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What Causes the Gap Between Academic Findings and Practice in Japanese Management Accounting?

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Abstract

This paper aims to show the factor of the gaps between the management accounting academic knowledge and management accounting practice in Japan. We applied innovation diffusion theory to reveal the problem based on the previous research (Tucker and Lowe, 2014, Tucker and Parker, 2014; Tucker and Schaltegger, 2016). We surveyed the head of the general accounting department or the business administration department at 895 Japanese manufacturing firms listed in first section of the Tokyo Stock Exchange. Based on the results of questionnaires, two findings are determined. First, it is important for bridging the gaps to generalize academic knowledges, to consider the way to diffuse knowledges and to show the introduction method to practice. Second, it suggests the characteristics of the management accounting staffs influence the factor of the gaps.

Keywords: Research Practice Gap, Innovation Diffusion Theory, Management Accountant in Corporation

1. Introduction

Management accounting scholars often discuss the relationship between management accounting research and the practice of management accounting in real organizations, as evidenced by some special issues in prominent journals (cf., Accounting, Auditing & Accountability Journal, Management Accounting Research, Accounting[Kigyou Kaikei in Japanese]). These discussions refer to the inconsistency between practice and academic discussion as the research-practice gap. Two research streams investigate this gap by either by aiming to determine whether there is a gap and what the gap is (Kato, 1989; Sakurai, 1991; Nishizawa, 1996) or aiming to resolve the gap by describing, theorizing, or conceptualizing management accounting practices (cf., Japan Accounting Association Special Committee, 1996; Miya et al., 1999; Cooper, 1995).

Some resent research shows the existence of a research-practice gap and the need to discuss how to bridge the gap (Tucker and Parker, 2014). Others point out that the gap exists due to the researchers' unconsciousness of contribution to management accounting practice (Baldvinsdottir et al., 2010; Inanga and Schneider, 2005; Kaplan, 2011; Merchant, 2012; Parker et al., 2011). In response, some studies aimed to solve the problem of diffusing academic knowledge to practice (Tucker and Lowe, 2014, Tucker and Parker, 2014; Tucker and Schaltegger, 2016). Tucker and Schaltegger (2016) indicated that the problems differ by country. It is therefore important to find the issue for each individual country. Therefore, this study investigates the issues that may lead to the research-practice gap in Japan. We address the problem using a survey based on innovation diffusion theory (Brownson, et al., 2006; Dearing, 2008; Gautam, 2008), which has been used in previous studies (Tucker and Lowe, 2014; Tucker and Parker, 2014; Tucker and Schaltegger, 2016).

The remainder of this paper proceeds as follows. Section 2 reviews the previous research and proposes the research question. Section 3 describes the data collection, variables, and analysis. Section 4 presents the results with a related discussion before Section 5 concludes.

2. Literature Review and Research Question

2.1 Literature review

The discussion of the research-practice gap dates back to comments noting a difference between the use of management accounting knowledge that academics prefer and the use in practice (Scapens, 1985) and that note that academic discussions of management accounting cannot provide methods or mechanisms for use that are suitable for practical situations (Johnson and Kaplan, 1988). There are two gaps: one is that academics do not describe or theorize the

observed widespread management accounting practice, and the other is that academics actively discuss some management accounting phenomenon or techniques rarely used in practice (Kato, 1989; Scapens, 1985). In Japan, the former gap has been bridged by finding new management accounting practices such as target costing, micro-profit centre management, and amoeba management through observation, theorization, or conceptualization in several case studies and field studies (Japan Accounting Association, 1996; Miya et al., 1999, Cooper, 1995).

On the other hand, other researchers find that management accounting tools or techniques that academics discuss actively, such as balanced scorecard (BSC) and activity based costing (ABC) are rarely used in practice (Kawano, 2014; Yokota and Senoo, 2011; Yoshida et al., 2015). This finding appears through the widespread use of unsophisticated capital investment techniques, which are disagreeable academically or theoretically (Shimizu and Tamura, 2010; Sugiyama, 2002; Yoshida et al., 2015). Although some researchers began investigating the factors that help or hinder the use of new tools such as BSC or ABC (Otomasa, 2005; Tani, 2004), there is no evidence showing the diffusion of new tools.

