WORKING PAPER SERIES

Volume 2, Issue 1, 2011
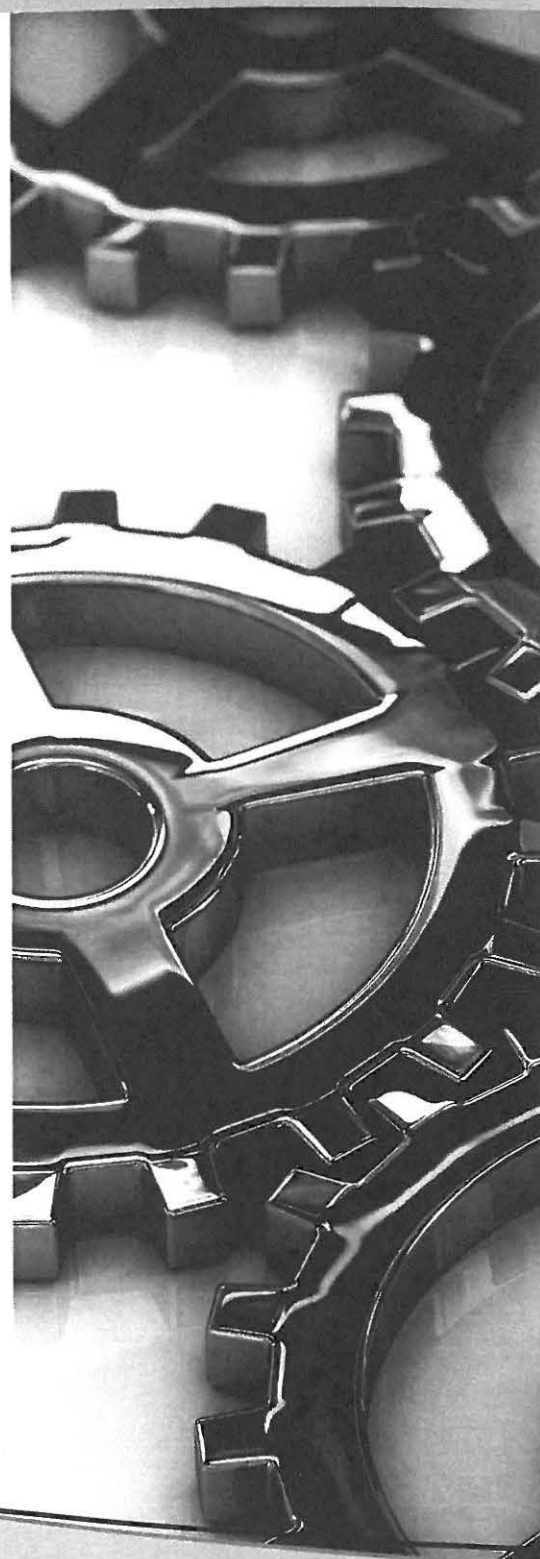
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Working Paper Series – Table of Contents

Editorial Comments

It gives us great pleasure to prevent the second Working Paper Series of the Business Research Group (BRG). This issue of the Working Paper Series have been contributed to by staff and Research Higher Degree students affiliated with the Business Research Group. The Business Research Group is a research group within CQUniversity's Institute for Resource Industry and Sustainability (IRIS) comprising business academics from the School of Commerce and Law and the School of Management and Marketing.

At the time of the Call for Papers for the Series papers were called for from any of the 'business' disciplines within the expertise of the BRG which include marketing, human resources management, organisational behaviour, organisational theory, finance, economics, accounting, information technology, strategy and property. This diverse group of disciplines is indicative of the scope and breadth of the BRG. It is also replicated by the papers that are presented in this issue of the Series.

The first paper titled, 'A process for building successful customer relationships with international education agents – An Australian universities perspective' is a paper submitted by a BRG Research Higher Degree student, Nadia O'Connell and Dr Ho Yin Wong and Dr Kylie Radel both academic members of the BRG from the discipline of marketing. The paper examines customer relationship management issues arising between Australian Universities and international education agents and proposes a step-by-step approach to be followed to develop customer relationships.

The second paper by Dr Ho Ying Wong and Dr Anthony Perrone (Charles Sturt University), titled, 'The antecedents of Word-of-Mouth behaviour: The service quality perspective' also comes from the marketing discipline. This paper presents the results of empirical study that was undertaken to investigate the nature and magnitude of the determinants of word-of-mouth behaviour in the context of service performance and post purchase perceptions. The paper suggests that the perception of high quality service by customers is likely to lead to positive word-of-mouth (WOM) referrals.

