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# Researchers and professionals' perceptions of barriers to the diffusion of management research

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## Abstract

**Objective**: Verify the position of Management Accounting research in Brazil related to the diffusion barrier according to accounting researchers and professionals.

**Method**: A survey with a quantitative approach was undertaken. Data were collected through an electronic questionnaire forwarded to researchers and professional of the Regional Accounting Councils (CRC), considering access. For the data analysis, SPSS, descriptive statistics and confirmatory factor analysis were used.

**Results**: It was verified that research is too isolated from practice. And both groups unanimously perceive the need for research to appropriate the problems deriving from practice. None of the phases (Discovery, Translation, Dissemination, Change) is totally responsible for the imposition of barriers between theory and practice. Nevertheless, the translation phase has the greatest potential to increase the gap between academic research in Management Accounting and Practice.

**Contributions**: Contributes to the debate on the relevance of academic research in management accounting and Management Accounting practice, providing evidence on the nature, extent and diffusion of the accounting researchers and professionals' perception, represented by CRC members.

**Key words**: Management Accounting Research; Research-practice gap; Diffusion of Innovation Theory.

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## 1. Introduction

Accounting research is conceived as applied research, as its focus of study comprises technologies, techniques and practices accounting professionals use in social and organizational configurations (Parker, Guthrie, & Linacre, 2011). This characteristic of the research, focused on practical reasons, contributes to companies, non-profit organizations, governments and markets, including the administrators of these entities (Moehrle, Anderson, Ayres, Bolt-Lee, DeBreceny, Dugan & Plummer, 2009).

Baldvinsdottir, Mitchell and Nørreklit (2010) argue, however, that despite the growth of accounting research, there is a lack of studies involving practice, especially with regard to management accounting. The authors question whether the lack of communication between theory and practice would be responsible for this gap. They further suggest that, perhaps, empirical research is not relevant to accounting practice.

Overall, according to Parker, Guthrie and Linacre (2011), accounting studies have distanced themselves from the practice, focusing on themes that are increasingly dissonant from the organizational needs. Associated with these concerns, the authors argue that this discussion is recurrent in special journals, editor forums and studies that point to the gap between accounting research and practice and argue that the ultimate goal of accounting research should be to improve the practice, rather than simply describing, understanding, or criticizing it. Despite these considerations and despite recognizing this potential gap between research and practice in management accounting (MA), Tucker and Parker (2014) reiterate that framing this relationship between academic research in management accounting and management accounting practice as a gap is an oversimplification that draws attention away from something broader, which is the fundamental role of the relevance of accounting research.

Tucker and Lowe (2014), Tucker and Parker (2014) and Tucker and Schaltegger (2016) point to the existence of common and unique barriers that impede the more effective involvement of academic research in management accounting in accounting practice. The recurrent barriers in these findings, which are obstacles to this involvement, include: the communication of the research, the professionals' access to the research, the relevance of the research topics and the difficulty to understand the documents the research generates.

For accounting research to be useful in society, Albu and Toader (2012) recognize the need for the professionals to use the results. The increased use of these results could generate growing support for research by companies and professional entities. The authors state that the agendas, interests and approaches of researchers and practitioners appear to be different, emphasizing that, while practitioners have practical concerns and short-term expectations, researchers succumb to the journals' review system, generating research with little application in the organizational field. The low utility of the research, in management accounting, in relation to the practice was highlighted in Malmi and Granlund (2009). Tucker and Parker (2014) argue that MA receives criticism as it is an applied field and should provide practical solutions for organizations. In addition, Malmi and Granlund (2009) consider that researchers target other researchers with their research, ignoring the practice.

In this sense, the Diffusion of Innovations theory has been used as an alternative lens for management accounting studies (Ax & Greve, 2017; Tucker & Parker, 2014; Tucker & Schaltegger, 2016). This theory proposes a framework, in stages or barriers that demonstrate potential restrictive factors to the adoption of ideas and innovations. It provides the description of the process by which innovations and ideas are propagated and adopted, in accordance with Rogers' (1983) seminal study.

In view of the context, the research question proposes to answer: **What is the position of management accounting research in Brazil in relation to the diffusion barriers according to accounting researchers and professionals?** This question is analyzed in the framework of the diffusion of innovations theory in the perception of researchers and accounting professionals. The general objective is to verify the position of management accounting research in Brazil in relation to the diffusion barrier in the perception of accounting researchers and professionals. The specific objectives were to: (i) survey the perceptions of accounting researchers and professionals about the management accounting research; (ii) identify the positioning of management accounting research through the diffusion barriers.

The justification for this article is based on the importance of discussing the gap between research and practice in management accounting theory in the Dissemination of Innovation theory and in the diffusion barriers, which restrict the more effective involvement of academic management accounting research in accounting practice. The discussion about the gap in management accounting research is represented by the following studies: Albu and Toader (2012), Ax and Greve (2017), Grosu, Almășan and Circa (2014), Leite, Fernandes and Leite (2016), Moehrle et al. (2009) and Parker, Guthrie and Linacre (2011), Tucker and Lowe (2014), Tucker and Parker (2014) and Tucker and Schaltegger (2016).