While some research findings may bridge the research-practice gap, it is important to consider the cause of the gap to solve the problem. Some researchers pointed out that it is because management accounting scholars are not conscious of their contribution to practice (Baldvinsdottir et al., 2010; Inanga and Schneider, 2005; Kaplan, 2011; Merchant, 2012; Parker et al., 2011). Kaplan (2011) indicates that management accounting scholars do not provide information that improves practice, despite trying to describe practice by observation or estimation, leading practitioners to lose interest. Baldvinsdottir et al. (2010) argue that 'management accounting research is to maintain its distinctiveness from the other social sciences and disciplines to which it has become linked' in an MAR special issue. To do so, management accounting researchers need to find the relationship between academic research and practice and explain the stages of the empirical research: identify, describe, explain, understand, and prescribe. The identify and describe stages explore the data and are conducted during the research process. The explain and understand stages are directly linked to research publications, in which researchers have great interest. Thus, there are many publications in these stages. However, there are few publications in the prescribe stage. Moreover, some argue that the management accounting discussion should be interested in improving practice rather than describing or evaluating practice (Kazusa and Sawabe, 2006; Merchant, 2012; Parker et al., 2011).

In response to this debate, some studies aimed to determine the problem in order to solve the research-practice gap (Tucker and Lowe, 2014; Tucker and Parker, 2014; Tucker and Schaltegger, 2016). These investigations utilized the barrier to innovation diffusion theory to find the causes of the gaps. The barrier to innovation diffusion theory consists of discovery, translation,

dissemination, and change (Rogers, 2003). The discovery stage is 'the creation of knowledge through rigorous research that provides the scientific foundation of a discipline' (Gautam, 2008, p. 156). The translation stage is associated with making the research findings understandable to practitioners (Tucker and Lowe, 2014, p. 402). The dissemination stage relates to the accessibility of the research findings for practitioners, and addresses the 'concern that management accounting research fails to engage with practice frequently relate to this stage' (Tucker and Lowe, 2014, p.403). The change stage is associated with improving practice, which is 'the ultimate goal of applied academic research' (Tucker and Lowe, 2014, 403).

Tucker and Lowe (2014) utilized this theory and collected and analysed data from a questionnaire survey and follow-up interviews with 19 representatives of the four principal professional accounting bodies in Australia. They found that professional accounting bodies perceive the gap between academic research and practice in management accounting to be of limited concern to practitioners. In addition, they indicate two large barriers: (1) difficulties in understanding academic research papers and (2) limited access to research findings. They then point out the importance of accounting professionals who can potentially bridge the gaps.

Tucker and Parker (2014) surveyed 64 senior management accounting academics from 55 universities in 14 countries about the extent to which academic management accounting research does, and should, inform practice. According to this paper, most academics realize the expanding gap between academic research and practice, and the need to bridge the gap. This viewpoint relies on the assumption that management accounting research has to be helpful to improve practice. On the other hand, 'the other school holds that a divide between academic management accounting research and practice is appropriate, and that efforts to bridge this divide are unnecessary, untenable or irrelevant' (Tucker and Parker, 2014, p. 104). This viewpoint assumes that academic research has to explore new knowledge, and the impact on practice is a secondary matter. Then, 'management accounting research as appropriately or unavoidably distinct and divorced from the practice of management' (Tucker and Parker, 2014, p. 133).

Tucker and Schaltegger (2016) conducted a questionnaire survey of German and Australian professional accountants to examine the influence of the country context. They found that both share the recognition that the problem is in generalising research findings in the translation stage. On the other hand, there were some differences between those two countries. Australian accountants recognize the difficulties in accessing academic knowledge, which is represented as a barrier to dissemination because the academic discussion of management accounting is interested in Australia. In Germany, there seems to be a barrier to diffusion in the discovery stage, which means that management accounting scholars and practitioners' have diverging interests because practitioners in Germany are sceptical of the usefulness of academic discussion.