The third paper by Associate Professor Kristy Richardson and Mr Daryl Alcock moves from marketing to examine the use of an Audience Response System (ARS) as tool for conducting management learning research. The paper, titled, An Audience Response System: A Tool For Management Learning Research? reports on the use of an ARS within a conference setting to facilitate the exchange of 'knowledge' within the organisation.

We thank all of the authors who have responded to the Call for Papers by submitting to the Working Paper Series. Their contribution not only supports the BRG itself but showcases the expertise and breath of the academic and Research Higher Degree students with the BRG. Similarly, we thank those academics that gave freely and generously of their time to review the papers and provide their thoughts for not only how the papers might be improved for further development but provided positive and supportive comments about the projects as 'works in progress'. We hope that you, the reader, find this issue as interesting as we have.

Editors: Associate Professor Kristy Richardson and Dr Ho Yin Wong

An Audience Response System: A Tool For Management Learning Research?[*]

Abstract

This paper examines the use of an audience response system (ARS) as an appropriate tool for use in management learning and the researching of management learning. The ARS was used at the organization's Annual Conference and the data collected by the ARS enabled the instant sharing of the participants' views respect to some operational issues that had arisen through the course of the year leading up to the Annual Conference. The paper is an important contribution to the theory of management learning and supports the premise that an ARS is an appropriate research tool to investigate an organizational knowledge problem.

Keywords: audience response system, organizational research methods, data collection techniques, data collection technology, knowledge sharing, management learning

Introduction

Cavana, Delahaye and Sekaran (2001, 5-6) define business research as a "systematic and organized effort to investigate a specific problem or opportunity encountered in the work setting that needs a solution". They add that "the importance of business research to organizational managers is the provision of needed information that guides ... informed decisions to deal successfully with organizational issues". Informed decision making necessarily rests on the quality of the organization's "knowledge". It is accepted that knowledge is "the source of sustainable competitive advantage and economic growth" (Spender 2008; Drucker 1998). Whilst this may be Spender, (2008, 159) acknowledges that unlike assets such as tangible financial and physical assets, knowledge "is intangible, a part or aspect of the organization's intellectual capital, intimately tied up with its human constituents, what people individually and collectively know and do." This necessarily requires then a process by which what an organization's people individually and collectively know can be collected. In other words, as Spender (2008, 165) proposes:

> ... we might say that knowledge management begins precisely and only with the uncertainties and knowledge-failures that arrest rational decision-making and force us outside rationality's box. ... knowledge management is really about managing knowledge-absences rather than knowledge-assets.

The question then becomes how knowledge-absences may be detected, understood and resolved so that the knowledge can then be managed. Fortunately for the researchers the knowledge-absence upon which the research would be based had been detected by the organization. The organization's issue was how to engage in organization knowledge moving and sharing (Spender, 2008) to "convert" the absence by

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encouraging management learning between managers within the organization (Char and Holt, 2008) but in a participatory not didactic way (Graham, Tripp, Seawright and Joeckel, 2007). The tool proposed by the researchers was the use of an audience response system (ARS). The use of ARS in educational settings (secondary and tertiary) has been the subject of a significant amount of research. The literature demonstrates that the use of an ARS can provide benefits to both students and educators by facilitating interaction between students and the material being presented (Burton, 2005; Hoffman & Goodwin, 2006; Kay & LeSage 2009). The transferability of these educational and participatory benefits in an organizational context is less well defined or reported. Notwithstanding that the education and participatory benefits in an organizational context is less well defined or reported the research project described in this paper demonstrates how the ARS can be utilized as a research tool to provide a solution a knowledge problem within an organization.

This paper is presented in four parts. The first part examines the literature of the use of ARS in educational research and how a response system may similarly be used in an organizational context. The second part examines the organization's *problem* and how the research project was designed to incorporate the ARS. Part three presents the data collected from the research project. The paper concludes with a discussion of the issues arising from the research.

Audience Response Systems (ARS)

As McCarter and Caza (2009, 122-123) explain:
> An audience response system (ARS) is an electronic device designed to allow immediate interaction between an individual presenter and a large audience. An ARS typically has two parts. The first component is a remote control (or 'clicker') that audience members use to respond to questions. The second component is an electronic receiver (or 'hub') that records, and optionally, displays individuals' responses. … Each individual response is recorded by the hub and can be displayed via projector or exported as a data file for use in other software.

