies, many writers mistake LR as an encyclopedic description of a field of studies to display their knowledge (Rudestam & Newton, 2007). Addressing what many supervisors and reviewers may see as aberrant citing, some research writing manuals have started to provide advice on source use in general (Paltridge & Starfield, 2020; Swales & Feak, 2012) and some on its use in LR writing in particular (Hart, 1998; Ridley, 2012; Feak & Swales, 2009; Swales & Lindemann, 2002). Unfortunately, very few of them have dealt with what writers need to cite in specific parts of LRs and rhetorical purposes cited ideas serve in the parts. Instruction in LRs to date seems to emphasize mostly the widely established CARS (Create-a-Research-Space) model (Swales, 1990) as a schema to organize the part-genre, with little attention given to how specific moves/steps draw on source ideas. The pedagogical paucity could be explained by the lack of empirical research on which instruction can draw. Indeed, despite the plethora of citation research conducted by EAP scholars, much of the work has focused on lexicogrammatical features and functions of citations (e.g., Hyland, 1999; Petric, 2007; Samraj, 2013; Swales, 1990) rather than their propositional content. Addressing the empirical and pedagogical voids in the literature, we present in this paper an investigation of semantic attributes of source ideas referred to in specific moves/steps of LR sections of research articles (RAS) published in Information Systems journals. We argue in this paper that what gets cited is constrained in part by the moves/steps in which the citations situate (Kwan & Chan, 2014).

## 2. Literature review of citation studies

With referencing being a key requirement in scientific research, citation over the years has been studied by scholars not only in Applied Linguistics but also in Information Science and Sociology of Science (White 2004). Information scientists interested in bibliometrics and scientometrics tend to see citation as a normative/reward system (White 2004). Much of the scholarship in the field tends to focus on the relationships between citing papers and those cited, gauging the value and impact of scientific publications (Lang et al., 2020; Liu et al., 2014; Sun & Zhu, 2012). Sociologists of scientific knowledge on the other hand have their focuses on citing as acts of scientific bricklaying and persuasion (Gilbert, 1976, 1977; Merton, 1973; Small, 2004). They investigate behind-the-scene practices to understand social construction of knowledge (Gilbert, 1976, 1977; Law & Williams, 1982) and private intentions of citing (Gilbert & Mulkway, 1984; Myers, 1985). Sharing some of the views of scholars of the two fields, applied linguists see citation as an ethical and rhetorical practice but they are more concerned with its discursal and textual features such as linguistic realizations that might serve various rhetorical ends (Harwood, 2004). Within the domain of EAP, work has often been pedagogically motivated (Charles, 2006; Hyland, 1999; Swales, 1990).

One commonality of the large body of work produced in the three fields is the concern with classifying citations and various taxonomies have been generated. Many of the schemes focus on citation functions<sup>1</sup> with evidence drawn from textual contexts or ethnographic data (see, e.g., Chubin & Moitra, 1975; Harwood, 2009; Liu, 1993; Moravcsik & Murgugesan, 1975; Peritz, 1983; Petric' 2007; Petric' & Harwood, 2013; Spiegel-Rösing, 1977; Swales, 1986). With its emphasis on language, some of the taxonomies developed in Applied Linguistics concern primarily lexico-grammatical features of citations (e.g., Hyland, 1999, 2002; Thomas & Hawes, 1994; Thompson, 2005; Thompson & Tribble, 2001; Thompson & Ye, 1991). While the taxonomies shed light on various aspects of citations in different ways, translating them into instruction in LR writing is not without difficulties. One is that the functional categories are mostly generic and do not particularly show how they can be applied in specific parts of a research text. Secondly, they do not address citation content. What sorts of ideas do writers tend to cite in a particular move of an LR? What shape the citations of such ideas? Moravcsik and Murugesan (1975) and Finney (1979) are among the few that seem to be able to answer the questions. Their schemes,

though show predominantly functional categories, does include ‘concept’, ‘method’, and ‘tool’ that are more concerned with citation content. Yet, their schemes do not particularly show whether these three types of ideas are cited in specific sections of a research text. Among the different studies documented in the literature, we find Kwan and Chan’s (2014) section-specific citation analysis the most germane to the current study. Analyzing source ideas in different moves of the results and closing sections of RAs in Information Systems, the authors postulated three macro types of epistemic matters (entities) commonly cited in research texts, namely, theoretical<sup>2</sup>, methodological<sup>3</sup> and research (see Figure 1).

Citation Category	Epistemic Entities	Possible types of epistemic entities	Possible types of content about the entities
Theoretical citation	Conceptual entities	A theory A concept	The name of a theory/concept A hypothesis A definition of a concept
Methodological citation	Methodological Entities	A research methodology/ Instrument/protocol	The name of a research approach/instrument/procedure A specific characteristic of a research instrument/procedure
Research citation	Research activities	A research study A group of research studies	The aim/focus of a research study Research finding

Figure 1. Kwan and Chan’s (2014) semantic typology of citations (p.31).