2.2 Research problem

These discussions indicate that even people with a certain knowledge of accounting, such as consultants, have difficulty in understanding the research findings described through academic works and theorization, which is necessary to publish papers in the international academic journals that most researchers prefer (van Helden et al., 2010). Therefore, utilizing the innovation diffusion theory is a suitable means to reveal the issues behind the problem of diffusing academic knowledge to practice in Japanese context.

In this study, we consider the cause of the research-practice gaps in Japan by analysing the process (discovery, translation, dissemination, change) of knowledge related to management accounting practice. In contrast to previous studies that used surveys of accounting professionals (Tucker and Lowe, 2014; Tucker and Schaltegger, 2016) and management accounting scholars (Tucker and Parker, 2014), this study targets practitioners responsible for management accounting systems in companies. The use of management accounting should be influenced not only by the organizational context such as strategy or environment, but also by people who play important roles in designing or operating management accounting systems (Hopwood, 2008; Scapens, 1994), thus, it is important to consider the role these people play in solving the cause of the research-practice gap.

3. Research Design

3.1 Sample

In February to March of 2016, a questionnaire with a cover letter and a stamped self-addressed return envelope was mailed to either the head of the general accounting department or the business administration department at 895 Japanese manufacturing firms listed in first section of the Tokyo Stock Exchange. We chose chief controllers as respondents because they are the most knowledgeable about their respective firms' design and use of management accounting systems. To incentivize potential participants to respond, we promised to provide them with an executive summary of the study at their request. Moreover, we attempted to contact respondents twice with follow-up messages. Of the 895 questionnaires mailed, 122 (13.6%) were returned. Some questionnaires were discarded due to missing data, resulting in a final sample size of 115 (Table 1).

Table 1. Questionnaire response rates

Industry classification		Sent	Received	
3050	Foods	78	9	11.5%
3100	Textiles and apparels	39	5	12.8%
3150	Pulp and paper	11	1	9.1%
3200	Chemicals	137	17	12.4%
3250	Pharmaceutical	40	6	15.0%
3300	Oil and coal products	11	2	18.2%
3350	Rubber products	11	4	36.4%
3400	Glass and ceramics products	33	2	6.1%
3450	Iron and steel	32	4	12.5%
3500	Nonferrous metals	24	2	8.3%
3550	Metal products	39	5	12.8%
3600	Machinery	129	14	10.9%
3650	Electric appliances	161	23	14.3%
3700	Transportation equipment	66	8	12.1%
3750	Precision instruments	29	5	17.2%
3800	Other products	55	7	12.7%
	Unknown		1	
	Total	**895**	**115**	**12.8%**

Two tests were conducted to assess whether the data suffered from any response bias. First, a comparative analysis (t-test) between the responding and non-responding firms indicated no significant differences in size (sales and number of employees). Second, a chi-square goodness of fit test between the sample and responding firms indicated no significant difference in industry distributions. Therefore, these results suggest no evidence of response bias in the empirical data.

3.2 Measurement of Variables

The questionnaire sought to identify the dominant barriers or impediments that prevent research from more adequately informing practice as perceived by respondents. The questionnaire measurement items were mostly adapted from previous research, which should enhance the comparability, relevance, and reliability of the results. The questionnaire measurement items were designed and adapted in accordance with prior research (Tucker and Lowe 2014). First, since the survey targeted accounting department chiefs in private firms rather than accounting professionals or academics, some questions unrelated to private firms were excluded. Second, the questionnaire wording was designed to evoke management accounting, we asked about performance measurement. Third, the questionnaire was pilot tested with a few academics and two practitioners who head business administration departments to establish the content and face validity. This resulted in minor changes to the questionnaire in terms of wording and format.

The questionnaire measurement items consisted of 31 questions (Table 2). An exploratory factor analysis indicated 6 items with loadings less than 0.4, which was then recalculated after deleting these items. This resulted in four factors within constructs above 0.4 (Table 3). The first factor relates to barriers to the closer integration of research and practice presented at the discovery stage. The discovery stage has been framed as a knowledge production problem, such as a failure to ask more managerially interesting questions (Rynes et al., 2001). The second factor relates to barriers at the translation stage, which requires that academic research be presented in a form that practitioners can understand (Tucker and Lowe, 2014). The third factor relates to barriers at the dissemination stage, which is associated with the extent to which practitioners can access research findings via usable channels, such as books, media, and so on (Gautam, 2008). The fourth factor relates to barriers at the change stage, which represents adoption or implementation of practices based on evidence from research findings (Gautam, 2008). Collectively, these items produced a good reliability estimate ($\alpha = 0.894, 0.860, 0.819, 0.806$). Like the other scales, the high reliability estimate allowed for the calculation of a mean that could serve as the composite score for these scales.