The research sample consisted of professionals from the Regional Accounting Councils (CRC) and Accounting researchers, who answered the structured questionnaire (Likert scale); descriptive analysis and confirmatory factor analysis were used to analyze the data. The results showed that the research is too isolated from the practice and the participants perceive that the research needs to appropriate the problematizations arising from the practice. As far as the diffusion-innovation stages are concerned which are considered barriers to the diffusion of management accounting, the results of this research show that there is no stage that is totally responsible for the imposition of barriers between theory and practice. Nevertheless, the translation phase is predominant, indicating that there is a lack of knowledge communication between researchers and professionals in management accounting.

This study is divided into five sections. In addition to this introduction, the second section discusses the diffusion of innovations theory and how the academic literature can relate to the practice. The methodological procedures are included in the third section, followed by the presentation and analysis of the results. Finally, we present the final considerations, followed by the references used in the study.

## 2. Theoretical Framework

This section includes the diffusion of innovations theory and the academic literature on research about management accounting practices.

### 2.1 Diffusion of Innovations Theory

This research is substantiated in the diffusion of innovations theory (Rogers, 1983), which comprises a relatively mature research modeling with works published during several decades (Sultan, Farley & Lehmann, 1990). Dissemination is a relevant conceptual paradigm to many disciplines. It is multidisciplinary and permeates several scientific fields (Rogers, 1983).

Rogers (1983) conceptualizes innovation as an idea, a practice or an object that an individual conceives in a new way. The perception of the idea of new determines the reaction and the behavior of the individual towards this idea, this practice or that object. Diffusion is considered a process through which an innovation is communicated, through certain channels, over time, among the members of a system. It is presented as a special type of communication, to the extent that messages are transmitted. In this context, communication is a process in which participants create and share information with each other to achieve mutual understanding. As two or more individuals exchange information, communication is considered a two-way process of convergence, so it is not a linear process where the message is transferred from one individual to another separately.

Academic research in management accounting and accounting practice comprise at least two parts. Tucker and Schaltegger (2016) have pointed to evidence that the practice-based view has been largely neglected in the academic literature in the area of management accounting. This disconnection between research and practice is called a gap. Rogers (1983) infers that the recognition of a problem or need stimulates research as it is one of the ways in which the process of developing an innovation begins. In this sense, the gap could be the guiding thread for the development of new ideas in management accounting. Wilson, Petticrew, Calnan and Nazareth (2010) corroborate the understanding that the interest of research has focused on identifying the existing gap between research and practice in management accounting and indicates the diffusion approach as one of the possible lenses for analysis, which is concerned with the dissemination, implementation, transfer and mobilization of knowledge, linkage and exchange and research in practice. Silva and Ott (2012) point out that the dissemination of scientific research is fundamental for the use of results by professional practice.

This theory proposes that there are intrinsic characteristics to new ideas or innovations that are determinants of their rate of adoption, and this actual acceptance takes place over time through an innovation decision that comprises a five-step process (Wilson et al., 2010). Rogers (1983) explains that this occurs because the so-called "decision-innovation" process happens when an individual (or other decision-making unit) acquires the knowledge of an innovation, forming an attitude towards that innovation, and takes a decision to adopt or reject the implementation of the new idea, confirming that decision. This process consists of a series of actions and choices, over time, through which an individual or organization evaluates a new idea and decides whether or not to incorporate the new idea into the current practice. Those actions and choices are usually marked by distinct stages, explicit in the stages originally described by Rogers (1983) (Table 1).

Table 1

**Decision-Innovation Process**

| Stage | Concept of the Decision-Innovation Process |
|---|---|
| Knowledge | An individual (or another decision-making unit) is exposed to the existence and gains from innovation and acquires some understanding of how this works. |
| Persuasion | Occurs when an individual (or another decision-making unit) forms a favorable or unfavorable attitude towards the innovation. In this stage, the individual gets psychologically involved in the innovation and actively seeks information on the new idea. Where to seek information, which messages one receives and how that information is interpreted gain importance. Perception is important in the determination of the individual's behavior in the persuasion stage, as the perceived attributes of an innovation, such as its relative advantage, compatibility and complexity, are particularly relevant in this stage. |
| Decision | Marked by the activities that make an individual (or another decision-making unit) choose to adopt or reject the innovation. Adoption is a decision to make the most of the innovation as the best course of action accessible; rejection is a decision not to adopt an innovation. |
| Implementation | The innovation is deployed. The implementation involves open behavioral changes, as the new idea is actually implemented and normally follows the decision phase very directly. The end of the implementation phase is often referred to as routine or institutionalization. |
| Confirmation | An individual (or another decision-making unit) seeks to strengthen an innovation decision already implemented, but this earlier decision can be reverted if the individual is exposed to conflicting messages about the innovation. |

Source: Rogers (1983)

Based on these phases, Brownson, Kreuter, Arrington & True (2006) simplified and adapted the model to four stages - which this research is based on - with the objective of characterizing the conversion of academic research into practices, as this process is not instantaneous. They are: discovery, translation, dissemination and change. Thus, the stage of discovery is the stage during which the creation of knowledge occurs; in the translation phase, the communication of knowledge will be generated in an intelligible form; the dissemination phase marks the transmission of knowledge; and, finally, the phase of change covers the stage during which organizational changes are made in response to the results of the academic research in management accounting.