When used in the educational context Burton (2005, 2) suggests that an ARS:
> … allows students who attend the lectures to respond to questions or statements posed on a powerpoint slide by pressing a button on a keypad. The questions may consist of multiple choice questions, true or false questions and yes or no questions. …. Once the audience response system has received all the responses, it can generate a pie or bar graph to display the results.

In their examination of the learning and teaching literature, Kay and Le Sage (2009a) suggest that the ARS, as a tool, contributes to the learning experienced by students in a number of ways; for example, students' attendance in class increased, students were more engaged and they participated more with their peers in class to solve problems. These advantages of using an ARS are not limited to a particular discipline or disciplines with Burton (2005) confirming that ARSs have been used in diverse educational disciplines such as law, medicine, engineering, science, mathematics, economics and psychology. Given the established benefits in an educational setting, it is pertinent to ask whether use of an ARS is transferable to other settings; particularly in organizational settings.

While the literature reporting on the use of an ARS in an organizational setting is not extensive, the transfer of an ARS from an educational setting to an organizational setting is not unheard of. For example, McCarter and Caza (2009) found marketing organizations employed ARS to receive feedback from potential customers at tradeshows, and other organizations using ARS technology in strategic planning, brainstorming, monitoring training effectiveness and ice-breaking processes. Kay and LeSage's (2009b) examination of the literature identifies only five papers investigating professionals' use of an ARS. Therefore, the project, particularly the researchers' proposal to the organization that the ARS could be used to assist with the organization's problem is unique and makes a contribution to the incomplete literature base.

The Organization's Problem

The organization involved in the research project is a large privately owned company comprising a number of smaller subsidiary companies which form the collective group of companies (The Group). The organization is involved in a wide range of activities in the construction industry. As part of their organizational processes The Group's senior management has a commitment to the timely and effective exchange of knowledge and information between their subsidiary companies and to continuing education and training for all supervisors and managers. Of particular importance is the Annual Conference which is held for company managers. Historically The Group employed the traditional lecture style of information exchange, whereby a presenter (a company manager) stood at a lectern and delivered information. Different managers were allocated a session in which they provide conference participants with information concerning their particular company within The Group.

However, Group Management was concerned that managers were not actively participating in the meeting process so not necessarily hearing any message. In other words there was concern that there was a lack of effective knowledge sharing between managers (Lee 2010). For the 2009 Annual Conference the organization approached the researchers with respect to having an interactive session where participation was built into the knowledge sharing process. The introduction and use of an ARS was proposed as the tool that could be used to get the managers actively participating in knowledge sharing during the meeting and also to show the potential of the ARS for use for data collection in management learning research.

The Research Project

As Lee, Gillespie, Mann and Wearing (2010, 475) correctly point out, "knowledge sharing in a team is not automatic, and the team's leader has the potential to strongly influence the extent of knowledge sharing." They therefore suggest that:

By practicing the knowledge builder role, leaders create opportunities and processes that stimulate and encourage knowledge sharing amongst team members. For example, by offering new ideas, challenging technical solutions and stimulating new approaches to work, leaders instigate team discussions and review which, by their very nature, lead to team knowledge sharing. They are setting the example and signaling that the open sharing of ideas and information is important and valuable for the team. As a result of this role modeling, team

members are likely to reciprocate and share their expertise and knowledge with the team.

From this background and in the context of the organization's knowledge problem the use of an ARS, as McCarter and Caza argue (2009, 128) offered "many advantages, in terms of validity, simplicity, non-invasiveness, and the ability to give back to research participants." Further, McCarter and Caza (2009, 127) argue that the use of an ARS for academic research purposes "has the potential to overcome three of the most common and important data collection problems facing researchers: the cost-response problem, the large sample-size problem, and the data entry problem."

So far as related to the research project the relevant benefits McCarter and Caza (2009) identify with respect to the use of an ARS as a data collection tool included the ease with which the data was collected, the ability to enter into an organization to collect data within a regular business setting, the ability to collect data from large samples quickly, efficiently and accurately and the ARS can be used as a means for investigating behavioral contexts that typically are a challenge to researchers; e.g. large group, rare behavior, field experiments.

