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Balancing theoretical and practical relevance in supply chain management research

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Abstract

Purpose – The discussion of rigor vs relevance is an ongoing debate in academic environment. Ambitions to fulfill one of these two objectives might not exclude the other. Instead, they could and should be achieved simultaneously. However, what seems to be missing in supply chain management (SCM) research is the unfolding of symmetrical balance between the two dimensions of relevance – theoretical vs practical relevance. The purpose of this paper is to advance the understanding of this symmetrical balance and to change the conversation to also include the practical relevance dimension.

Design/methodology/approach – The paper is based on literature studies as well as the results of a questionnaire survey distributed to the Danish Supply Chain Panel consisting of 113 supply chain executives (as per the beginning of 2017). A short interview about the questionnaire results was also carried out with three panel members.

Findings – With an increased focus on journal rankings, there is a risk of pursuing more theoretically relevant SCM research at the expense of practically relevant SCM research. Both types of relevance are important for growing the discipline. But the current development seems to favor theoretical relevance, further widening the gap with respect to practical applications. Practical relevance is important both in the knowledge production and in the knowledge transfer stages.

Research limitations/implications – There is a need to further explore different resources to close the gap between theoretical and practical relevance in SCM research. Researchers ought to follow an ambidextrous research strategy. This paper advises to bring back the core of the profession – the research process. This paper encourages researchers to be more creative and intensify the focus, equally, on both the theoretical and practical relevance in their research.

Practical implications – This research showcases a variety of different approaches for researchers to engage with practice so as to reduce any prejudices from both sides and enhance SCM decision-making processes. This paper recommends adding a new type of paper "practical paper" and including practitioners in the review board to evaluate the practical content of the research paper. This initiative would strengthen the interaction between researchers and practitioners.

Originality/value – This paper provides new insights on the need for symmetrical balance between theoretical and practical relevance being important for both academia and practice.

Keywords Relevance, Rigor, Journal ranking, Supply chain panel

Paper type Research paper

Introduction

Supply chain management (SCM) is still a young discipline. In order to gain a strong foothold and recognition among other academic disciplines, SCM scholars have been advised to improve consistency/effectiveness in their research (Mentzer and Flint, 1997; Flynn, 2008; Mentzer, 2008), to ground the contributions more on established theories (Defee *et al.*, 2010; Halldórsson *et al.*, 2007, 2015; Stock, 1997), to incorporate philosophy of science issues (Arlbjørn and Halldórsson, 2002; Aastrup and Halldórsson, 2008), and to develop new theories (Choi and Wacker, 2011; Ketchen and Hult, 2011; Wacker, 2008). SCM scholars, as is the case with researchers from other disciplines, have been witnessing an increased performance focus on not only academic output in high-ranking peer-reviewed academic journals, but also publishing articles in journals with significant impact factors (Adler and Harzing, 2009; Alvesson and Sandberg, 2013; Martin, 2012; McKinnon, 2013, 2017). This development has led to debates in academia concerning both its positive and negative

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effects on continuing or striving to become a bold researcher (Alvesson and Sandberg, 2013; Lambert and Enz, 2015; Simpson *et al.*, 2015). One issue is that the customers of such journals most often are other academics, and not practitioners (Martin, 2012), which point to a need for emphasizing what is relevant.

The discussion on rigor and relevance of research has come up several times during the last decades (Banks *et al.*, 2016; Lambert and Enz, 2015; Markides, 2007; Thomas *et al.*, 2011). This debate is centered on discussions about whether one should pursue rigorousness in their research at the expense of usefulness of the research or vice versa. Rigor is an issue in all types of research (i.e. quantitative, qualitative, or modeling) and is concerned with operationalizing variables, defining the right measures, scales, etc. (Denzin and Lincoln, 2011; Mentzer and Flint, 1997). Relevance is a question about whether the specific research is useful – either to theory or practice (Mentzer, 2008). Relevance and rigor concepts have often been discussed as exclusive choices; Mentzer (2008), on the other hand, has mentioned that both are necessary and not mutually exclusive. This research makes an attempt to interpret that extant research in SCM discipline is unbalanced with a stronger focus on rigor, with the risk of drifting into irrelevance (Christopher and Ryals, 2014; Narasimhan, 2018). Due to increased focus on journal ranking, discussions of the "relevance of research" seems relevant to revisit. Moreover, this exercise is of paramount importance because previous discussions of relevance are unclear about what type of relevance is in focus (either theoretical or practical). Being an applied discipline (Frankel *et al.*, 2008; Goldsby and Zinn, 2016; Lambert and Enz, 2015; Thomas *et al.*, 2011), the discussion of what is meant by relevance among supply chain academics is not trivial. There are important voices of concern about the apparent lack of practical relevance that needs to be addressed (Ellinger and Chapman, 2016; Lambert and Enz, 2015; McKinnon, 2013, 2017; Narasimhan, 2018; Näslund, 2008; Tang, 2016; Toffel, 2016; Woxenius, 2015).

The purpose of this paper is to change the conversation revolving around the relevance of SCM research so that it contains a balanced and simultaneous focus on both theoretical and practical dimensions. Besides, the paper makes an attempt to further advance the understanding of practical relevance as discussed by Nicolai and Seidl (2010) and Toffel (2016) by focusing on means to secure relevancy in the research questions (the problem of knowledge production (Carter, 2008; Van de Ven and Johnson, 2006)) and relevancy in the communication with practice (the problem of knowledge transfer (Carter, 2008; Van de Ven and Johnson, 2006)). This paper contributes to the relevance debate with a special emphasis on practical relevance and suggests an approach to improve practical relevance in knowledge production and knowledge transfer. Moreover, this discussion is primarily relevant for both researchers as well as journal editors. Data about these phenomena were collected from the Danish Supply Chain Panel consisting of supply chain executives from Danish enterprises. The main intention of including this data is to exemplify how the practical relevance (both in terms of knowledge production and knowledge transfer) is perceived. In other words, these data would help us in not only learning practitioner's opinion about relevancy, but also supplementing the work of Toffel (2016) in terms of suggesting a new approach for the researcher-practitioner interaction. To fulfill this purpose, the paper is further organized into five sections. In the next section, the conceptual foundation of rigor and different types of relevance are described. The succeeding section describes the method applied. This is followed by a section focusing on the analysis of the empirical data and discussion of the findings. The final section concludes the paper.