Table 2. Descriptive statistics for the survey questions

Questions	Range	Mean	S.D.
Academics' selection of research questions is inadequately informed and influenced by business practitioners	1 – 5	3.02	0.783
Academics currently do not select research topic that are importance to practitioners	1 – 5	2.90	0.713
Academics currently do not select research topics that are relevant to practitioners	1 – 5	2.94	0.704
The formulation of research questions by academics researcher is too narrow in that it fails to take into account the influence of other disciplines	1 – 5	3.23	0.949
Most academics research are unconcerned with the immediate and short-term needs of practitioners	1 – 5	3.03	0.760
Higher levels of direct contact with practitioners should improve the quality of academics research	1 – 5	3.82	0.833
An important barrier in the selection of relevant academic research is that performance measurement practices remain for the most part, confidential	1 – 5	3.43	0.992
Research has had a very limited effect on practice because it is typically oriented towards other academics, rather than practitioners	1 – 5	3.50	0.842
Practitioners do not particularly value academic research, relative to other kinds of information they may access in pursuing their management development	1 – 5	2.83	0.840
Joint symposia between academics and practitioners are likely to significantly enhance the relevance of academic research to practitioners	1 – 5	3.44	0.840
Development of consulting relationships is likely to significantly enhance the comprehension of academic research to practitioners	1 – 5	3.20	0.850
Academics taking sabbaticals in industry are likely to significantly enhance practitioners' understanding of academic research	1 – 5	3.17	0.861
Undertaking action research programs are likely to significantly enhance the coherence of academic research to practitioners	1 – 5	3.56	0.774

Joint academic-practitioner research teams are likely to significantly enhance the coherence of academic research practitioners	1 – 5	3.20	0.850
Practitioner training based on academic research findings is likely to significantly enhance the understanding of academic research to practitioners	2 – 5	3.30	0.725
Business practitioners do not access academic research	1 – 5	3.34	0.999
Important research results are not effectively disseminated for practitioners	1 – 5	3.59	0.815
Many important research findings that could be helpful to managers go unutilized	1 – 5	3.17	0.991
Improving how research findings are transmitted to practicing managers is necessary	1 – 5	3.70	0.840
Practitioners are not aware of relevant academic journals that publish academic research	1 – 5	3.33	1.015
Practitioner are unaware of how they might inform themselves of the findings of academic research	1 – 5	3.19	1.154
Practitioners are not aware of relevant academics research that might inform their practices	1 – 5	3.57	0.918
The findings of academic research are difficult to locate	1 – 5	3.26	0.828
Insufficient time spent by academic research at organizational sites is a major barrier to the implementation of research findings	1 – 5	3.10	0.737
Academics research should propose new performance measurement techniques that meet changing needs and opportunities facing practitioners	1 – 5	3.56	1.045
Academic research should focus on evaluating the effectiveness of existing performance measurement techniques and approaches used by practitioners	1 – 5	3.07	1.024
Academic research should direct more attention to identifying the conditions necessary for successful implementation of performance measurement techniques	1 – 5	3.36	0.929
Academic research should be directed at explaining, understanding and critiquing the motivations behind the adoption and use of performance measurement techniques	1 – 5	3.24	0.979
Academic research should focus more on issues of communication, leadership and trust building that can facilitate performance measurement change	1 – 5	3.10	0.927
Practitioners receive sufficient training in using research (R)	1 – 5	3.72	0.843
Practitioners possess the ability to critically appraise research (R)	1 – 5	3.18	0.884

In answering each question, use rage from 1 to 5, where '1' represents 'strongly disagree' and '5' represents 'strongly agree'.