However, one obvious limitation of the data collected by an ARS is that it is only quantitative and as such the data, by itself, does not enable analysis of the full nature or context of the engagement of the participants (Myers 2009). Therefore a qualitative data collection method may also need to be considered alongside the ARS data in order to interpret the results, given the element of human participation. Myers (2009: 9) cautions that "both quantitative and qualitative research approaches are useful and needed in researching business organizations." For this particular research project qualitative data collection was unnecessary as the research project was not reliant on the data quality itself but rather the collection process (i.e. knowledge-absence assessment) and the subsequent ability of the ARS to share the knowledge as a way to encourage management learning. The research comprised having two sessions of the Annual Conference devoted to being "interactive" and that the ARS would be used to collect the data to encourage knowledge sharing. That two sessions of the Annual Conference were directed at being interactive was recognition by Group Management that one manager in particular was a "knowledge builder". As Lee, Gillespie, Mann and Wearing (2010) argue a "knowledge builder" is necessary to lead and encourage knowledge sharing.

The two sessions in which the ARS was used related to the operational processes that Group management wanted all subsidiary managers to adopt so as to ensure that the process involving the pricing of variations to building contracts worked more efficiently and effectively. There was a lack of enthusiasm for the pricing of variations within The Group. Therefore, the rationale for the session was to alert the managers to consequences (legal and financial) for The Group when variations are not completed effectively and in a timely manner. Both sessions were delivered by the same Group Manager (the acknowledged "knowledge builder") who had been trained in the use of the ARS and involved in the development of the sessions' material prior to the Conference taking place.

The material presented to the participants comprised eight actual disputes that the Group had been involved in. The disputes were presented as separate scenarios with

four multiple choice answers. Participants were required to select their choice (A, B, C or D) using the ARS. Out of the four potential answers there was a *correct* answer reflecting organizational policy and procedure. After participants had nominated their answer the presenting manager followed up with an explanation of the correct answer and the consequences that flowed for The Group and discussion ensued about the case scenario. Interestingly, in some scenarios provided there was a knowledge-absence identified as the answers chosen did not reflect the *correct* answer. Importantly, the ARS provided anonymity to the participants as both answer and clicker could not be attributed to a particular participant. Any disconnect between the selected answers collated by the ARS could only be used by the presenter to generate discussion.

Each session was limited to 40 minutes and 4 to 4.5 minutes was assigned to each case scenario. This provided some flexibility at either end of each session to allow for an introduction, the use of the ARS and the presenting manager's concluding remarks. The limited time available meant that the research activity was to be secondary to the primary objective of the session. In addition, Group Management requested that the sessions not be constrained by the research process. These limitations on the research process were overcome by use of the ARS. The ARS as a data gathering tool collected data not only for the organization's knowledge sharing goals for the session but also collected the data unobtrusively. The benefits of using the ARS to meet such objectives can be demonstrated by the data collected during the two selected sessions.

The Data Collected

Whilst the scenarios used in the two sessions of the conference were the same, the composition of The Group's employees in each session was different. The two groups comprised different companies, divisions and sections from within The Group. The participants therefore had varying degrees of involvement in the variation processes of The Group. Some companies and their managers had direct and constant involvement in the variation process whilst others had less direct and less frequent involvement in the variation process. The size of each group was different. In the first session there were 16 male participants and in the second session the group was larger with 43 male and 3 female participants. The size and composition of the groups was ordained by Group management. The data collected by the ARS indicates that there was a high level of participation. Participation in this context is defined by participant response rate: in other words, the "clicks" to answers made by participants as recorded by the ARS.

The data shows that in the first session 6- of the 8- scenarios recorded responses from all participants. In the second and larger session 4- of the 8- scenarios recorded responses from all participants. None of the scenarios recorded response rates of less than 90%. These response rates reinforce the benefit of using an ARS to collect data for research purposes. The question of whether an ARS is a tool by which to facilitate participation in knowledge sharing and in an organizational context must also be answered in the affirmative. Although the data collected with respect to the response rates is quantitative it nevertheless also confirms that the role of the "knowledge builder" is integral in initiating and role modeling the knowledge sharing process (Lee, Gillespie, Mann and Wearing, 2010). Table 1 evidences the high level of participation to each case scenario in each session which demonstrates the benefits of using the ARS as a data collection tool.