Conceptual foundation
Rigor and/or relevance
The debate on rigor and relevance has been centered on discussions pertaining to whether researchers should pursue rigorous research at the expense of the usefulness of the research

or vice versa. Rigor is an issue in all types of research (i.e. quantitative, qualitative, or modeling). Rigor is about operationalizing variables, defining the right measures, scales, etc. (Denzin and Lincoln, 2011). Relevance is a question about whether the specific research is useful either for theory or practice.

Mentzer (2008) discusses rigor in terms of antecedent justification and methodology consistency. Antecedent justification is about the constructs being used in the academic world is well grounded in theory; the constructs are operationalized properly; and the constructs are logically consistent with extant theory. Beyond such types of rigor, there is also methodological rigor that is concerned about the measures being valid and the right methods being used to answer the research question (Goffin *et al.*, 2012; Mentzer, 2008; Mentzer and Flint, 1997).

According to Thomas *et al.* (2011), the rigor and relevance debate falls into three categories: rigor needs to come first in order to prevent the dissemination of bad research that is simply not believable; relevance of academic research is clearly more important and one should avoid becoming overly rigorous or practically irrelevant; and both rigor and relevance are needed so that research is trustworthy and interesting. This paper supports the third option. Research must be both rigorous and relevant (Mentzer, 2008), where the trick is to blend research questions that are important to supply chain professionals with a strong foundation of theory and rigorous analytical methods (Flynn, 2008). However, we need to change the conversation about relevance by separating it more clearly into theoretical and practical dimensions which is further explored in the next sections.

The need for balancing theoretical and practical relevance

This paper argues for an increased consciousness to balance theoretical and practical relevance in SCM research (see Figure 1). The balance point between these two forms of relevance is further explored in the subsequent sections.

Theoretical relevance. Theoretically relevant research can be measured in terms of where the research is being disseminated. Ranking of journals in terms of quality is now a well-established metric used by faculties across all disciplines around the world. Journal rankings have led to extensive debate both in terms of different ranking lists (Adler and Harzing, 2009), the moderately close process for how these are composed, citation indexes, and other impact measures. Extant literature discusses both positive and negative consequences of this journal ranking approach. Alvesson and Gabriel (2013) summarize the positive side effects of this development as: clearer procedures and rules; standardization of work; efficiency in the labor process; smooth and predictable evaluation processes; and limited anxiety and worries associated with too much ambiguity and surprises. In contrast,

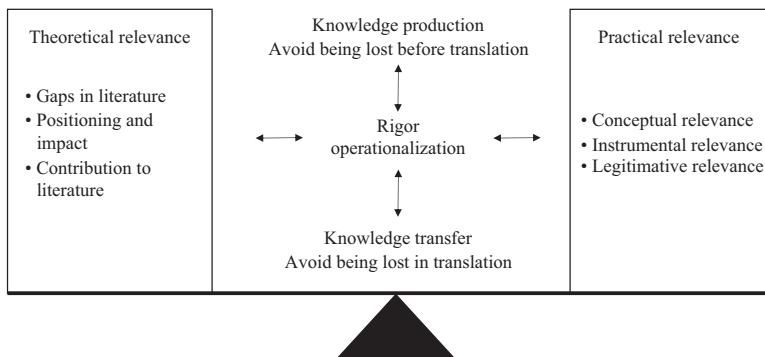| Theoretical relevance	Knowledge production Avoid being lost before translation	Practical relevance
• Gaps in literature • Positioning and impact • Contribution to literature	Rigor operationalization Knowledge transfer Avoid being lost in translation	• Conceptual relevance • Instrumental relevance • Legitimative relevance

Figure 1.
Balancing theoretical
and practical
relevance

negative effects, which seems to be reported to a higher degree, are being mentioned as: higher ranked journals appears to be more biased toward theoretical and mathematical contributions (McKinnon, 2013, 2017); increased cost of article development to high ranked journals that perhaps is not even being read (Martin, 2012); logistics and SCM related journals are low in the general ranking systems (Grant *et al.*, 2018; Lambert and Enz, 2015; McKinnon, 2013, 2017; Menachof *et al.*, 2009); coerciveness to cite journals (Wilhite and Fong, 2012); development of citation cartels among researchers (Franck, 1999); standardization of research regarding questions and methods (Arlbjørn *et al.*, 2008); and higher emphasis on quantity at the expense of quality (Davis, 2014). The development of journal ranking lists has been criticized for, among others, discriminating quality with a process called journal fetishism, where journal ranking lists become fetishized when "the publication outlet, the fetish object, assumes an importance greater than the substantive content and contribution of the scholarship" (Willmott, 2011). This ranking process has led to more gap-spotting and formulaic research (Alvesson and Gabriel, 2013), where rationales for publication are based on an identification of a gap in the extant literature. However, not all gaps are relevant and there might be good reasons for gaps to exist.

The increased focus on journal rankings also leads to increased isomorphism (Dimaggio and Powell, 1983), where journals begin imitation processes and are following the same standards and prescriptions (e.g. rising quality criteria for questionnaire surveys to include multiple respondents from each company and including secondary data to support perceptual data from single respondents). Alvesson and Gabriel (2013) also point out some challenges to this development: limited imagination and creativity; predictable and, at best, moderately interesting texts written in an impersonal, committee-like style; strong sub-specialization and exploitation of a narrow "core competency,"; evaluation based on ticking off different boxes; and limited chances of unexpected, challenging, and surprising results and texts, as researchers feel constrained by different rules and standards for doing research. Finally, they argue that articles in leading journals often score high on rigor while making incremental contribution; in other words, the articles fail to say something very novel or make a strong social impact. They express this as follows: "Today, it's more 'publish as we perish.' We have been producing more and more shit of less and less overall quality for a generation. Has it advanced 'knowledge'? Face it, you've read thousands of articles in your career and you've been influenced by, at best a few dozen" Alvesson and Gabriel (2013, p. 246). Journal publications seem to have become formulaic with standardized forms and expressions, predictable structures, and signposts, and with somewhat routine content. If we continue with a unilateral focus on theoretical relevance in SCM research, then we run the risk that we "talk to a smaller and narrower academic audience, using a language that an educated reader does not understand, publishing in journals they don't read and asking questions for which they have little concern" (Hoffman, 2016). Thus, there might be reasonable concerns that we are on a wrong development track for our discipline with a steady press to publish costly research (Martin, 2012) which are read by fewer people (Alvesson and Sandberg, 2013; Biswas and Kirchherr, 2015; Lambert and Enz, 2015; Pearce and Huang, 2012; Simpson *et al.*, 2015). In summary, we should try and avoid what could be expressed as *l'art pour l'art*.