Tucker and Schaltegger (2016) infer that this framework can be used to identify and organize the observations that have been made on the potential causes that generate the gap between the management accounting research and practice, noting the four stages mentioned above as barriers. The discovery barrier generally takes the form of failure to pose questions of practical relevance to market professionals. The translation barrier concerns the understanding of research; the findings are often hampered by poor presentation, such as over-attention to methodology and theory or disregard of any research implications that are potentially relevant and interesting to practitioners. The dissemination needs to address the delays in the time of academic publication, in contrast to the professionals' short-term decision needs. Tucker and Parker (2014) point out that each of these four barriers may eventually hinder the adoption of academic research results in management accounting in everyday practice. The stakeholders in this context (academic research and management accounting practice) need to be ready, willing and able to embrace new ways of operating.

## 2.2 Academic literature on research of Management Accounting (MA) practices

The relevance of management accounting research and practice has received wide attention in recent decades and continues to generate considerable debate in the academic literature (Modell, 2014). In these debates, a recurring theme is the potential gap between theory and practice (Ax & Greve, 2017; Leite, Fernandes & Leite, 2016; Parker, Guthrie & Linacre, 2011; Victor-Ponce & Colomina, 2016; Wilson et al., 2010).

According to Albu and Toader (2012), Grosu, Almăşan and Circa (2014), Malmi and Granlund (2009), McLellan (2014), Tucker and Schaltegger (2016) and Victor-Ponce and Colomina (2016), management accounting is inert in relation to its objective, which is to generate information for decision making, and the focus seems to diverge between academics and professionals, establishing a gap in this field of study and practice. Angus and Lavarda (2014) pointed out that the reasons for this distancing are institutional factors, and Victor-Ponce and Colomina (2016), in turn, blamed the system of teacher evaluation criteria and the lack of interaction between the academia and professional journals.

Tucker and Parker (2014) report that, because of the practical nature of management accounting, this discussion about the potential gap is irrelevant, as research should provide explanations that are useful to researchers and to those using the research as practice. In this context, research needs to be directed to the themes related to the practice (Tucker & Schaltegger, 2016), generating the integration between researchers and professionals. This integration could provide a better understanding of the challenges and opportunities that professionals face in the market and thus, researchers could contribute to generating immediate solutions in the practical environment (Albu & Toader, 2012).

Jansen (2018) considers that the lack of communication between the different theories that can be used in the accounting literature limits the impact of academic management accounting research on practice. The most used theories in academic research in accounting come from the areas of economics, organization theory, sociology and psychology (Malmi and Granlund, 2009). The author argues that these theories are not specific to management accounting and lead to generic discoveries with little practical utility.

Grosu, Almăşan and Circa (2014) emphasize that the excess of financial information and of tax reports does not contribute to the usefulness of management accounting. In this context, Odar, Kavčič and Jerman (2015) observed that companies in Slovenia did not use management information in times of crisis and, in the post-crisis period, used the techniques. Considering the relationship between traditional and modern MA practices, Leite, Fernandes and Leite (2016) found that, in Portugal, traditional techniques are more used when compared to contemporary ones. In the context of Malaysia, Ayedh and Eddine (2015) argued that the adoption of the Balanced Scorecard, a MA approach considered contemporary, significantly influenced corporate profitability, customer satisfaction, market position in relation to sales growth for existing services and products, highlighting the relevance of the practices in the management process.

In the national context, Wanderley (2014) points out that MA changes respond more significantly to external pressures, such as regulatory changes, changes in stock control, and public and sectoral pressure. Frezatti, Aguiar, Wanderley and Malagueño (2015) point to the predominance of quantitative approaches to the detriment of other more interactionist strategies, such as experiments.

Regarding the adoption of innovations in Management Accounting practices, for Busco, Caglio and Scapens (2015), it is very difficult to find the same MA practice implemented in different organizations. The adoption of these innovations lies at the center of a diffuse network in which the professional interacts with other techniques and technologies, and different research and information interests can be accommodated through a constant process of questioning and reinvention. Knowledge about how the interaction between the characteristics of professionals and those of innovations affects the diffusion of innovations is limited, as Ax and Greve (2017) stress.

Thus, when a diffused innovation is compatible with the values and beliefs of a company, it is adopted in advance. In addition, the diffuse innovation is adopted, even if late, when there is a probability to reduce losses. The studies by Ax and Greve (2017), Tucker and Parker (2014) and Tucker and Schaltegger (2016) consider how differences in the barriers that impede the efficient involvement of academic management accounting research in the practice influence the adoption of these practices.

## 3. Methodological Procedures

In view of the problem, in this quantitative research, the survey was used as a research strategy (Creswell, 2010). The data were collected through the application of an electronic questionnaire sent by e-mail - through Google forms - to the accounting professionals members of the Regional Accounting Councils (CRC) of each state and of the Federal Accounting Council (CFC). Also, e-mails were sent to students and professors of Accounting. In the text, the first group is also referred to as accounting professionals, while the second group is also referred to as researchers.