Table 1. Response Rates against Session/Scenario

Scenario	Participation – Session 1		Participation – Session 2	
	Response	Percentage	Response	Percentage
1	16/16	100%	42/44	95.45%
2	16/16	100%	40/44	90.90%
3	16/16	100%	44/44	100%
4	15/16	93.75%	44/44	100%
5	15/16	93.75%	40/44	90.90%
6	16/16	100%	44/44	100%
7	16/16	100%	44/44	100%
8	16/16	100%	40/44	90.90%

ARS As A Data Collection Tool

Whilst the data collected by the ARS was not conducive to investigating participant behavior, observational tools could be put in place to add to and support the quantitative data obtained. In sum, the benefits identified by McCarter and Caza (2009) above lend support to the argument that the ARS is an appropriate data collection tool for organizational research purposes.

In the context of this particular piece of research however, there are some specific limitations. One limitation is that the research only presents data collected from one organization and only two groups with that single organization. Another is that the boundaries of the research were constrained by the organization requiring that the research be conducted in an unobtrusive way. This meant that direct feedback from participants as to their experience of the ARS was not possible. As Myer (2009: 150) highlights, "the domain of analysis can be somewhat limited and the topics narrow. … Another limitation is the tendency to be purely descriptive and to make little contribution to theory."

Whilst these limitations are accepted the research needs to be considered in context. Whilst the topic is narrowly defined the implications for further research in organizations is not narrow at all. There is significant scope to assess the efficient and effective use of an ARS in other organizations and their contexts. Further, whilst the data collected from this project is purely descriptive the ability of a particular research question to be answered is not limited by the use of the ARS. The research project shows that the quality and nature of the questions posed to participants can be tailored to particular organizational and research problems. In this particular organizational context and setting the ARS was being used as a tool to understand where there may have been specific knowledge-absences rather than searching for participant responses to a particular research question.

Further, as Coghlan (2003) argues there is much to be said for participatory or action research in the context of its ability to contribute to organizational knowledge. Coghlan suggests that within the realm of action research there is either mechanistic or organistic-oriented research (453). He suggests that organistic-oriented research is client-centered and therefore "internal" whilst mechanistic-oriented research could be regarded as consultant-oriented and therefore "external". As he suggests 'in an organistic-oriented situation, the participants themselves engage in an action inquiry

process in which inquiry into their own assumptions and way of thinking and acting is central to the research process.' In that way he concludes that 'organistic-oriented action research take the primary focus away from practical outcomes and more on to what is being learned, and how the process of inquiry challenges values and ways of working and enacts a transformation of being.' This was the intention of using the ARS to facilitate the sharing of management knowledge. Therefore contrary to Myer's view above it is argued that this research, despite producing quantitative data only, does contribute to management learning theory. The concession by McCarter and Caza (2009) that there has been little consideration of an ARS being used in an academic research context places this research firmly within the theory of academic research into and in particular the debate over organizational research methods. Arguably, an ARS can be used because of the data it can collect to make the link between academic research and organizational research to answer a research question. This project should then be regarded exactly for what it is; a "baby-step" towards showing the potential for ARS as a research tool to better understand and engage with organizational issues.

Consequently, and arguably of utmost importance is that the research was of benefit to the organization involved. The project, through use of the ARS, provided the organization with an alternative approach to the conduct of their conference proceedings and also to locate knowledge-absence and then share knowledge. Anecdotal feedback suggests that the session was well received and beneficial: other projects using the ARS are being considered. The collaboration demonstrates that academics can contribute to a problem faced by an organization and research can be conducted in such a way as to be beneficial (to all parties). In this way the research, and the data collected by the ARS, is both rigorous and relevant. Or put another way, as Myers (2009) suggests "it allows scholarship and practice to come together." In this way, the research as falling within the discipline of management and organizational (MOL) scholarship is "impactful" (Antonacopoulou 2009). The knowledge generated by this research is "*actionable* – that is implementable by the user whom it is intended to engage, such as academics, business practitioners and policy makers" (Antonacopoulou 2009).

Conclusion

The ARS technology is designed with interaction and participation in mind. The two components allow participants in a particular process to record their responses to issues and questions put to them. The ARS has been used to this effect for educational purposes. The transfer of the ARS into organizational settings is less well recognized. The organization at the centre of this research project wanted a way to engage participants in the meeting process during the course of its manager's conference as it was concerned that participants were not sharing the knowledge and management learning intended. The ARS provided both the researchers and the organization involved with the opportunity to examine whether an ARS was a tool by which both purposes could be served. Whilst the data presented is limited to the particular organization and the specific sessions in which the ARS was used, the data presented demonstrates how an ARS may be used as a data collection tool for organizational but also more particularly, management learning research. Ultimately this research supports the premise that an ARS can facilitate the resolution of an organizational problem and be a robust tool to by which conduct organizational research.

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