Largely, researchers are convinced to focus more on theoretical groundwork to publish their work in a journal and are preoccupied more progressively with journal metrics such as journal ranking, impact factors as well as citations (Gruber, 2014). "Academic sell-out" is the term used by Gruber (2014) in his article, and conveys that the researchers are entangled with this reward system. At times, certain articles that are highly considered as theoretical-relevant papers are perceived to be practically irrelevant (Baldridge *et al.*, 2004;

Banks *et al.*, 2016; Simpson *et al.*, 2015). This study does not encourage researchers in developing only practical-relevant papers, instead it insists for a symmetrical balance among theoretical and practical relevant research papers in the portfolio of publications (see Figure 1).

Practical relevance. Recently several researchers have begun to address the need for focusing on practical relevant supply chain research (Ellinger and Chapman, 2016; Johnson, 2013; Lambert and Enz, 2015; Narasimhan, 2018; Simpson *et al.*, 2015). In spite of the contribution by Toffel (2016), the literature is sparse on what is meant by practical relevance leaving it up to the each researcher to figure out its meaning. Nicolai and Seidl (2010) have made an important contribution to the relevance debate with attempts to provide different operationalization of the concept. Practical relevance has been the subject for several discussions in the extant literature. One explanation for practical relevance is that it is a question of providing a meaningful connection between the results of scientific research and management practice (Nicolai and Seidl, 2010). Another explanation is that research results are practically relevant only if they try to influence management practice (if they try to change or modify how mangers think, talk, or act) (Kieser *et al.*, 2015; Markides, 2007). De-Margerie and Jiang (2011) also characterize practical relevance as solution oriented, eye opening, and accessible. Management practice is different from management science. It rotates around decision making on practical issues (Nicolai and Seidl, 2010; Toffel, 2016). While the decision-making process is often dominated by a rationalistic paradigm (Carter *et al.*, 2007), it has recently been approached by behavioral and non-rational approaches to decision making (Bendoly *et al.*, 2010; Schorsch *et al.*, 2017; Tokar, 2010). Practical relevance of management science is thus the impact of management science on managerial decision making. Practical relevance is about identifying insights that practitioners might consider useful for their understanding of their own business situation (Vermeulen, 2007). Therefore, it is important that researchers pursue a strategy of a "second loop" that moves beyond just reading and writing to other academics and rather involves regular and direct interaction with practitioners that is intended to enrich the understanding of the phenomenon under investigation. After the research has been carried out, it is important to share the results with practitioners. This separation is called the problem of knowledge production (securing practical relevance of the research question in focus) and the problem of knowledge translation (securing that results are disseminated in way that is understandable and applicable for practitioners) (Van de Ven and Johnson, 2006). Shapiro *et al.* (2007) refer to these two types of problems as "lost before translation" and "lost in translation." Lambert and Enz (2015) suggest that practitioners might be interested at the beginning and the end of academic articles, if practitioners do choose to read academic journal articles (Martin, 2012).

Toffel (2016) proposes different ways to improve the knowledge production such as inviting industry people into the classroom for presentations, attending practitioner conferences, attending crossover workshops with academics and practitioners, conducting field visits in industries, work as a practitioner, establishing sounding boards of practitioners, coauthoring with practitioners, writing trade press articles, and using blogs and social media. Although these initiatives are examples of ways to enhance the relevancy of the research questions and they provide channels for research dissemination, there is yet another way to improve both the knowledge production and knowledge transfer issues. We further explore this approach using a panel of supply chain executives later in this paper.

Decision making. Nicolai and Seidl (2010) discusses three phases of decision making: definition of the decision situation: how one perceives or construct a decision situation (conceptual relevance); the selection of one of the alternatives: the courses of action in a

decision situation (instrumental relevance); and legitimation of the selected alternative: legitimative relevance in terms of knowledge being used to legitimate a chosen course of action. Nicolai and Seidl (2010) have empirically developed a taxonomy of eight forms of practical relevance divided into conceptual, instrumental, and legitimative relevance (see Figure 2).

Conceptual relevance. This category consists of three forms of relevancies: linguistic constructs; uncovering contingencies; and uncovering causal relationships. Linguistic constructs is the generation of new concepts or metaphors that can change the way one thinks and communicates about the decision situations. Uncovering contingencies influences the way in which decisions are perceived without any particular course of action. Uncovering causal relationships – they change the understanding of the decision situation – leads the practitioner to become aware of unnoticed causal relationships.

Instrumental relevance. This category consists of three forms of relevancies: schemes; technological rules and recipes; and forecasts. Schemes as a practically relevant output help the practitioner to order different decision variables (e.g. in flow charts, matrixes, or checklists); they help to define different courses of action. Technological rules or recipes define the decision situation and guides the practitioner in choosing different forms of action. Forecasts are trends or predictions about the future development.

Legitimative relevance. This category consists of two forms of relevancies: credentializing and rhetoric devices. Credentializing is about legitimative relevance (i.e. demonstrating competency by using the SCM vocabulary). "Rhetoric devices" is the use of scientifically generated knowledge by, for example, referring to studies completed or pointing to theoretical models to justify courses of action.