The choice of the actors (CRC members and accounting professors) was in line with Rogers (1983), when he states that innovation decisions can emerge from authority, in the sense that choices to adopt or reject an innovation are made by a relatively small number of individuals in a system that has power, status or technical expertise. Thus, the CRC members were chosen because of their link to the professional-technical representative association. The students and professors of Accounting took part in the study because they are trainers of the future accounting professionals and, generally, are also researchers.

Each CRC was contacted by e-mail, requesting the dissemination of the survey to the counselors. Likewise, the CFC was contacted in Brasília, in order to emphasize the importance of answering the research to the CRCs. In addition, the e-mail of each member was sought to forward the questionnaire individually. The search was executed on the CRC sites as well as on Google's search engine. Out of 845 members, e-mails were identified from 566 (67%). Ninety-nine emails returned as invalid though, demonstrating that the information on the sites was outdated. Furthermore, 33 members were contacted through a social network.

Regarding the e-mails of the researchers, Brazilian Graduate Accounting Programs (PPGCC) were asked to send the research to their students and teachers. E-mails were sent to the following PPGCCs: Fundação Álvares Penteado School of Commerce (Fecap), Capixaba Foundation for Research in Accounting, Economics and Finance (Fucape), Pontifícia Universidade Católica de São Paulo (PUC-SP), Regional Community University of Chapecó (Unhochapecó), University of São Paulo (USP), Universidade Estadual de Maringá (UEM), Federal University of Rio de Janeiro (UFRJ), Federal University of Brasília (UnB), Federal University of Bahia (UFBA) , Federal University of Pernambuco (UFB), Federal University of Santa Catarina (UFSC), Federal University of Minas Gerais (UFMG), Federal University of Uberlândia (UFU), Federal University of Amazonas , Federal University of Espírito Santo (UFES), Federal University of Paraná (UFPR), Federal University of Rio de Janeiro (UFRJ), Universidade Presbiteriana Mackenzie (Fucape), Regional University of Blumenau (FURB). The sampling is non-probabilistic by accessibility, according to the snowball model.

In line with Rogers (1983), the research instrument was aimed at identifying descriptive data of the respondents' profile. This measure permitted filtering out which professors actually serve as teachers and researchers and which are in an early stage of their academic career. In addition, demographic data on the length of professional experience and teaching corroborated to justify the sample of these actors as: professional association and researchers in Accounting.

The research instrument was sent to professionals (council members) and researchers (students and teachers) in the first week of May/2017, and resent after fifteen days, resulting in 121 responses. Twenty-one responses were invalid as the respondent did not complete all the fields, totaling 100 valid answers.

The questionnaire, validated by Tucker and Schaltegger (2016), with Cronbach's alpha of 0.79 - 0.86 - 0.71, consists of 54 questions, divided into eight blocks. Due to the questionnaire being translated into the Brazilian context, a pre-test was carried out with doctoral students and accounting professionals, who did not participate in the investigation. The questions were structured on a five-point scale, varying between totally agree (5) and totally disagree (1). The first block of the questionnaire contains nine questions, related to the characteristics of the respondent and the organization where he performs his professional activities. The second block contains five questions and refers to professionals who work with MA. The third block, composed of five questions, refers to the evaluation of the perception regarding the extension of the gap between academic research in management accounting and the practice. Blocks four through seven are composed of eight questions each, and block 4 aims to measure how the research results interact with organizational practice.

Questions that address the diffusion-innovation phases are in blocks 5 to 8. Block 5 refers to the discovery phase and aims to measure how the research results interact with organizational practice. Block 6 refers to the translation phase and aims to verify how the generalization of the research results reaches the organizational practice. Block 7 contains questions on the dissemination phase and seeks to measure how the research results reach organizations and block 8 refers to the phase of change, aiming to determine to what extent research in MA influences the practice. In the last block, three questions were intended to evaluate the efforts the professional associations (CRCs) make to overcome the gap between research and practice.

Descriptive statistics and confirmatory factor analysis were used to present the results (Bittencourt, Creutzberg, Rodrigues, Casartelli & Freitas, 2011). We used confirmatory factor analysis, as the questionnaire had already been validated by Tucker and Schaltegger (2016). Thus, as the questions were translated, the results were confirmed in the Brazilian context.

Table 2 shows the total number of council members by state, the number of identified e-mails (sent individually) and the quantity of invalid e-mail (e-mails returned).

Table 2
**E-mails sent to board members**

| | UF | No. of Board memb. | E-mails Sent | Inv. | | UF | No. of Board memb. | E-mails Sent | Inv. | | UF | No. of Board memb. | E-mails Sent | Inv. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NORTH | AC | 12 | 11 | 2 | NORTHEAST | AL | 23 | 15 | 3 | CENTRAL-WEST | DF | 54 | 29 | 8 |
| | AM | 24 | 15 | 6 | | BA | 7 | 2 | 1 | | MS | 27 | 17 | 6 |
| | AP | 22 | 7 | 2 | | CE | 31 | 16 | 2 | | MT | 46 | 41 | 5 |
| | RR | 18 | 11 | 2 | | MA | 12 | 6 | 2 | | GO | 10 | 7 | 1 |
| | PA | 15 | 10 | 2 | | PB | 22 | 17 | 1 | | | | | |
| | RO | 21 | 14 | 4 | | PE | 34 | 22 | 6 | SOUTHEAST | SP | 73 | 59 | 7 |
| | TO | 18 | 11 | 3 | | PI | 20 | 14 | - | | MG | 71 | 48 | 11 |
| | | | | | | RN | 30 | 24 | 3 | | ES | 32 | 25 | 2 |
| SOUTH | PR | 54 | 42 | 2 | | SE | 24 | 13 | **3** | | RJ | 51 | 19 | 4 |
| | RS | 52 | 43 | 8 | | | | | | | | | | |
| | SC | 42 | 28 | 3 | | | | | | | **Total** | **845** | **566** | **99** |