Theoretical citations carry theories or concepts. They may be shorthand citations (Hyland, 1999) bearing just names of theories (see Text 1). They can also be definitions of constructs (Text 2) or propositional statements (Text 3).

### Text 1

*Castells’ theory of network society* (Castells, 2000) and *Tammen’s power transition theory* (Tammen, 2000) provide perspectives that are germane in this regard.

### Text 2

Cognitive trust refers to *an interpersonal trust based on rational thinking* (Lewis & Weigert, 1985).

### Text 3

Finally, homophily theory (e.g., McPherson et al., 2001) suggests that *people who perform at a similar level are more likely to interact repeatedly with each other*.

Methodological citations relate research approaches mostly (see Text 4) though occasionally more concrete techniques or procedures are included.

#### Text 4

We chose to use *Strauss and Corbin's (1990) [grounded theory] approach...*

Research citations refer to different aspects of empirical work such as research aims (Text 5) or research findings (Text 6) usually signaled by research-related verbs such as “aim at” and “reveal”.

#### Text 5

Casamayor et al. (2010) similarly *aim at detecting* NFRs...

#### Text 6

Animesh et al. [1] *revealed that experiential factors have a significant impact on users' intention to purchase virtual items in an SVW.*

Taking the 3-category scheme to guide the coding of citations in their corpus, Kwan and Chan (2014) noticed finer types in each category with each serving particular purposes in specific moves of the results and closing sections. Their findings led them to develop a section/move-specific and semantic-functional citation typology, suggesting the promises that the move-based approach holds for pedagogically-motivated citation analyses.

Following Kwan and Chan (2014), the current study examines source ideas cited in specific moves/steps in LRS in Information Systems RAS by drawing on their citation classification scheme as well as the widely-established CARS model (Swales, 1990) originally postulated for RA Introductions but subsequently found applicable to LRS in theses and RAS (Kwan, 2006; Kwan et al., 2012; Gil-Salom & Soler-Monreal, 2014; Soler-Monreal, 2015; Tessuto, 2015; Tseng, 2018).

The CARS model assumes that writers follow three tactical moves to create the niches of their studies in competitive publishing ecologies. The three moves are Move 1 *establishing a territory*, Move 2 *establishing a niche*, and Move 3 *occupying the niche*, with each realized in identifiable steps. It is argued here that the moves and their respective steps to a large extent constrain what might get cited therein. In Move 1, for example, when writers establish the territories of their studies, they tend to employ the steps of characterizing existing knowledge (e.g., theories and concepts) associated with their

research topics and surveying relevant research activities by citing extensively (Kwan, 2006; Swales 1986, Swales, 1990, 2004). Source ideas found in these two steps quite likely fall into the categories of Theory and Research of Kwan and Chan's (2014) taxonomy. Move 2, an evaluative move, may cite ideas pointing to theoretical or methodological issues. The overall aim of the current study is to explore whether such speculations can be borne out empirically. Specifically, it seeks to address three analytical questions:

- 1) In which moves and steps of the LR sections do citations usually occur?
- 2) What ideas tend to be cited in the identified moves and steps of the LR sections?
- 3) What functions do the ideas serve in relation to the moves and steps of the LR sections?

### 3. Methodology

#### 3.1. Information systems

RAS in Information Systems (IS) was chosen for this study. IS has an interdisciplinary origin, drawing heavily on theories, concepts, and research methods from various reference disciplines (e.g., computer science, management, sociology, social psychology) to study human and organizational issues regarding the development, application, and management of IS (Avgerou & Cornford, 1993). The field thus has a multi-epistemological landscape with behavioral science research (Martin & Smith, 1995), design science research (Hevner, 2007), and interpretive research (Klein & Myers, 1999) often discussed in the literature. Owing to the limited space, only LRS in behavioral science research (BSR) RAS were analyzed in this paper.

BSR is a positivist paradigm, which aims to develop and test a theory that explains or predicts an IT-related phenomenon and its possible impacts on organizations and individuals such as the impacts of the use of smart tourism technologies (e.g., smartphone Apps) on travelers' travel planning (Huang et al., 2017). BSR typically follows a hypothetico-deductive approach (March & Smith, 1995), which begins with the formulation of a theory comprising a set of hypotheses about associative relationships between

phenomena. The hypotheses are then validated through quantitative methods involving statistical testing of data collected from sources such as surveys and experiments (Lee, 1989).

### **3.2. Data collection**

The data under study were sourced from reputable IS journals. An online search was first conducted on the SJR (Scientific Journal Rankings) computer science, information systems database<sup>4</sup> to identify high-ranking IS journals, which yielded a total of 311 journal titles. Then the journals were rank-ordered according to their impact factors. The top 50 were screened. Among these were six belonging to the Senior Scholar's Basket of Eight considered by the Association of Information Systems as the most prestigious (AIS, 2011). The six journals were eventually chosen<sup>5</sup>.