Table 3. Questionnaire items and measurement analysis

	F1	F2	F3	F4
Academics currently do not select research topic that are importance to practitioners	**0.869**	-0.079	-0.128	0.041
Academics' selection of research questions is inadequately informed and influenced by business practitioners	**0.814**	-0.089	-0.032	-0.026
Academics currently do not select research topics that are relevant to practitioners	**0.790**	-0.061	0.020	0.064
Most academics research are unconcerned with the immediate and short-term needs of practitioners	**0.728**	0.024	0.036	0.077

The formulation of research questions by academics researcher is too narrow in that it fails to take into account the influence of other disciplines	**0.679**	0.089	0.194	-0.130
Practitioners do not particularly value academic research, relative to other kinds of information they may access in pursuing their management development	**0.674**	0.005	0.004	-0.182
Research has had a very limited effect on practice because it is typically oriented towards other academics, rather than practitioners	**0.638**	0.149	0.009	0.032
Higher levels of direct contact with practitioners should improve the quality of academics research	-0.068	**0.879**	0.180	-0.187
Joint symposia between academics and practitioners are likely to significantly enhance the relevance of academic research to practitioners	0.046	**0.770**	-0.059	-0.007
Undertaking action research programs are likely to significantly enhance the coherence of academic research to practitioners	0.098	**0.694**	0.076	0.108
Joint academic-practitioner research teams are likely to significantly enhance the coherence of academic research practitioners	0.072	**0.662**	-0.171	0.062
Development of consulting relationships is likely to significantly enhance the comprehension of academic research to practitioners	-0.008	**0.578**	-0.209	0.112
Academics taking sabbaticals in industry are likely to significantly enhance practitioners' understanding of academic research	-0.138	**0.546**	-0.124	0.003
Practitioners are not aware of relevant academics research that might inform their practices	0.010	-0.024	**0.766**	0.015
Practitioners are not aware of relevant academic journals that publish academic research	-0.079	0.051	**0.739**	0.009
Business practitioners do not access academic research	-0.116	-0.181	**0.703**	-0.044
Important research results are not effectively disseminated for practitioners	0.023	-0.054	**0.675**	0.047
The findings of academic research are difficult to locate	0.176	-0.031	**0.532**	0.125
Improving how research findings are transmitted to practicing managers is necessary	0.230	0.142	**0.457**	0.068
Practitioners receive sufficient training in using research (R)	-0.006	0.007	**0.443**	-0.123
Academic research should direct more attention to identifying the conditions necessary for successful implementation of performance measurement techniques	-0.058	0.081	0.051	**0.771**
Academic research should focus more on issues of communication, leadership and trust building that can facilitate performance measurement change	0.070	-0.233	-0.158	**0.697**
Academic research should be directed at explaining, understanding and critiquing the motivations behind the adoption and use of performance measurement techniques	0.012	-0.063	-0.092	**0.688**
Academic research should focus on evaluating the effectiveness of existing performance measurement techniques and approaches used by practitioners	-0.046	0.198	0.184	**0.638**
Academics research should propose new performance measurement techniques that meet changing needs and opportunities facing practitioners	-0.029	0.073	0.114	**0.616**
	Factor 1	—		
	Factor 2	-0.039	—	
	Factor 3	0.350	-0.307	—
	Factor 4	-0.109	0.477	-0.398	—

This table reports the results of the factor analysis. Bold indicates the loading of the survey items' wording.

4. Results

Having identified the barriers to diffusion of academic research to practice, we conducted a repeated measures analysis of variance (ANOVA) test with a post hoc Bonferroni test (alpha levels of 0.0125 = 0.05/4). Table 4 summarizes the ANOVA results, which indicated a statistically significant difference between the four stages ($F = 9.418$, $p < 0.01$), reflecting that practitioners perceive that some barriers are more important than others are in diffusing academic research findings to practitioners. The Bonferroni test results indicated that the barriers at the translation and dissemination stages were significantly higher than at the discovery stage ($p < 0.01$, 0.01).