Having discussed about both rigor and relevance, this research primarily addresses the significance of relevance in terms of theoretical and practical relevance. Corley and Gioia (2011) state that the journals demand and/or require both theoretical and practical relevance to be recommended for publication. Therefore, it is important for researchers to have the ability to advance the existing research practice (theoretical relevance) and to progress the current managerial practice (practical relevance) simultaneously to offer a value-added contribution (Corley and Gioia, 2011). This paper not only acknowledges the significance of both theoretical and practical relevance but also informs scholars to deliver well-grounded theoretical interpretations with practical relevance.

Method
The paper builds on data gathered through a questionnaire survey of members of the Danish Supply Chain Panel. This panel consists of supply chain executives from Danish manufacturing and logistics enterprises. The Danish Supply Chain Panel was started in 2012 through the collaboration of the Danish Purchasing and Logistics Forum (DILF) and
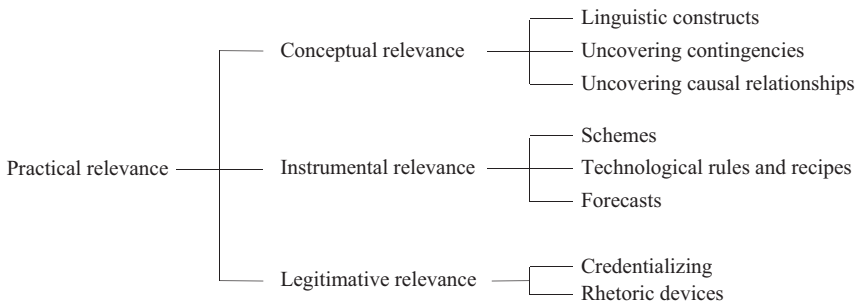

Figure 2.
Forms of practical relevance

researchers from the University of Southern Denmark. Founded in 1962, DILF is the largest member association in Denmark for people working within SCM, procurement, and logistics. DILF has more than 1,700 members currently. DILF is a non-political and not-for-profit association that aims to help improve the professional standard in SCM, purchasing and logistics in the private as well as the public sector.

Members of the Danish Supply Chain Panel have agreed to receive four small questionnaire-surveys each year covering various aspects of SCM issues. Some of the themes covered in mini-surveys have been supply chain sustainability, supply chain innovation, sales and operations planning, total cost of ownership, and digital supply chains. A common characteristic among the 22 mini-surveys completed from 2012 to 2016 are that the topics being investigated are showcased as being more important than how they are perceived applied in the enterprises (Stentoft, 2017, p. 18). These topics also reflect the main barriers for having a stronger management focus on the topics are lack of ambidexterity (O´Reilly and Tushman, 2013), too much silo mentality, and lack of qualified resources. Based on the panel's answers, practical articles are written on the given subject areas and are published in DILF's member magazine. Only one person per company can be part of the panel. Therefore, on the whole, the panel consisted of 113 randomly selected respondents (i.e. one respondent per company).

The survey questionnaire was e-mailed to the randomly selected panel members. A total of 50 useable answers were received leading to a response rate at 44.2 percent. One potential limitation of using this panel as respondents is that their active choice to attend the panel itself may represent an above normal level of research interest. In other words, there is a risk of lack of representability. In addition to the survey responses, data are also collected through short telephone interviews with three members of the panel that have been part of the panel since its beginning. The three respondents were selected by the administrative office at DILF. Out of the 50 respondents, the selected executives have been part of the panel in all five years. The purpose of these interviews was to briefly discuss practical relevance in terms of knowledge production and knowledge transfer.

SPSS 22.0 software is used in this paper to evaluate the correlation and linear regression among the questions of interest. This analysis specifically identifies the relationship among the various aspects of SCM issues. De Beuckelaer and Wagner (2012) recognize this approach as appropriate for data analysis as well as developing better understanding and interpretation of results in the cases of small sample sizes.

Figure 1 illustrates the overall conception of rigor and relevance. As mentioned earlier, rigor pertains to operationalization of constructs, characterization of right questions/ measures, and description of appropriate scales for both qualitative and quantitative studies. Relevance includes both theoretical and practical relevance. Theoretical relevance includes identification of gaps in the existing literature, positioning and impact of the current research, and contributions to literature, wherein practical relevance includes three major components such as conceptual relevance, instrumental relevance, and legitimative relevance. The constructs to measure the scale of the problems being investigated in SCM research and the communication of results of SCM research was adopted from Van de Ven and Johnson (2006) (see Figure 1). The construct to measure the scale of improvements in decision making about SCM issues was adopted from Nicolai and Seidl (2010). Figure 2 lists the three major components of practical relevance (conceptual, instrumental, and legitimative). Conceptual relevance includes linguistic constructs/new concepts/new metaphors, uncovering contingencies (new or alternative routes of action), uncovering unnoticed causal relationships/better understanding of the decision situation; instrumental relevance includes schemes/tables, technological rules and recipes, forecasts (predictions); legitimative relevance includes credentializing (demonstrating competency by using the SCM vocabulary) and rhetoric devices (use of scientific generated knowledge, e.g. refer to

studies completed). These constructs were adopted from Nicolai and Seidl (2010). The survey questionnaire is included in Table AI.

Since this study gathered information on the variables of interest from a single respondent within each firm, common method bias might be a concern. Therefore, Harman's single factor test was performed to check for common method bias (Chang *et al.*, 2010; Lindell and Whitney, 2001; Podsakoff *et al.*, 2003). In general, common method bias occurs when either when only a single factor, of all survey items, emerges while performing factor analysis or when a single factor explains most of the variance in the data. Accordingly, this study executed an unrotated factor analysis using the criterion "Eigen value greater than one"; a total of seven distinct factors were generated explaining 70 percent of the variance. The first factor explained only 18.8 percent of the variance. The result clearly shows that there is more than one factor, and the first factor does not explain the most of the variance. Therefore, common method variance might not be an issue in the data.