A total of 30 BSR RAS published in 2010-2018 were selected using a judgment sampling method. All these articles investigated associative relationships between IT-related phenomena with an LR section appearing between the Introduction and Methodology sections which was named with such section headings as Literature Review, Research Model and Hypotheses, Theory-Building and Hypothesis Development, or Model Development (cf., Kwan, 2017). The LR texts were extracted for analysis. The corpus has a size of 108,974 words and an average word count of 3,632 per text.

### **3.3. Data analysis**

#### **3.3.1. Move/step analysis**

A move/step analysis was performed to identify the moves and their steps informed by the CARS model (Swales, 1990, 2004) and the model developed by Kwan et al. (2012) on IS LRS. Each text was first read to gain an overall understanding of its purpose, content and structure. Our observations showed that the LR sections had a clear aim to develop hypotheses, which were presented in different sub-sections. These hypotheses were tested in the writers' studies (cf., Kwan, 2006; Kwan et al., 2012). The reading of each LR text was followed by a preliminary parsing of move-step segments per section. Each segment was then coded accordingly. Codes were also created to accommodate new step segments. (See Section 3.3.3 for discussion of reliability and validity checks of coding). Figure 2 presents the move structure identified. It was observed that the move structure was realized in

a simple 1-2-3 pattern and sometimes it was manifested in cyclical patterns (e.g., 1-2-1-3).

<b>M1 Establishing a territory</b>	
S1A	Claiming centrality
S1B	Making topic generalizations
S1C	Reviewing items of previous research
<b>M2 Establishing a niche</b>	
S2A	Counter-claiming
S2B	Indicating a research gap
S2C	Question-raising
S2D	Continuing a tradition
S2E	Making inferences
<b>M3 Occupying the niche</b>	
S3A	Outlining purposes
S3B	Announcing present research
S3C	Presenting hypotheses
S3D	Defining the theoretical notion(s) used
S3E	Describing the notion(s) used
S3F	Describing the theory used
S3G	Indicating the next (sub-)section

*Note: Move is abbreviated as M. For example, Move 1 is referred to as M1. Steps are also abbreviated as S. For example, S1A, S1B, S1C, and S1D mean the respective steps of M1*

Figure 2. The move structure of the BSR LRS.

### 3.2.2. Citation analysis

A citation analysis was conducted after the move coding was completed. A citation is defined here as a text segment comprising a unit of ideas taken from a single source or generalized from multiple sources, which can be realized in a wide range of grammatical units, ranging from noun phrases to subordinate and main clauses and even sometimes spanned several main clauses (see the italicized parts in Texts 7 and 8).

#### **Text 7**

We draw on *attentional control theory* (ACT) (Eysenck et al. 2007) to explain how negative emotion influences mouse cursor distance and speed.

### Text 8

Recently, in addition to being used in studies of initial adoption and continuance usage, the value-based model has also been used to understand the intention to switch or change. Ko et al. [44] *developed a value-based model to understand why an organization's users resist changing to innovative information systems. They found that switching benefits have a positive impact and switching costs have a negative impact on perceived value.*

All citations were first marked up and skimmed for the sorts of ideas cited to establish an overall picture of the types of citation content in the corpus. Ideas in each citation were then re-read and classified tentatively using Kwan and Chan's (2014) typology (see Figure 1) as a preliminary scheme. Ideas not appearing in the typology were placed in new categories. Lexical cues were resorted to facilitate the coding. Texts 7 and 8 are used to illustrate classifying decisions. In Text 7, the term "attentional control theory" provides an explicit signal that it is a theoretical citation. However, as only the name of the theory was mentioned, it was placed in a Theoretical subtype of Terminology. In Text 8, the research acts represented by the two verbs "*developed*" and "*found*" indicate that what gets cited in the sentences are parts of a study (see the italicized parts). The segments were placed respectively in two Research sub-types of Act and Finding. Figure 3 presents the semantic typology of citations developed (see Appendix for the glosses and examples of the cited ideas in the typology).

Citation categories	Types of entities	Types of ideas about the entities
Theoretical citations	Theory, model, & framework Concept	<b>Terminology</b> The name of a theory/concept
		<b>Potential</b> The potential of a theory/concept
		<b>Definition</b> The definition of a concept
		<b>Component</b> The component of a theory/concept
		<b>Proposition</b> The proposition of a relationship
		<b>Application</b> The application of a theory/concept
		<b>Theory Evaluation</b> The evaluation of a theory/concept
Research citations	A single research study A group of research studies	<b>Aim/Focus</b> The aim/focus of research
		<b>Act</b> The research act performed
		<b>Finding</b> The finding of research reported
		<b>Claim</b> The research claim made
		<b>Research evaluation</b> The evaluation of research
Non-epistemically framed citations*	Real-world phenomenon	<b>Problem-associated phenomenon</b> IT- or business-related problem
		<b>Non-problem-associated phenomenon</b> Event and human behavior

Figure 3. The semantic typology of citations developed in the present study.

It is interesting to see that no Methodological citations posited in Kwan and Chan's (2014) classification were observed in the corpus. A very likely reason is that the major goal of the LR sections is to develop hypotheses for testing. Worth mentioning also is the presence of non-epistemically-framed citations as illustrated in Texts 9 and 10, which indicate no signs of the epistemic nature of the cited content (see the italicized parts).