Source: elaborated by the authors.

In addition, a systematic literature review was performed in the databases Ebscohost, CAPES and Web of Science, using the descriptors "Diffusion Theory", "Knowledge Dissemination", "Diffusion of Innovation Theory", "Gap Research Practice", "Management Accounting" to support the theoretical-empirical framework.

## 4. Presentation and discussion of results

The first part of the study was intended to characterize the respondents. In total, 100 responses were considered, of which 83 were teachers (researchers) and 17 (professional) council members, in which 39% of the respondents were female, while 61% were male. Most of the respondents (91%) have a degree in Accounting Sciences and a master's degree (54%). The age range of the respondents is between 31 and 40 years (34%) and 41 and 50 years (32%). It is noteworthy that, despite the contact with the CFC, the CRCs and individual e-mail to the members, only seventeen of them answered the survey.There were respondents from 18 Brazilian states, with no respondents from the following states: Alagoas, Amazonas, Amapá, Ceará, Maranhão, Piauí, Roraima, Sergipe and Tocantins. Fifty percent of the respondents live in the South of Brazil, 26% in the Southeast, 7% in the Northeast, 13% in the Midwest and 2% in the North. Most respondents (34%) have more than twenty years of professional experience, 35% work in public universities and 42% in private universities, 48% being large higher education institutions.

In the second block of the research, the respondents were questioned about the performance of the professionals who work in MA. Of these, 42% believe that professionals do not publish in academic journals and, for 47%, professionals who work in MA do not usually read academic journals. Despite this, the respondents consider that 49% research in academic journals and that 48% participate in scientific events. Nevertheless, 61% of professionals do not teach courses and/or lectures.

Section 3 dealt with the perception of the extent of the gap between academic research in management accounting and practice and how important this gap is. A difference was observed between the perception of professionals and researchers regarding the academic research in management accounting being isolated from practice: the average score of the teachers' answers was 2.73, while the mean of the CRC members was 3.6 (Table 3), demonstrating that the board members feel, to a greater extent than the teachers, that research is too isolated from practice. These results are consistent with Tucker and Parker (2014) and Tucker and Schaltegger (2016), who observed unanimity in the perception of the gap between research and CG practice. Victor-Ponce and Colomina (2016) point out that there is a need to reduce this gap.

Table 3

**Comparison of perceptions between professionals and researchers about the relation between research and practice**

| Item | Range* | | | | Mean | | Standard Deviation | |
|---|---|---|---|---|---|---|---|---|
| | Min. | | Max. | | | | | |
| | Res. | Prof. | Res. | Prof. | Res. | Prof. | Res. | Prof. |
| 1. Academic research in MA is too isolated from practice | 1 | 2 | 5 | 5 | 2.73 | 3.6 | 1.16 | 1.18 |
| 2. Academic research should be based on practice | 1 | 4 | 5 | 5 | **4.18** | **4.53** | 0.92 | 0.51 |
| 3. Academic research generally takes place based on practice | 1 | 1 | 5 | 5 | 3.30 | 3.06 | 1.07 | 1.22 |
| 4. MA practice should consider the academic research results | 1 | 2 | 5 | 5 | **4.05** | **3.93** | 0.89 | 0.88 |
| 5. MA practice takes the discoveries of academic research into account | 1 | 1 | 5 | 4 | 3.01 | 3.07 | 1.11 | 1.03 |

Source: research data.

Where: ***** The range for all items is 1- I totally disagree, 5- I totally agree.

The need for academic research in management accounting to be based on practice was perceived in 91% of the answers, as well as the need to use the practice in academic research (84%). This shows that most respondents, between researchers and practitioners, believe that research should be practice-based. Forty percent of the respondents realize, however, that the academic research in management accounting does not take the results of the practice into account. Albu and Toader (2012) emphasize that integration initiatives between professionals and researchers would serve the purpose of both sides, providing academics with a better understanding of the challenges and opportunities of the market and enabling professionals to find immediate solutions to the needs of the practical environment. Silva and Ott (2012), in a study involving accountants from Rio Grande do Sul (RS), found that most accounting professionals do not maintain contact with researchers in Accounting not even once a year, which reinforces this distance.

The questions joined in block four measured how the research results interact with organizational practice. Among the respondents, 37% believe that business inappropriately influences the academics' selection of research questions by academics is influenced inappropriately by business. Fifty-three percent of the respondents believe that research topics, selected by academic research, do not meet practical needs. Forty-eight percent think that the research questions formulated are restricted and do not consider the multidisciplinarity of the subjects, while 43% disagree. The remainder (57%) agrees that most researchers do not care about the market professionals' immediate and short-term needs.