Table 4. Descriptive statistics for the discovery, translation, dissemination, and change stages

	Theoretical Range	Range	Mean	S.D.
Discovery	1.00 – 5.00	1.00 – 4.86	3.06	0.628
Translation	1.00 – 5.00	1.50 – 5.00	3.40	0.641
Dissemination	1.00 – 5.00	1.00 – 5.00	3.50	0.621
Change	1.00 – 5.00	1.67 – 4.83	3.26	0.737

To check the reliability of these results, we conducted additional analysis. Specifically, we focused on the potential influence of the extent to which respondents were interested in management accounting research findings and use them as a reference. Practitioners' interest and recognition may affect the perception of the barriers to diffusing academic research findings to practitioners (Tucker and Schaltegger, 2016), the attempt to adopt new knowledge about management techniques (Hattori, 2015), and how management accountants affect decisions about which management accounting techniques to use and how to use them (Hopwood, 2008; Scapens, 1994).

First, after dividing the data into three subgroups based on the respondents' interest in management accounting research findings (Table 5), we conducted another ANOVA test with a post hoc Bonferroni test (alpha levels of 0.0167 = 0.05/3). In the high interest level group, the ANOVA analysis indicated a statistically significant difference between the four stages ($F = 5.773$, $p < 0.01$) and the post hoc Bonferroni test indicated that the barriers at the translation and change stages were significantly higher than at the discovery stage ($p < 0.05$, 0.1). In the middle interest group, the ANOVA analysis indicated a statistically significant difference between the four stages ($F = 9.371$, $p < 0.01$) and the post hoc Bonferroni test indicated that the barriers at the translation and dissemination stages were significantly higher than at the discovery stage ($p < 0.01$, 0.01). In

the low interest group, the ANOVA analysis indicated a statistically significant difference between the four stages ($F = 8.634$, $p < 0.01$) and the post hoc Bonferroni test indicated that the barriers at the dissemination stage were significantly higher than for the other stages (discovery: $p < 0.05$, translation: $p < 0.01$, change: $p < 0.05$).

These results suggest that respondents' interest in management accounting research findings may affect the perception of the barriers to diffusing academic research findings to practitioners. The ANOVA analysis also indicated a statistically significant difference between the three subgroups in the translation ($F = 12.563$, $p < 0.01$), dissemination ($F = 2.890$, $p < 0.1$), and change stages ($F = 6.453$, $p < 0.01$). The Bonferroni test's results indicated that the high and middle level groups perceived higher barriers at the translation stage than the low group did ($p < 0.01$, 0.01), and the high level group perceived higher barriers at the change stage than the low interest group did ($p < 0.01$).

Table 5. Descriptive statistics for the four stages based on respondents' interest levels

	High interest group (N=34)			Middle interest group (N=51)			Low interest group (N=30)		
	Range	Mean	S.D.	Range	Mean	S.D.	Range	Mean	S.D.
Discovery	1.14–4.86	2.96	0.799	2.00–4.43	3.04	0.480	1.00–4.42	3.22	0.620
Translation	2.00–5.00	3.64	0.760	2.83–4.67	3.50	0.422	1.50–3.83	2.95	0.596
Dissemination	1.00–4.71	3.33	0.751	2.29–4.86	3.50	0.476	2.29–5.00	3.70	0.641
Change	2.33–4.83	3.57	0.529	2.00–5.00	3.27	0.658	1.00–4.20	2.92	0.838

In answering question about interesting on management accounting research findings, use range from 1 to 5, where '1' stands 'strong disagree' and '5' stand strong agree. We divided 3 group based on the question's score, high interest group is 4 or 5, middle interest group is 3, low interest group is 1 or 2.

Secondly, after dividing the three subgroups based on respondents' use of management accounting research findings as a reference (Table 6), we conducted another ANOVA test with a post hoc Bonferroni test (alpha levels of 0.0167 = 0.05/3). In the high reference frequency group, the ANOVA analysis indicated a statistically significant difference between the four stages ($F = 5.967$, $p < 0.01$) and the post hoc Bonferroni test indicated that the barriers at the translation stage were significantly higher than at the discovery stage ($p < 0.01$). In the middle group, the ANOVA analysis indicated a statistically significant difference between the four stages ($F = 4.156$, $p < 0.01$), with the post hoc Bonferroni test indicating that the barriers at the dissemination stage were significantly higher than at the discovery stage ($p < 0.05$). In the low group, the ANOVA analysis indicated a statistically significant difference between the four stages ($F = 10.904$, $p < 0.01$) and the post hoc Bonferroni test indicated that the barriers at the dissemination stage were significantly higher than at other stages ($p < 0.01$, 0.01, 0.01).