In the first stage of analysis, correlation among the problems being investigated in SCM research, communication of the results, and decision making was analyzed. Then, linear regression was performed to examine how well the predictor variable impacts the outcome variable: problems being investigated (independent/predictor) and improvements in decision making about SCM issues (dependent/outcome); communication of the results (independent/predictor) and improvements in decision making about SCM issues (dependent/outcome); and problems being investigated (independent/predictor) and the communication of the results (dependent/outcome).

During the second stage of analysis, a correlation between practical relevance of SCM research useful for work and communication of results was performed. Then, linear regression was executed to identify how well the predictor variables (forms of practical relevance useful for work) impact the communication of results (outcome variable).

Findings

To begin with, the data were investigated to understand how often the practitioners are being exposed to new SCM research. Table I shows that the respondents are not being exposed to the sources of new SCM knowledge with only 24 percent answering "often" or "very often."

The sources of new SCM knowledge is dominated by practitioner-led sources such as industrial networks, trade magazines, practitioner conferences, and consultant reports (See Figure 3).

As a first step of statistical analysis, the correlation among the problems being investigated in SCM research, communication of the results, and decision making was analyzed, and the results are presented in Table II.

Table II indicates that there is a positive relationship among the three variables – improving decision making about SCM issues, the problems being investigated in SCM research, and the communication of the results in SCM research. This result suggests that

| How often are practitioners being exposed for new SCM research | | |
Category	No of respondents	Percentage
Very seldom	0	0
Seldom	8	16
Sometimes	30	60
Often	11	22
Very often	1	2
Total	$n = 50$	

Table I.
Exposure to a new SCM research

the substantial investigation of the research problem would increase the robustness of the communication of the results as well as provide directions for the practitioners in improving their decision-making capability.

The results of the correlation among practical relevance of SCM research useful for work and communication of results is presented in Table III.

From Table III, it could be inferred that there is a positive relationship between the communication of SCM research results and the various forms of practical relevance (useful for work) such as conceptual relevance (linguistic constructs/new concepts/new metaphors (E), uncovering contingencies (F), uncovering unnoticed causal relationships/better understanding of the decision situation (G)); legitimative relevance (credentializing (H), and, rhetoric devices – use of scientific generated knowledge (I)). However, there is no significant
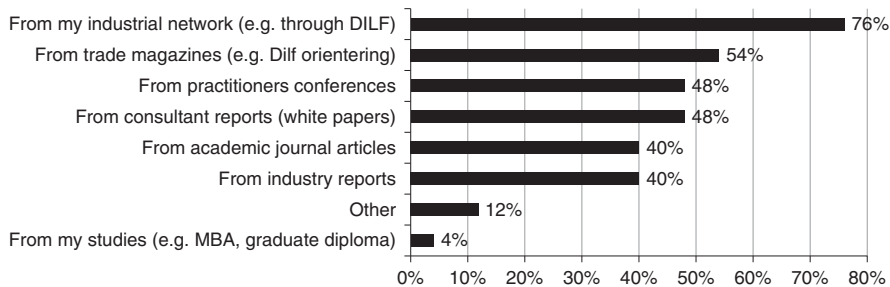

Figure 3.
Various sources of
SCM knowledge

Correlation	A	B	C
A	1		
B	0.469**	1	
C	0.520**	0.568**	1

Notes: A: improving decision-making about SCM issues (n–50, mean–3.38, SD–0.667); B: the problems being investigated in SCM research (knowledge production) (n–50, mean–3.32, SD–0.713); C: the communication of the results in SCM research (knowledge transfer) (n–50, mean–3.38, SD–0.743). **Significant at the 0.01 level (two-tailed)

Table II.
Decision making,
knowledge production,
and knowledge
transfer

Correlation	A	B	C	D	E	F	G	H	I
A	1								
B	0.187	1							
C	0.121	0.547**	1						
D	0.122	0.012	0.062	1					
E	*0.286**	−0.161	−0.077	0.161	1				
F	*0.336**	−0.109	0.017	0.118	0.352*	1			
G	*0.406***	0.037	−0.064	0.312*	0.415**	0.550**	1		
H	*0.282**	0.287*	0.287*	0.277	0.061	0.234	0.279	1	
I	*0.420***	0.155	0.208	0.171	0.113	0.224	0.353*	0.761**	1

Notes: A: the communication of the results in SCM research; Instrumental relevance: B: schemes/tables; C: approaches/recipes; D: forecasts (predictions); Conceptual relevance: E: linguistic constructs/new concepts/new metaphors; F: uncovering contingencies; G: uncovering unnoticed causal relationships/better understanding of the decision situation; Legitimative relevance: H: credentializing – legitimative relevance (demonstrating competency by using the SCM vocabulary); I: rhetoric devices – use of scientific generated knowledge (e.g. refer to studies completed). *,**Significant at the 0.05 and 0.01 levels (two-tailed)

Table III.
Knowledge transfer
and forms of practical
relevance useful
for work

relationship between the communication of SCM research results and other form of practical relevance like instrumental relevance (schemes/tables (B), approaches/recipes (C), forecasts (predictions) (D)). As mentioned earlier, there are three phases of relevance, namely, conceptual relevance, instrumental relevance, and legitimative relevance. Table III indicates that the results of the SCM research help in increasing practitioners' knowledge only regarding conceptual and legitimative relevance, wherein not much contribution is seen in the case of instrumental relevance.

In addition, linear regression analysis was performed to understand whether the independent variables (the problems being investigated in SCM research and communication of the results) are related to the dependent variable (improving decision making). The analysis was done individually for each independent variable with respect to the dependent variable; the results are presented in Tables IV and V.

Table IV indicates that the problems being investigated in SCM research (independent variable) improves decision making about SCM issues (dependent variable). In other words, statistically, the independent variable has a positive impact on the dependent variable and is significant with a t-value of 3.680 (p-value < 0.01). Moreover, the result conveys that if the research problems are well investigated, then the practitioners would be able to make valuable decisions about SCM issues. This would, in turn, improve the practitioners' ability to make decisions pertaining to current SCM issues. In general, this is all about how the knowledge production increases the practitioners' decision-making capability.