These results are in line with the findings of Tucker and Parker (2014), when they assert that academic research in management accounting is not sufficiently involved with practice. Tucker and Schaltegger (2016) argue that the problem of the gap between theory and practice in knowledge production occurs because the research questions posed by academics are disconnected from the pressures that professionals face daily.

It was common sense among the respondents (96%) that direct contact between researchers and practitioners should improve the quality of academic research in management accounting, and most (75%) consider it an important barrier in generating more relevant research results because most MA practices remain confidential. For Tucker and Parker (2014), one of the explanations is practical experience limited by the lack of incentives for MA researchers. Silva and Ott (2012) conclude that communication is an important barrier between accounting research and practice.

Block five, which joins the stages of persuasion and decision (translation phase), verified how the generalization of the research results reaches the organizational practice. Rogers (1983) specifies that, in the stage of persuasion, the individual actively seeks information about the new idea, which is why the relative advantage, compatibility and complexity influence the formation of attitudes. The decision step consists in accepting or rejecting the adoption of an innovation. Almost all respondents (95%) think that conducting joint symposia (between researchers and practitioners) can improve the engagement between the academia and professional practice. The results of Silva and Ott (2012) found that most accounting professionals in the state of Rio Grande do Sul do not participate in congresses and accounting events.

Likewise, 94% positively consider the idea that, if academics had the opportunity to work in organizations, teamwork (93%) and practical training (91%) could improve the relation between research and practice. Tucker and Parker (2014) reveal that the way the published research was written and the professionals' lack of access to academic journals are factors that explain the gap between research and practice. Victor-Ponce and Colomina (2016) point out that there are few journals for accounting professionals.

Block six, which joints questions that characterize the stage of implementation (dissemination phase), was intended to measure how research results reach organizations. It is at this stage that the new idea is put into practice (Rogers, 1983). It was verified that 63% of respondents believe that market professionals do not access academic research. Tucker and Schaltegger (2016) point out the lack of access of Australian professionals to academic research in management accounting as a relevant barrier to unavailability, a fact not observed in German professionals. Silva and Ott (2012) found that 63% of the respondents read accounting journals and that 43% of them are interested in MA themes.

Rogers (1983) infers that an individual can develop a need when he discovers the existence of innovation. Therefore, innovations can lead to needs or vice versa, and knowledge about the existence of an innovation can create motivation towards its adoption. In observing the results of this investigation, it was verified that 74% agreed with the idea that important research results are not effectively disseminated to the professional public and that 86% considered that many research results could be useful for managers, but are not used. For 12% of the respondents, it is not necessary to improve the way in which the results of investigations are transmitted to managers, while the vast majority (86%) think this is necessary.

Knowledge is the information needed to use innovation properly. The adopter needs to understand how this new idea works and use it correctly, and so on (Rogers, 1983). The findings of the study indicate that, in relation to the up-to-dateness and knowledge of the managers, for 74% of the respondents, managers are not up-to-date in relation to relevant publications, published in academic journals. For 62%, managers do not know how to access the results of academic research in management accounting and, for 68%, the managers are not up-to-date on information - surveyed in academic research - relevant to the practice. Finally, for 53% of the respondents, the results of academic research are difficult to locate.

Block seven presents the phase of change (confirmation), which addresses the stage at which organizational changes are made. The decision maker seeks to reinforce an innovation decision already made, but it is possible to reverse that decision if the decision maker receives conflicting messages about the innovation (Rogers, 1983). The questions posed in this block aim to determine to what extent the research in MA influences the practice.

For 66% of the respondents, the insufficient time researchers spend in the organizational field is a major barrier to the implementation of research results. The study by Victor-Ponce and Colomina (2016) reiterates these results for the absence of interaction between the academy and professional activities. For 89% of the respondents, the academic research in management accounting needs to propose new techniques that meet the new needs and opportunities the managers face. Despite changes in the environment, MA systems resist these changes or change very slowly (Angonese & Lavarda, 2014).

Eighty-eight percent of the respondents agree that academic research in management accounting should focus more on identifying the conditions necessary for the successful implementation of management accounting techniques. Also, 88% agree that academic research in management accounting should be directed at explaining, understanding and criticizing the motivations or results of the adoption and use of Management Accounting techniques.

For 72% of the respondents, academic research in management accounting should focus on communication, leadership, and trust building issues that may facilitate the change, while 64% believe that academic research in management accounting should focus on evaluating the effectiveness of the techniques and approaches the professionals use. For 64% of the respondents, however, many professionals do not have the critical ability to evaluate research, and 57% think that many professionals are not trained enough to use the research results.

In the last block (block eight), three questions were intended to evaluate the efforts made by professional associations (Regional Accounting Councils) to overcome the gap between research and practice. Among the respondents, 72% believe that CRCs play an important role in narrowing the gap between academic research in management accounting and MA practice, and 59% believe that CRCs are ineffective in narrowing the gap between academic research in management accounting and MA practice. While 40% understand that CRCs contribute to narrowing the gap, 45% disagree. These results are in line with Tucker and Schaltegger (2016) when they point out, in both Germany and Australia, the important role that professional associations play in overcoming the gap between research and practice, also noting that they could do a little more to reduce this gap.