### Text 9

...The need to involve various stakeholders in IT projects is well recognized  
 ... SE [senior executives] are often key decision makers that operate behind  
 the scene to marshal key resources that projects need in order to be

successful. *Lack of support from SEs has been the number one risk in IT projects from the perspective of IT PMS [project managers]* (Smith et al., 2006).

#### Text 10

... It is believed that in today's stressful society, escapism is increasingly necessary for many people. *Individuals engage in some behaviors to escape unpleasant realities or to distract themselves from problems and pressures* [37]. Such behaviors are often pleasure-oriented, such as.

However, our random checks of some of their original sources found that some of the non-epistemically framed citations are in fact results reported in the closing sections of the source texts as exemplified by Texts 11 and 12.

#### Text 11

**From Table 1, it can be seen that** lack of top management commitment to the product was undoubtedly perceived to be the most important risk. It received the highest mean and was also ranked the most times.

#### Text 12

Persons who engaged in escapism **were found to be** over age 30, highly educated, and adherents to minority regions. They were above average in seeking sensory arousal and in imaginal capacity. Further they felt socially estranged in terms of their personal values.

As can be seen, lexical cues of research findings in the source texts (see the parts in bold) were all removed in the citing texts in which the findings were re-contextualized (Linell, 1998) and recast as accepted or uncontested truth (Buckingham & Neville, 1997).

### 3.3.3. Coding reliability and validity

Both the move and citation procedures were performed in multi-iterations. The first author of this paper coded 15 LRs with the help of the data analysis software 'MAXQDA'. To optimize objectivity and reliability, the coded data was checked by another researcher (the coder). Prior to coding the data, the coder was briefed about the objectives of the study, the move framework and the citation typology used, and how to go about doing the coding. She then was asked to code one LR to familiarize herself with the coding scheme. Following that, she coded the LRs that the author had coded. The coded segments were compared with disagreements resolved through discussions

between the author and the coder. Changes were then made to the developing typologies where needed.

## 4. Results and discussion

### 4.1. Move-step distribution of citation types

Our first analytical question concerns the distribution of citations in different moves/steps of the LRS. Results are presented in Table 1, which shows that a total of 1,499 citation counts were registered. M1 bears the most counts, with the majority found in S1B and S1C. This is in stark contrast to the much fewer counts in M2 where the citations mainly occur in S2A. M3 shows the fewest citations with most found in S3D.

Move(M)/Step(S)	No. of citations found (%)
<b>M1 Establishing a territory</b>	
S1A Claiming centrality	33 (2.20)
S1B Making topic generalizations	789 (52.6)
S1C Reviewing items of previous research	529 (35.3)
<b>Total (M1)</b>	<b>1,351</b>
<b>M2 Establishing a niche</b>	
S2A Counter-claiming	72 (4.80)
S2B Indicating a research gap/need	10 (0.70)
S2C Question-raising	-
S2D Continuing a tradition	-
S2E Making inferences	9 (0.60)
<b>Total (M2)</b>	<b>91</b>
<b>M3 Occupying the niche</b>	
S3A Outlining purposes	-
S3B Announcing present research	-
S3C Presenting hypotheses	-
S3D Defining the theoretical notion(s) used	46 (2.80)
S3E Describing the notion(s) used	8 (0.80)
S3F Describing the theory used	3 (0.20)
S3G Indicating the next (sub)section	-
<b>Total (M3)</b>	<b>57</b>
<b>Total (M1 + M2 + M3)</b>	<b>1,499</b>

Table 1. Move-step distribution of citations in the LRS.

These results are in fact not surprising given that each move has its distinct rhetorical purpose. With M1 establishing the territory to situate within a community and showing the “narrative” of the field, it is only natural that

the writers draw heavily on existing literature. This sharply contrasts with the far fewer citation counts in M2 where the writers comment on what is surveyed in M1, which presumably requires more of the writers' own voices. Likewise, in M3 where the writers need to show their own research or hypotheses, there is less need for engaging with past literature.

## 4.2. Distribution of citation types across different steps

In this section, we take a closer look at the ideas cited in the specific steps to seek answers to the second analytical question. Recall the typology of citation content shown in Figure 3, which shows that the ideas identified fall in three main citation categories and their sub-types. Segments of each category and their sub-types were counted. The raw frequency (RF) counts of each sub-type were converted to mean frequency (MF) counts per 1,000 words of text.

### 4.2.1. Theoretical citations

Theoretical citations rank first in their frequency counts (a total of 804), which are sub-classified into Terminology, Potential, Definition, Component, Proposition, Application, and Theory Evaluation. Table 2 presents their move-step distribution.