The results presented in Table V suggest that the communication of the results in SCM research (independent variable) improves decision making on SCM issues (dependent variable). In other words, statistically, the independent variable has a positive impact on the dependent variable and it is significant with a t-value of 4.213 (p-value < 0.01). This result conveys that if the scholars are well skilled in communicating the results of the problem investigated, then they could positively support the practitioners in making substantial decisions pertaining to SCM issues. In general, this result focuses on how effective knowledge transfer could increase the practitioners' decision-making capability.

Discussion

The data were analyzed to check for the various sources through which practitioners gain new knowledge about SCM. As shown in Figure 3, the topmost source of knowledge is through industrial networks (76 percent), followed by trade press articles (54 percent),

	Unstandardized coefficients B	Standardized coefficients B	t-value	p-value Sig.
(Constant)	1.923		4.750	0.000
Independent variable: the problems being investigated in SCM research	0.439**	0.469**	3.680	0.001
Notes: Dependent variable: improving decision making about SCM issues. **Significant at the 0.01 level				

Table IV.
Linear regression – the problems being investigated and improving decision making

	Unstandardized coefficients B	Standardized coefficients B	t-value	p-value Sig.
(Constant)	1.825		4.829	0.000
Independent variable: the communication of the results in SCM research	0.460**	0.520**	4.213	0.000
Notes: Dependent variable: improving decision making about SCM issues. **Significant at the 0.01 level				

Table V.
Linear regression – the communication of the results and improving decision-making

practitioner conferences (48 percent), consultant reports (48 percent), academic journals articles (40 percent), industry reports (40 percent), and so on. This result indicates that 40 percent of practitioners gain SCM knowledge from academic journal articles; this could be increased if scholars focus on and publish research that is of increased practical relevance. The articles could aim to support the practitioners in making active decisions, and the results communicated through the articles could be pragmatic so that they can be incorporated in the managers' daily work. Therefore, scholars should possibly realize that these journal articles are for practitioners to not only understand their current settings, but also to improve their daily operations through the results presented in the articles. On the other hand, this understanding would also help scholars to enhance their skills of presenting practical relevance in their articles, which, in turn, will increase the number of practitioners reading as well as benefiting from academic journal articles. In addition, review boards are recommended to include qualified practitioners to review the relevance in the paper wherein the scholars evaluate the theoretical relevance while the practitioners evaluate the practical relevance. The practitioners will be the most appropriate reviewers to assess the practical content from the current practice perspective; such as action would not only strengthen the research papers, but will also possibly draw the attention of the practitioners to read the journal papers. This proposal could be implemented by introducing a separate practice-oriented document for empirical papers that describe what this paper means to practice; this document should be submitted together with the empirical paper through the article submission system. The editor could then send this practice-oriented document for review to the practitioners' review board and the research paper to the normal academic review board. The final decision still continues to belong to the editor based on both academic and practical feedback. This process might stimulate researchers in developing research questions that are not "lost before translation" for addressing the current practice and to disseminate the knowledge among practitioners that helps them in making appropriate decisions.

From Table I, it is evident that 60 percent of the practitioners say that they are only occasionally sent out to search or explore other resources for new SCM research. This could be changed so that organizations begin to more actively involving their executives in the search of new knowledge. On the other hand, organizations could also encourage practitioners in reading academic journal articles for new practical knowledge that could be incorporated into their daily operations. Now, such a change will also be an inspiration for scholars to increasingly incorporate as well as showcase the practical relevance in their academic articles. Alternatively, from Table I, it could also be inferred that some organizations are increasingly requiring their executives to search for new SCM knowledge (24 percent); however, this 24 percent might be not enough. Organizations might have to start realizing the demand for new SCM knowledge. New knowledge could be achieved if practitioners are actively exposed to the various sources of knowledge.

In general, academic scholars should try to be ambidextrous in presenting their research by projecting a symmetrically balanced emphasis on both theoretical and practical relevance. On a related note, it is also believed that the awareness of both theoretical and practical relevance is becoming more important for writing successful grant applications (e.g. application under the European Framework Programme for Research and Innovation, Horizon 2020).

At times, scholars with strong publications records in high-ranked journals favoring theoretical relevance could run the risk of having difficulties with communication of their solutions in a manner that is of relevance for practitioners (Baldridge *et al.*, 2004). To overcome this communication challenge, scholars can engage with industries to improve the practical relevance in their articles, and, subsequently, display strong theoretical ideas in simple practical terms. Such an initiative has been taken by the *Supply Chain Quarterly* in 2016 by

introducing a new segment in the journal named "Research for the Real World" (Gooley, 2016). Here, selected papers from *Journal of Business Logistics* are invited to describe their research results in practical terms, which are then being exposed for practitioners that are members of the Council of Supply Chain Management Professionals. Similarly, one of the respondents during the telephone interview mentioned that "an important skill researchers' can learn in relation to the practical relevance discussion is to be better in disseminating heavy theoretical stuff using a simple language." Such an action would probably increase the number of practitioners reading journal articles for practical solutions given that they are provided access. On the contrary, theoretical relevance is appropriate for identifying gaps in the current literature, and it is not necessary to close all spotted theoretical gaps. This continued identification of gaps might lead to an overflow of theoretical relevance; instead, journal articles are advised to advance the understanding of practical relevance. Scholars ought to be striving to shift their curiosity of research toward unexplored as well as practically relevant areas that will support practitioners in making decisions as well as implementing the solutions in their daily operations.

As a point in case, one of the respondents mentioned that "practically relevant research is for me when the research output also presents concrete guidance's on how to work with the research result. We can get research results in steady streams; but, the interesting point is how we can convert these results to something that creates value." Additionally, another respondent mentioned that "disseminating new research results can also take other forms than text-based reporting. The social media platforms offer a wide range of possibilities to reach practitioners and then impact them"; this is absolutely in line with the discussion of Toffel (2016) on practically relevant research.