In relation to the diffusion-innovation phases, considered as barriers to the diffusion of management accounting, the results of this research (Table 4) show that there is no phase that is totally responsible for the imposition of barriers between theory and practice. Nevertheless, the translation phase is predominantly appointed as a major concern of the respondents, for the professionals (CRC members) as well as the researchers (Accounting teachers). This phase is appointed as having the greatest potential to increase the gap between academic research and the practice in management accounting.

Table 4
**Respondents' assessment of diffusion barriers**

| | Barriers | | | |
|---|---|---|---|---|
| | **Discovery (Knowledge)** | **Translation (Persuasion and decision)** | **Dissemination (Implementation)** | **Change (Confirmation)** |
| Professionals | 24% | 28% | 22% | 26% |
| Researchers | 22% | 29% | 23% | 26% |

Source: research data.

Given the above, according to the analysis, using the original instrument of Tucker and Schaltegger (2016), all barriers can hinder the adoption of results of academic research in management accounting in the daily practice. Once the barriers are identified, it is necessary to engage in the solution of difficulties. In this sense, the findings of this study explain that there are no large percentage differences between the recognition of one barrier to the detriment of the other in the opinion of both the council members and teachers.

In order to analyze the reliability of the original instrument proposed by Tucker and Schaltegger (2016), preliminary analyses of the variables were performed. It was verified that there were no missing data, because the use of Google forms requires the completeness of the answers. Regarding the descriptive statistics of the data, it was observed that the asymmetry measures were below 1.7 and kurtosis below 1.9, indicating "that the residues do not have a perfect, normal distribution; for a normally distributed variable, asymmetry (a measure of symmetry) should be zero and kurtosis (which measures how high or squat is the normal distribution) should be 3" (Gujarati & Porter, 2011, p. 150).

Next, factorial analysis was performed to reduce the variables in latent dimensions. The objective was to confirm whether the questions used by Tucker and Schaltegger (2016) properly represented the barriers described by Brownson et al. (2006), Rogers (1983), Tucker and Parker (2014), and Tucker and Schaltegger (2016), as the research tool was translated and adaptations might be necessary.

Questions with divided commonalities were removed from the model and fixed on the barrier where loadings were more representative. Initially, for the confirmatory factor analysis, the main components were extracted, until the fitness of the correlation matrix was verified regarding the assumptions necessary for the multivariate analysis, such as the absence of multicollinearity and the factorability of the data. The KMO indicator equaled 0.681.

It was decided to extract four factors using the principal factor method with orthogonal varimax rotation. The internal consistency of the factors was measured using Cronbach's Alpha (0.782). The factor solution found (accounting for 71.55% of the total variance) pointed to four factors with eigenvalues greater than 1, which presented a distribution of items divergent from that found in the original questionnaire. Based on the correlation matrix and distribution of the factor loadings, the validated scale was reduced to ten questions, according to Table 5.

Table 5
**Component Matrix**

| | Component | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Most researchers are unconcerned with the market professionals' immediate and short-term needs (discovery) | .390 | **.508** | -.345 | .313 |
| The market professionals prefer to gain information through other means to the detriment of academic research results. (dissemination) | .329 | .478 | .072 | **.601** |
| Investigations using the action-research method will probably significantly enhance the coherence of academic research to the professionals. (translation) | **.561** | .437 | -.320 | -.272 |
| Joint research teams (academy and professionals) are likely to significantly enhance the extent to which the practitioners are able to understand how academic research is written. (translation) | **.751** | .243 | -.129 | -.365 |
| Many research results that could be useful to managers go unutilized. (dissemination) | .585 | .166 | **.593** | .110 |
| The managers do not possess up-to-date relevant information for practice, surveyed through academic research. (dissemination) | .268 | .173 | **.847** | -.164 |
| Academic research should direct more attention to identifying the conditions necessary for the successful implementation of management accounting techniques. (change) | **.710** | -.295 | -.175 | -.015 |
| Academic research should be directed at explaining, understanding and criticizing the motivations behind or outcomes of the adoption and use of management accounting techniques. (change) | **.702** | -.556 | .046 | .165 |
| Academic research should focus more on issues of communication, leadership and trust building that can facilitate change. (change) | **.603** | -.444 | -.080 | .391 |
| Direct contact between researchers and professionals should improve the quality of academic research. (discovery) | **.683** | -.085 | -.068 | -.372 |

Source: research data.

Thus, the phases presented different aspects of Tucker and Schaltegger's instrument (2016) and new results were found (Table 6).

Table 6
**Respondents' assessment of diffusion barriers after factor analysis**

| | Barriers | | | |
|---|---|---|---|---|
| | **Discovery (Knowledge)** | **Translation (Persuasion and decision)** | **Dissemination (Implementation)** | **Change (Confirmation)** |
| Professionals | 25% | 26.7% | 23.7% | 24.6% |
| Researchers | 23.6% | 27.4% | 24% | 25% |

Source: research data.