Steps	S1A	S1B	S2A	S3D	S3E	S3F	Total (A)
Type of idea	MF(RF)	MF(RF)	MF(RF)	MF(RF)	MF(RF)	MF(RF)	
Terminology	-	0.37(40)	-	-	0.07(8)	0.03(3)	0.47(51)
Potential	-	0.40(44)	-	-	-	-	0.40(44)
Definition	-	2.33(254)	-	0.39(42)	-	-	2.72(296)
Component	-	0.47(51)	-	-	-	-	0.47(51)
Proposition	-	2.99(326)	-	0.02(2)	-	-	3.01(328)
Application	-	0.17(19)	-	0.02(2)	-	-	0.19(21)
Theory evaluation	0.07(8)	-	0.35(38)	-	-	-	0.42(46)
<b>Total (B)</b>	0.07(8)	6.74(734)	0.35(38)	0.42(46)	0.07(8)	0.03(3)	

Table 2. Move-step distribution of cited theoretical matters in the LRs.

Definition and Proposition figure markedly more than the other five (see Total A). However, the seven subtypes show distinct cross-move/step distribution (see Total B). In M1, only S1A and S1B bear theoretical citations, with the latter displaying more counts of Definition and Proposition. However, in M2, only S2A has a heavy presence of Evaluation. In M3, S3D shows a high count of Definition.

#### 4.2.2. Research citations

Research citations rank second in their frequency counts (a total of 578). They have five subtypes: Aim/Focus, Act, Finding, Claim, and Research Evaluation. Table 3 shows their distribution.

Steps	S1A	S1C	S2A	S2B	S2E	
Type of idea	MF(RF)	MF(RF)	MF(RF)	MF(RF)	MF(RF)	<b>Total (A)</b>
Aim/Focus	0.03(3)	1.16(126)	-	-	-	1.18(129)
Act	-	0.83(90)	0.05(5)	-	-	0.87(95)
Finding	-	2.36(257)	0.04(4)	-	0.08(9)	2.48(270)
Claim	-	0.81(88)	0.07(8)	-	-	0.88(96)
Research Evaluation	-	-	0.09(10)	0.09(10)	-	0.18(20)
<b>Total (B)</b>	0.03(3)	5.15(561)	0.25(27)	0.09(10)	0.08(9)	

Table 3. Move-step distribution of cited research matters in the LRs.

Aim/Focus and Finding are much more common than Act, Claim, and Research Evaluation (see Total A). These ideas are distributed unevenly across different steps (see Total B). In M1, S1C features a variety of subtypes of research citations, with Finding cited most frequently, followed by Aim/Focus, Act and Claim. However, there are far fewer research citations in M2, which are located mainly in S2A.

#### 4.2.3. Non-epistemically-framed citations

Non-epistemically-framed citations are the least common with a total of 117 frequency counts only. Their move-step distribution patterns are shown in Table 4. As can be seen, Problem-associated Phenomenon occur at a higher frequency rate than Non-Problem-associated Phenomenon (see Total A). The two types of citations appear mainly in S1B (see Total B).

Steps	S1A	S1B	S2A	
Type of idea	MF(RF)	MF(RF)	MF(RF)	<b>Total (A)</b>
Problem-associated phenomenon	0.09(10)	0.43(47)	0.06(7)	0.59(64)
Non-problem-associated phenomenon	0.11(12)	0.38(41)	-	0.49(53)
<b>Total (B)</b>	0.20(22)	0.81(88)	0.06(7)	

Table 4. Move-step distribution of cited non-epistemically-framed matters in the Lrs.

### 4.3. Functions of the cited ideas in the move-steps of the lrs

This section addresses the third analytical question by providing a qualitative examination of how some of the predominant citation types are used in relation to the rhetorical purposes in the specific moves in which they occur and what are discussed in the neighboring moves.

#### 4.3.1. Theoretical citations: Definitions and Theoretical Propositions

Definitions falling under the Theoretical category occur quite frequently in S1B and S3D. Text 13 shows examples of definitions of the concept of privacy (see the italicized parts).

##### Text 13

[S1B] As shown in Figure 1, the dependent variable (DV) of our research model is perceived privacy. ... For example, Westin (1967) *refers to 'states of privacy'* ... Also, Warren and Brandeis's (1890) *definition of general privacy as a 'right to be left alone' implicitly refers to a state – of being left alone*. Similarly, MIS researchers have referred to privacy as a state. For example, Dhillon & Moores (2001, p. 2) *defined Internet privacy as 'the seclusion and freedom from unauthorized intrusion'*, and Di Pietro & Mancini (2003, p. 78) *defined privacy as 'the freedom of not having someone or something to interfere in our life without our permission'*. ... Since, per definition, perception is the process of attaining awareness or understanding of mental and sensory information, an individual's evaluation of his or her own mental and or/physical state of being is carried through his or her perceptions. ... [S3D] We thus adapt the Schoeman's (1984) conceptual definition of privacy in general to information privacy: *perceived privacy is an individual's self-assessed state in which external agents have limited access to information about him or her*.

Definitions are crucial for non-technical readers. However, they do not need to be cited from sources if they are to educate readers only. It is thus argued here that definitions play a more critical role in the LRS. They are needed to reduce conceptual ambiguity such that they can be measured objectively (Efron & Ravid, 2019; Jaccard & Jacoby, 2010; Shoemaker et al., 2004). When cited from sources, definitions are cast as established and validated by prior researchers, thus legitimatizing their use in the writers' studies.