To a great extent, researchers should try for including the practitioners' prospects while developing the research questions (knowledge production) to provide the appropriate outcome (knowledge transfer) that would help firms in making better decisions pertaining to the current SCM issues. One of the respondents indicated that research should be based on "practice and not theory," and this indicates that an academic reviewer might have difficulties in assessing the practically relevant content in the paper (Markides, 2007); instead, only practitioner could be able to evaluate the practical relevance. Therefore, researchers should try to realize the importance of including practitioners while defining the problem (research question) and provide them relevant knowledge including all three phases of relevance provided by Nicolai and Seidl (2010). However, on the contrary, talking with the managers is not the only way for formulating the appropriate practical relevant research questions. The idea of this research paper is to stimulate researchers being more conscious about it.

Nicolai and Seidl (2010) mention that knowledge production and the communication of the knowledge generated is very important for practitioners in making appropriate decisions. Researchers are encouraged to take this aspect into account and try to provide adequate practical knowledge concentrating on all three aspects of relevance – conceptual, instrumental, and legitimative. This research believes that if the scholars understand the need for appropriate knowledge production and knowledge transfer, then the theoretical and practical relevance will be equally balanced in their research/practical paper. Moreover, this may, in turn, attract practitioners to read the research articles so as to not only find real world solutions to the current organizational problems, but also provide new insights for their decision-making processes.

Researchers should also try to understand that it is important to investigate the problems appropriately so as to improve decision making. They should try to present the identified solutions in layman's term in their research/practical papers so that the practitioners can understand the key findings and apply them in their daily operations. Researchers also should try to transform knowledge into action (Christopher and Ryals, 2014).

As previously mentioned, the content of research papers is not only for academic scholars, but also for the practitioners; therefore, researchers could comprehend this stance and express the problem investigated as well as the practical solution for the existing issues in simple and business terms for the practitioners. Such a contribution could also be published in more practitioner-oriented outlets. While the academic writing still belongs to academic journals, this research seeks to stimulate an increased consideration of practical relevancy among academic researchers. In general, practitioners are seeking more realistic solutions for the existing problems; so, if scholars realize this need while communicating their results, then practitioners may, to an increasing extent, move toward academic journal articles to improve their decision-making capability.

Markides (2007) suggests that researchers should try to be ambidextrous in a sequential manner (O'Reilly and Tushman, 2013) so that, before tenure, one could focus on research that are disseminated to practice through teaching, and after tenure, one could begin with more risky research efforts. However, we suggest a more simultaneous approach to ambidexterity in which a non-tenured researcher also gets experience with practical relevance concerning knowledge production and knowledge transfer activities. However, this might be constrained by the incentive system that favors publications in high-ranked journals (Davis-Sramek and Fugate, 2007; Lambert and Enz, 2015; McKinnon, 2013, 2017). This development could lead to situations wherein scholars are neither trained to engage in public and political discourse nor are given incentives and support to do so (Hoffman, 2016). Thus, the core of our job might be under pressure. It leaves lesser room to pursue interesting research due to a high dissemination output focus. We should try to avoid "subcontracting the production and dissemination of managerially relevant research to "others" who are better suited for this task (to e.g. consultants) as discussed by Markides (2007). A continued practice with a strong output focus on publications in high-ranked peer-reviewed journals together with a stiff incentive systems as well as the lack of including the voice of practitioners runs the risk that the bearing element in our profession of doing research – the research process – will collapse. A good output requires a good process. The current volume-based and journal ranking performance measures stimulate researchers to avoid uncertain, yet interesting research projects, and instead favor projects that yield a number of articles conformed to what is main stream at a specific time in a specific target journal. In other words, it stimulates hunting for problems that would fit a journal instead of problems which might have strong practical implications. Pursuing such a practice would contribute toward "The Department of Rigor and Irrelevance" as discussed by Davis-Sramek and Fugate (2007).

Conclusion

This paper has set out to unfold the concept of relevance by separating it into both theoretical and practical dimensions. There must be no doubt in that future SCM research should still be grounded on rigorous concepts and methodologies. However, as an applied discipline, we must also encourage SCM researchers to focus on both theoretically and practically relevant research questions (knowledge production) and dissemination (knowledge transfer).

The results from this paper indicate that there is a positive relationship among improving decision making about SCM issues, the problems being investigated in SCM research, and the communication of the results in SCM research. In other words, as mentioned earlier, the extensive investigation of the research problem will raise the vigor of the communication of the results and offer directions for the practitioners to advance their decision-making capability. In addition, the results of the SCM research support in increasing practitioners' knowledge regarding conceptual and legitimative relevance. Based on the results, scholars are encouraged to put more emphasis on designing the right

research question with practical relevance and describing the current research problem that is being investigated. This can enhance the knowledge production and the practitioners' decision-making capability. Alternatively, it is also evident from the analyses as well as the interviews that practitioners are looking for more realistic solutions for existing problems and simple practical language explaining the key solutions that can be implemented in their daily operations. De-Margerie and Jiang (2011) disclose that the practitioners assess the research papers based on three criteria such as solution oriented, eye opening, and accessibility. Therefore, academic researchers ought to be more realistic while defining the research problem, examining the data, presenting the findings/results, and disseminating the acquired knowledge. The results presented in the empirically grounded paper should be practically feasible solutions, new and innovative solutions for the existing SCM issues, and accessible solutions (De-Margerie and Jiang, 2011). Scholars ought to consider their skills in communicating their results (i.e. knowledge transfer) through their articles; this could attract practitioners toward academic journal articles, if accessible, to search for practical solutions and to improve their decision-making capability. However, this will require that incentive systems are reevaluated to also include practically relevant research. One will then naturally ask: is this change really possible? Our answer is: why not? The system has been changed with the pendulum moving very much toward theoretical relevance. If it can move one way, it can move the other way again. In our opinion, one way to change this is to at least continue the conversation about it.