Table 6. Descriptive statistics for each stage by respondents' levels of referencing academic research

	High reference group (N=34)			Middle reference group (N=51)			Low reference group (N=30)		
	Range	Mean	S.D.	Range	Mean	S.D.	Range	Mean	S.D.
Discovery	1.71–4.14	3.03	0.653	1.14–4.86	3.05	0.718	1.00–4.43	3.08	0.556
Translation	2.50–5.00	3.86	0.608	2.00–5.00	3.43	0.644	1.50–4.00	3.20	0.563
Dissemination	1.00–4.29	3.14	0.711	2.29–4.86	3.44	0.525	2.29–5.00	3.69	0.586
Change	2.33–4.33	3.42	0.588	2.00–5.00	3.44	0.593	1.00–5.00	3.08	0.806

Please use a range from 1 to 5 to answer the question about the frequency of using management accounting research findings as a reference, where '1' represents 'strongly disagree' and '5' represents 'strongly agree'. We divided the sample into 3 groups based on the scores, where the high reference group is 4 or 5, the middle reference group is 3, and the low reference group is 1 or 2.

These results suggested that respondents' frequency of referring management accounting research findings may affect the perception of barriers in diffusing research findings to practitioners. The ANOVA analysis also indicated a statistically significant difference between the 3 subgroups for the translation ($F = 9.111$, $p < 0.01$), dissemination ($F = 7.002$, $p < 0.1$), and change stages ($F = 3.303$, $p < 0.05$). The Bonferroni test results indicated that the high level group perceived higher barriers at translation stage than the other groups ($p < 0.1, 0.01$). On the other hand, the low group perceived higher barriers at the dissemination stage than the high level group did ($p < 0.01$).

4.2 Discussion

From the above results, it is conjectured that people responsible for management accounting recognize that management accounting scholars should work on problems related to the translation, dissemination, and change stages rather than the discovery stage. It seems that academic knowledge itself is not a barrier to diffusion because there was no significant difference at the discovery stage, regardless of the degree of concern with, interest in, or reference to academic knowledge. These results are consistent with those of studies (Tucker and Lowe, 2014; Tucker and Parker, 2014). People who play important roles in designing or operating management accounting systems in Japan do not see academic knowledge about management accounting as not useful for practice.

Next, it is conjectured that the recognition of which stage to address varies with the degree of concern with, interest in, or reference to academic knowledge. Organizations with high degrees of concern with, interest in, or reference to academic knowledge recognize the problems to address at the translation stage, which relates to theorizing about practice, as well as in the change stage, which introduces theorized knowledge to practice, rather than at the discovery and dissemination stages. Conversely, organizations at the lower end of the spectrum see an issue at the

dissemination stage, which relates to how to access academic knowledge.

5. Conclusions

This study investigated the problems in diffusing academic management accounting knowledge to actual practice to reveal the cause of the research-practice gap in Japan. This study offers some contributions though some challenges remain.

First, this study contributes to the literature by clarifying the knowledge diffusion stage at which there is a research-practice gap based on practitioners' perceptions of academic knowledge. Though previous research discussed the issue based on accounting professions or academics (Tucker and Lowe, 2014; Tucker and Parker, 2014; Tucker and Schaltegger, 2016), this study found a new aspect based on the perceptions of those who use management accounting.

The second contribution is that it is important to theorise academic knowledge, make it easy to access, and illustrate how to introduce a method when a researcher contributes to practice with new academic knowledge. The stage to address varies by degree of concern with, interest in, or reference to academic knowledge. Thus, academics should aim to solve the problem depending on their target contribution.

However, this study has its limitations. First, since this study's questionnaire took management accounting as a performance management system, making another assumption may lead to another result. Second, this study does not show the basis for the differing results in comparison to previous studies. It is unclear whether the difference is due to the country context or the survey target, which will require further research.

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