Theoretical propositions also figure prominently especially in S1B. They mostly describe associative relationships between concepts or phenomena, as illustrated by Text 14 (see the italicized part).

### Text 14

**[S1B]** TAM [Technology acceptance model] suggests that *perceived ease of use is positively related to perceived usefulness* and that *perceived ease of use and perceived usefulness together influence behavioral intentions* [17]. ... Usefulness represents the gain in performance, and ease of use corresponds to the reduction in cognitive effort, i.e., the cost associated with the use of the system.

The frequent occurrence of theoretical propositions in S1B is somewhat expected in the LRs given that one major concern of BSR is with hypotheses. Hypotheses to test should at least stand a chance of being proved valid empirically. Grounding the hypotheses in work by predecessors is hence one way to provide preliminary empirical support for them (Fitzpatrick & Wallace, 2006; Sutton & Staw, 1995). The frequent occurrence can also be explained by the strong presence of S2E where the writers draw on existing propositions to infer possible connections between phenomena to legitimize the formal hypotheses that they announce in S3D, a point that will be elaborated in the next section.

### 4.3.2. Research citations: Aims/focuses of studies and their findings

Aims/focuses of studies and their findings under the category of research citations occur mostly in S1C. As illustrated in Text 15, the writers generalize the key focuses of “related studies” through a series of noun phrases (see the italicized part), which are then followed by a sentence generalizing the result of a positive relationship between a group of phenomena demonstrated in the same cited studies (the underlined part).

### Text 15

... **[1C]**... Related studies have been conducted on *the motives and effects of customer participation on service production and delivery* [4,23], *the impact on service quality of customer participation* [18], *the impact of customer participation regarding the level of satisfaction on repurchase and preference* [26], and finally, *the effect of customer participation on the service provider* [42]. We found that most studies on *participation demonstrate a strong connection to positive attitudes, satisfaction, and preferences for a brand or for a company.* **[2E]** Therefore, we can assume that customers, who frequently participate in e-WOM, have a higher sense-of-connectedness and membership than those who do not. In essence, increased levels of customer participation are related to higher levels of e-loyalty to online shopping malls. After all, e-WOM participation may enhance a customer’s social site identification. **[3C]** Based on the literature review, we propose these hypotheses:

H2a. e-WOM participation has a positive impact on personal site identification.

H2b. e-WOM participation has a positive impact on social site identification.

Text 16 further provides examples of cited findings (see the italicized parts).

### Text 16

... [S1C] Several studies also argued or found evidence that the timeliness (or recency) of online information influences users' information processing and adoption, and even behavior of choosing products or services. For example, Cheung et al. [86] *suggested that the timeliness of information is positively associated with users' perceived usefulness of information in online reviews*. Filieri and McLeay [85] *indicated that there is a positive relationship between information timeliness and travelers' information adoption from online review sites*. [2E] With these findings, we argue that timeliness will be positively associated with users' information processing from the content in social media, which will eventually influence their destination image formation. [S3C] Therefore, we hypothesize that

H1c. Timeliness of tourism information in social media is positively associated with the cognitive image of a destination.

H2c. Timeliness of tourism information in social media is positively associated with the affective image of a destination.

Citing of research aims/focuses and findings in S1C, mostly couched in terms of relationships, is not surprising when we consider what the writers do in S2E as illustrated in Texts 15 and 16 (cf. the propositions in S1B). The writers of the two texts draw on the associative relationships surveyed in S1C to infer in S2E the connections between the phenomena, and the inferences are then turned into formal hypotheses in S3D. This arguably is the reason for the high frequency of citations of theoretical propositions in S1B. Thus what to cite in each move is not only dictated by the goal of BSR but also what to achieve in a subsequent move.

## 5. Conclusion

### 5.1. Summary and contributions

One of the biggest problems we observe in LRS produced by novice writers is indiscriminate use of source ideas, leading to bibliomaniac, if not laundry-listing, citing. This phenomenon reflects a lack of authorial control and an

incomplete knowledge about what can be cited in LRs to make clear to the reader the arguments. What then can be or need to be cited? Addressing this question, we conducted an analysis to examine the types of ideas cited in the different moves/steps of the LRs the BSR RAs published in IS with the hope to generate a typology that can be used to inform citation teaching.

Our study reveals that a wide variety of source ideas are cited across the three moves and their respective steps of the LR texts, with Definition and Proposition found mostly in S1B and Finding and Aim/Focus occurring mainly in S1C. As discussed, the predominance of these citation types is mainly shaped by the inferencing step of 2E and the hypothetico-deductive nature of BSR.

One of the contributions of this study is the semantic typology developed to describe different types of ideas cited in the different moves/steps of the LRs (see Figure 3) though not all of them appear in the same degree of frequency. Yet, while we are confident about the theoretical and research citations and their respective sub-types, we are less so about those grouped under the non-epistemically framed category, some of which were re-contextualized findings, which may be a line of inquiry for future research.