Concisely, this paper not only presents a clear distinction between theoretical and practical relevance, but also emphasizes the need to achieve a symmetrical balance among them. This research also insists scholars to not have a unilateral view; instead, they should comprehend the importance of both theoretical and practical relevance dimensions through their academic journals. Based on this, we propose the following future avenues for SCM research on the relevance debate. First, more research is needed on the symmetrical balance of theoretical and practical relevance in SCM research in order to further development of the discipline. Second, more empirically founded research on what constitutes relevant SCM research – both in terms of knowledge production and knowledge transfer – is needed. Third, future research could also explore the practical impact of SCM research. Fourth, research might also assess the theoretical and practical relevance of SCM research within the SCM community across different subject fields (e.g. sourcing/purchasing, manufacturing and logistics). Finally, research could also address the theoretical and practical relevance of SCM research as compared to other applied disciplines (such as marketing, finance, accounting, and organization studies). Above all, future research could also focus on other dimensions namely "novelty" and "what's interesting" (Bartunek *et al.*, 2006). Practitioners are not only seeking for practical relevance in academic journals, but also looking forward for novelty to advance their knowledge and daily operations. Apart from rigor and relevance, it is also important to spotlight the demand for novelty. Therefore, academics scholars could search for a better understanding of this requirement as well as extending the work primarily highlighting novelty vs rigor and relevance. This research proposes a conceptual framework (see Figure 1) with reference to balancing theoretical and practical relevance. This research also suggests readers as well as researchers to focus on identifying gaps in the existing literature, positioning the research, and explicating the impact and contribution of the research by considering both theoretical and practical relevance.

In closing, we are paraphrasing Hayes (2000) by saying that our hope is that practitioners in the future are visiting universities and academics for inspiration to solve SCM problems because we are well equipped with knowledge to join such conversations. Not by "feel-good" seminars (Hayes, 2000) and "airport literature" with one-minute guides

to fix the problems, but through knowledge developed rigorously. The time has come to change the conversation of relevance. SCM research must become both theoretically and practically relevant.

Implications

The results of this research provide implications for both researchers as well as for journal editors. As for researchers, this research proposes an ambidextrous research strategy and insists for simultaneous strategies instead of a sequential strategy. This research also suggests scholars to not only think of publishing their works in high ranked journals, but also in lower ranked journals (McKinnon, 2017). In addition, this research recommends reinstating the core of our profession – the research process instead of an output orientation. This will, in turn, stimulate the creativity and intensity of the researchers (Alvesson *et al.*, 2017).

For editors, this research acclaims to add a new type of paper, for instance, "practical papers." Such an action would encourage researchers to develop papers based on the current practice among organizations and on practitioners' prospects to provide relevant solutions for the current SCM issues. Moreover, review boards could also include practitioners to evaluate the practical relevance of submitted manuscripts which can subsequently provide a robust bridge for active interaction among researchers and practitioners. Furthermore, this research advises the journal editors and the publishers to create a one-page practical summary for all empirically founded papers and provide free access for all researchers and practitioners. Such an initiative will make practitioners to realize that the content of the research papers is not only for researchers but also for practitioners, which, in turn, certainly can strengthen the practitioner-researcher interaction.

In general, the researchers work according to the incentive/reward system and have the tendency to move toward publishing their work in top ranked journals with a more focus on only theoretical groundwork. For that reason, this research conveys an implication for academic researchers to involve practitioners to better understand the existing issues within SCM in order to offer real-world solutions and improved decision making for practitioners, and for journal editors to realize that research papers are for both academicians and practitioners and to include practitioners in the review board to assess the essentials of the practical relevance included in the research paper.

Limitations and future research directions

In spite of significant contributions, this research does have limitations that could provide scope for future research. The useable sample size for the analysis was small, and thus there is a potential for forthcoming researchers in developing further research using larger sample sizes. This research included only firms within Denmark, and henceforth, there is a potential in extending the scope by including firms from other countries. This research included only practitioners, while future research also could consider including both scholars and journal editors for understanding the prospects of symmetrically balancing theoretical and practical relevance. This exploratory research included a small sample of single respondents from Danish companies to understand the perception of the practitioners/executives concerning: rigor and relevance; knowledge creation; and knowledge transfer. Thus, there is a potential for future research to include multiple respondents from each company to understand the perspectives of different practitioners/executives within the same company. In a nutshell, future research is needed to better understand the rigor and relevance and, especially, the relevance in terms of theory and practice by including all the actors (reviewers, editors, publishers, researchers, practitioners, etc.). It is important to continuously focus on this debate pertaining to balancing theoretical and practical relevance as well as to involve the researchers, practitioners, editors, and publishers for greater academic research achievements.

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Appendix

Question number	Question	Reference
1	How often are you being exposed for new SCM research? (five-point Likert-scale (1 (very seldom), 2 (seldom), 3 (sometimes), 4 (often) and 5 (very often)	Stentoft (2017)
2	Where do you get new SCM knowledge from (various sources)? (several marks are allowable) From industry reports From consultant reports (white papers) From practitioners conferences From my studies (e.g. MBA, Graduate Diploma) From my industrial network (e.g. through DILF) From trade magazines (e.g. DILF Orientering) From academic journal articles Other	Stentoft (2017)
3	To which degree do you find that practical relevant research is about improving decision making about SCM issues? (1 (very low degree) to 5 (very high degree))	Nicolai and Seidl (2010), Vermeulen (2007)
4	To which degree do you find that SCM research, in general, is practical relevant (the problems being investigated)? (1 (very low degree) to 5 (very high degree))	Van de Ven and Johnson (2006)
5	To which degree do you find that SCM research, in general, is practical relevant (communication of the results)? (1 (very low degree) to 5 (very high degree))	Van de Ven and Johnson (2006)
6	To which degree do you find the following forms of practical relevance useful for your work? Schemes/table (1 (very low degree) to 5 (very high degree)) Approaches/recipes (1 (very low degree) to 5 (very high degree)) Forecasts (predictions) (1 (very low degree) to 5 (very high degree)) Linguistic constructs/new concepts/new metaphors (1 (very low degree) to 5 (very high degree)) Uncovering contingencies (new or alternative routes of action) (1 (very low degree) to 5 (very high degree)) Uncovering unnoticed causal relationships/better understanding of the decision situation (1 (very low degree) to 5 (very high degree)) Credentializing – legitimative relevance (demonstrating competency by using the SCM vocabulary) Rhetoric devices – use of scientific generated knowledge (e.g. refer to studies completed)	Nicolai and Seidl (2010)

Table AI.
Supply chain panel questionnaire

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