It is noticed that the results are close to the original, maintaining the translation phase as the main barrier. According to the professionals, however, the second barrier that most influences the gap between theory and practice is the discovery, followed by change and, finally, dissemination. In the researchers' perception, the order remained unchanged.

This final scale moved away from the original instrument by Tucker and Schaltegger (2016) and provides evidence of the need to revise the instrument. It should be emphasized that, in the original study, the authors used a restricted number of interviewees and that, despite having indicated reliability measures and the performance of the ANOVA test, a large part of the analysis was based on the content analysis technique.

## 4.1 Implication of Results

The innovation development process consists of all decisions, activities and impacts that result from the recognition of a need or problem. In this context, the diffusion of innovation may encounter barriers that restrict the adoption of this process.

The research by Tucker and Schaltegger (2016) showed that a common barrier that prevents the approximation between academic research in management accounting and practice in Germany and Australia is the lack of communication between people. In a Brazilian study, Silva and Ott (2012) reinforce this observation. This study corroborates the findings of these authors, as 96% of the respondents agree that the direct contact between researchers and professionals can favor improvements in academic research in management accounting. These insights are in line with the diffusion of innovation theory, in which innovation is communicated through channels among members of a system, providing a process of convergence (or divergence) as two or more individuals exchange information.

Unlike Australia, where the main barrier is access to academic research, in this study, only 53% of the respondents think that the results are difficult to find. As in Germany, where the main barrier according to Tucker and Schaltegger (2016) was the irrelevance of topics surveyed by academics in Brazil, only 53% of respondents believe that the research topics selected by academics do not meet the practical needs.

Almost all respondents agree that joint engagement between researchers and practitioners, whether participating in joint events or exchanging experiences, in which academics can know the market, would lead to a reduction of the gap between theory and practice. Like Wilson et al. (2010) identified the increasing interest in reducing this gap, among the respondents, willingness in this sense is perceived.

In the phase called "knowledge", the individual gains some understanding of the functioning of innovation when exposed to it (Rogers, 1983). The translation phase, as Tucker and Schaltegger (2016) point out, is one of the main obstacles in the gap between theory and practice. This phase represents the failure to communicate knowledge and refers to the understanding of research, in which the discoveries are often hampered by poor presentation, such as over-attention to methodology and theory, or by ignoring any research implications that are potentially relevant and interesting to professionals.

Next, the respondents consider the phase of change as the second biggest obstacle. At this stage, the parties involved need to be ready, willing and able to embrace new ways of operating. The researchers consider the discovery phase the smallest obstacle. For professionals, the dissemination phase is the smallest obstacle among the phases of knowledge diffusion.

Jansen (2018) suggests that interventionist research may be a way for management accounting researchers to gain experience in performing literature reviews that identify ideas on how to solve practical problems. The author states that this review is focused on a specific practical problem and joins all the literature on how this problem could be solved. Oyadomari, Silva, Mendonça Neto and Riccio (2014) support that the interventionist approach can contribute to the development of a theory in management accounting.

Flamholtz (1983) already alerted that accounting tends to focus on aspects of the accounting process in isolation from the organizational context and Scapens (1994) believes that researchers should focus more on the practice of management accounting. One can consider that this statement already indicated that accounting research is not isolated from practice.

## 5. Final Considerations

This study contributes to the debate about the relevance of academic research in management accounting and the practice in management accounting and provides evidence regarding the nature, extent and diffusion of the researchers and accounting professionals' (represented by members of the Regional Accounting Councils) perception. The study advances on the original discussion based on the studies by Tucker and Lowe (2014), Tucker and Parker (2014) and Tucker and Schaltegger (2016), as they work with a higher numerical sample and make use of factor analysis to validate the scales. In addition, it indicates advances that need guidance for management accounting research to approximate the practice.

Regarding the research in management accounting, it was verified that, to a greater extent than the teachers, the professionals feel that the research is too isolated from practice, and they unanimously perceive that academic research needs to appropriate the problems deriving from the practice.

The use of Diffusion theory permitted deeper insights into the barriers that impede the most effective engagement between academic research in management accounting and the practice. In this sense, this research, instead of discussing a potential gap between theory and practice, makes use of the framework conceived by the diffusion of innovation theory to identify which factors can be considered as impediments to the diffusion of management accounting research.

The results indicated that the diffusion of management accounting research, in the Brazilian context, encounters difficulties or barriers, according to the four phases described by Brownson et al. (2006), Rogers (1983), Tucker and Parker (2014) and Tucker and Schaltegger (2016). The perceptions unanimously indicated a slight predominance of the translation phase, among the professors of Accounting and the professionals, represented by knowledge communication failures, by a reduced understanding of the research, by the direction of the research in themes not applicable to the interests of the professional body. These results indicate that the four phases represent obstacles or barriers to the diffusion of research results in management accounting in the development of professional activities.

The results and conclusions of this study should be observed with limitations as, despite several attempts, a small number of council members participated, who were considered representatives of the professional association that participated in the study. As a proposal for the continuity of this study, the construction of a new research instrument that better characterizes the diffusion barriers of management accounting research could contribute to the understanding of the gap between research and practice in management accounting.

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