Our typology is distinct from many of the others reported in the literature (e.g., Moravcsik & Murguesan, 1975; Peritz, 1983; Harwood, 2009), which did not take into consideration specific parts of a research text where citations occur and how the parts dictate the choice of source ideas. Nor did these typologies consider the epistemological paradigm that can constrain the ideas to cite. On the other hand, our typology is also distinct from the one reported in Kwan and Chan (2014) originally developed to describe citations in the results and closing sections of IS RAs. However, our findings add further support to the value of move/step-specific analysis of citations.

What we found, nonetheless, needs to be further validated is using a bigger corpus involving data from a larger number of disciplines and a wider range of epistemological paradigms (e.g., interpretivist research and design science research). The purpose is perhaps not so much to test the generalizability of our typology but to identify possible cross-discipline and cross-paradigm differences. Given the space constraint, we were not able to analyze how the categories of citations and their sub-types observed are realized syntactically, another line of inquiry that could be pursued in the future.

## 5.2. Pedagogical implications

Albeit the small scale of the current study, its findings shed light on instruction in source use in BSR LRS. For example, teachers may adopt the move structure and citation typology that we developed to guide their teaching. Alternatively, they may validate ours by performing a small-scale analysis of BSR LRS. Assuming that a teacher wants to carry out a text analysis on their own, we propose the steps below, which can be applied to develop a lesson for both IS and non-IS students. The goal of the instruction is to raise students' awareness of what they may need to consider citing in various move-steps of BSR LRS to serve specific rhetorical ends.

### *Text analysis*

To begin with, the teacher needs to choose a few LRS from BSR RAS. These texts can be drawn from journals of students' disciplines. The criteria explicated in Section 3.2 may be applied to inform the selection of BSR texts. The analysis can be conducted following the procedures presented in Sections 3.3.1 and 3.3.2. The move structure as well as the typology generated can then be used as heuristics to guide the design of instruction.

### *Designing the instruction*

It is important to first raise students' awareness of the goal of an LR in BSR writing (hypothesis development) and how it shapes what to present in different moves/steps as well as the ideas to cite therein. Students can be guided to understand these by conducting an analysis of an LR text. To this end, the LR text to analyze needs to have clear S1B, S1C, S2E and S3C at the least. These steps can be marked up using the steps' numbers [see the markup in texts we presented in Sections 3 and 4]. Questions are then developed to guide students to examine the moves/steps in which citations most frequently occur (e.g., S1B, S1C, S2A, etc.). In order not to overwhelm the students with too much analysis work, one section of the text with all the 3 moves and the key steps should suffice for close analysis. The following questions can be set to guide students' analysis of the text:

1. What is the major purpose of the LR text? [Answer: To introduce the hypotheses tested in the study]
2. What does the writer try to say in this section of the text [Answer: To develop a specific hypothesis]

3. What does the writer present in the parts numbered (e.g., S1A, S1B, S1C, S2A, S2E and 3C)? [Answer: To introduce existing knowledge, studies, making inferences, presenting a formal hypothesis, etc.]
4. Does the writer cite in the parts? In which of the parts does the writer cite most or least? What sort of ideas does the writer cite in the parts (theories, propositions, research findings, etc.)? [Answer: Theoretical propositions in 1B, Findings of studies in S1C, etc.] Why are the ideas cited? Why aren't research methods cited? [To prepare the reader for the inferences in S2E and the hypothesis in 3C.]
5. What have you learned in this task?

The analysis task can be concluded with the teacher's consolidation of students' observations, followed by the introduction of the CARS move structure and the citation typology developed by the teacher (or in this study). Students can also be reminded to establish an overarching goal to achieve in the LR (to develop a set of hypotheses for testing) and specific goals for each of its sections (presenting a specific hypothesis/es). The CARS model and typology can be used to help develop ideas in each of the sections. For example, in surveying existing research (S1C), students can introduce studies by highlighting their findings that demonstrate or suggest certain types of associative relationships. Alternatively, they may cite propositions or theories discussed in other studies. The types of ideas are to prepare the reader to see the inference made in S2E that speculates or asserts associative relationships that they will turn into a formal hypothesis in S3C. Here, students may need to be reminded of the importance of the inferencing step of S2E to help the reader see how the survey and citations in M1 lead to the formal hypotheses presented in M3.

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## NOTES

<sup>1</sup> These include discourse functions (e.g., comparing and contrasting) and rhetorical functions (e.g., negational and confirmational).

<sup>2</sup> cf. Moravcsik and Murugesan's (1975) "conceptual references".

<sup>3</sup> cf. Moravcsik and Murugesan's (1975) "operational references" or Finney's (1979) "methodological references".

<sup>4</sup> The journals are European Journal of Information Systems, Information Systems Journal, Information and Management, Journal of the Association for Information Systems, MIS Quarterly, and Decision Support Systems. <https://www.scimagojr.com/journalrank.php?category=1710&area=1700&type=j&order=sjr&ord=desc>

<sup>5</sup> The journals are European Journal of Information Systems, Information Systems Journal, Information and Management, Journal of the Association for Information Systems, MIS Quarterly, and Decision Support Systems.

# Appendix: The semantic typology of citations developed in this study

Citation category	Possible types of the entities	Possible types of content about the entities	Examples
Theoretical	<p>a theory/model/framework a notion</p>	<p><b>Terminology</b> The generic or proper name of a theory/concept</p> <p><b>Potential</b> The potential of a theory/concept, i.e., the ability that it has to perform a task (e.g., explain or predict a behavioral phenomenon)</p> <p><b>Definition</b> The meaning of a theoretical concept</p> <p><b>Component</b> The (structural) component of a theory/concept</p> <p><b>Proposition</b> The statement about a theoretical relationship, either causal or associative</p> <p><b>Application</b> The application of a theory/concept, i.e., the ways that it was/has been used for a certain purpose</p> <p><b>Theory Evaluation</b> The (positive or negative) evaluation of a theory/concept/perspective in terms of its strengths and weaknesses or the amount of support/attention that it has received</p>	<p>Both <i>Castells' theory of network society</i> (Castells, 2000) and <i>Tammen's power transition theory</i> (Tammen, 2000) provide perspectives that are germane in this regard.</p> <p>Social identity theory (SIT) can explain the participation behavior (e.g., social interactions) in online communities (Baggozzi &amp; Dholakia, 2002; Dholakia et al., 2004).</p> <p>Switching cost refers to the onetime costs that customers associate with the process of switching from one provider to another" (Bunham et al., 2003, p. 110)</p> <p>Social capital involves three distinct dimensions: cognitive, structural and relational (Nahapiet &amp; Ghoshal, 1998).</p> <p>TAM (Technology acceptance model) suggests that perceived ease of use is positively related to perceived usefulness and that perceived ease of use and perceived usefulness together influence behavioral intentions [17].</p> <p>Transaction cost theory has been used to explore strategic outcomes, including cost savings [20].</p> <p>The calculus perspective of privacy has been described as 'the most useful framework for analyzing contemporary consumer privacy concerns' (Culnan &amp; Bess, 2003, p. 326).</p> <p>While such reflections are important in regulating human behavior, they are often neglected in models of behavioral change (Bandura, 1999).</p>
Research	<p>a single research study a group of research studies</p>	<p><b>Aim/Focus</b> The main aim(s) or focus(es) of research, i.e., research areas/interests/problems/phenomena that prior researchers aim at or focus on pursuing in their research</p> <p><b>Act</b> The research act(s) carried out by prior researchers in their research, which mostly involve(s) processing or using research data and adopting or developing a theory/concept/method/technique/instrument</p> <p><b>Finding</b> The findings of research, i.e., empirical evidence and facts that prior researchers discovered based on the research data that they analyzed in their research</p> <p><b>Claim</b> The research claims made based on a (or a group of) previously cited research finding(s)</p>	<p>Research has tended to focus on the underlying mechanism of how IT capability contributes to excellent performance (e.g., Pavlou &amp; El Sawy, 2010; Rai &amp; Fang, 2010; Kim et al., 2011).</p> <p>Swanson [76] analyzes data from 250 college students and finds their fantasy experience is highly associated with decision making patterns.</p> <p>Smith et al (1986) developed an instrument, <i>Concerns For Information Privacy</i>, to measure individuals' concerns toward organizational privacy practices, including four dimensions: collection, errors, secondary use, and unauthorized access to information.</p> <p>Research has shown that moods can impact the perceptions, judgements and decisions of individuals (Isen et al., 1988; Schwarz &amp; Clore, 1996)</p> <p>In further research aimed at explaining workplace deviance, Lawrence &amp; Robinson (2007) explained that control can actually encourage deviance when it produces a perceived disparity between employee and employer, a phenomenon that has also been examined in criminological research (sources). They argued that the disparity and resulting resistance is a consequence of the violation of an individual's need for autonomy. It is thus not surprising that ...</p>

<p><b>Research Evaluation</b></p> <p>The evaluation of research in terms primarily of its limitations</p>	<p>Previous studies report inconsistent findings regarding whether the extent of personalization can shape the constraint-based and dedication-based mechanisms (Kim &amp; Son, 2009; Zhou et al., 2012).</p>
<p><b>Problem-associated phenomenon</b></p> <p>IT- or business-related problems that individuals or organizations encounter</p>	<p>Firms operating in a hostile business environment may encounter high tax burdens, governmental deference, inaccessible technical knowledge provided by educational institutions, fragile infrastructure, slow market growth, general economic downturn, or a lack of suitably qualified staff (Pueda-Manzanares et al. 2008).</p>
<p><b>Non-epistemically-framed</b></p> <p>A real-world phenomenon</p>	<p><b>Non-Problem-associated phenomenon</b></p> <p>Events or behaviors that involve individuals or organizations acting in particular ways to achieve certain purposes</p>