1.3

Applying action research to conduct practitioner research in knowledge management

Shankar Sankaran

Introduction

Action research (AR) has become more prominent in management research in recent years. With the increasing popularity and acceptance of mixed methods (Tashakkori & Teddlie 2003; Creswell 2003), case research and action research, which advocate the use of mixed methods, are becoming more prominent in business and management research. The Graduate College of Management (GCM) at Southern Cross University (SCU) has been promoting the use of AR in doctoral programs—both Doctor of Philosophy and Doctor of Business Administration—since 1999. With the advent of the knowledge-based economy, knowledge management (KM) has become a popular area of research for the doctoral candidates in the programs.

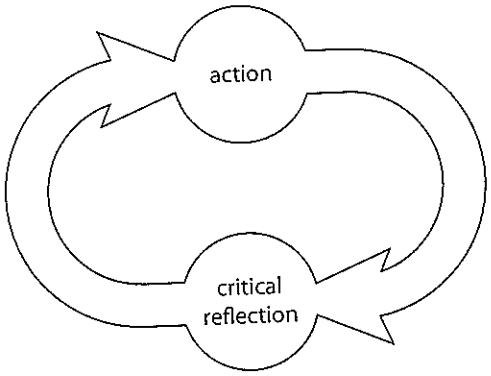
This chapter is structured as follows. It starts with a brief description of AR as it is used in the SCU doctoral programs. It then lists the management applications where AR has been used, followed by specific examples of where it has been applied in KM research. This is followed by an account of four doctoral research projects that have either used AR as the main methodology or as a meta-methodology. The chapter ends with a discussion on why these researchers found AR useful to conduct their research in KM. It also discusses issues action researchers would face in using it in organisations while implementing real projects.

Action research

Although several varieties of AR have been described in the literature (Brooks & Watkins 1994; Raelin 1999; Reason & Bradbury 2001), the AR process described in this section is the one that is frequently adopted by practitioners conducting AR at SCU.

According to Dick (2001), you pursue both action (change) and research (understanding) while conducting AR. AR incorporates critical reflection on the action to gain better understanding that results in more informed action. AR is also usually participative and qualitative although quantitative methods have been used by some action researchers when the situation demanded it. Figure 1.3.1 shows the general model of action research.

Figure 1.3.1:
General model of action research



Often AR is carried out in a cyclical or spiral fashion. A common form used by researchers in the SCU programs is the Deakin cycle (Kemmis & McTaggart 1988) of 'plan, act, observe and reflect', and then the cycle repeats itself. Often the researcher starts with a 'fuzzy' problem and, as he/she takes action, observes and reflects on the situation converging through iterative cycles to a better understanding of the situation. This can then lead to better actions.

What methods are commonly used to conduct research? It is often said that in AR data drive the research. To ensure rigour, an action researcher should show some scepticism about what was found through the AR cycle in order to disconfirm the findings. The more the researcher tries to disconfirm the findings, the more rigorous the research will become. Therefore, it is quite common to find a mixture of methods being used in AR that offer different perspectives of the research problem at hand. The use of different methods also serves to triangulate the findings by helping to confirm/disconfirm the findings. While most action researchers would normally use qualitative methods, quantitative methods are also used when necessary.

Action research in knowledge management research

AR has been used in business and management research in various applications, such a marketing, product development, manufacturing, organisational change and transformatior information systems, accounting, small business, management development, servic improvement and knowledge management (Sankaran et al 2005/2006).

Over the past five years, several accounts of AR have been reported in the literatu showing the usefulness of this methodology in investigating KM. Following is a list some applications for which AR was used in KM research over the past five years. This li excludes the four applications discussed in this chapter.

- Communities of practice (Jakubik 2008)
- Customer relationship management (Gebert et al 2003; Bueren et al 2005)
- Professional development in healthcare (Aherne et al 2005)
- Construction management (Rezgui 2007)
- Asset management (Barber et al 2006)

- Information systems design (Sharp 2006)
- Collaborative business process modelling (Adamides et al 2006)
- Team leadership (Eppler & Sukowski 2000)
- Knowledge sharing in a pharmaceutical firm (Roth 2003)
- Knowledge creation in the aerospace industry (Lim & Hase 2007)
- Electronic communication behaviour (Kock & DeLuca 2007)
- Performance management (Okkonen 2007)
- Knowledge networks in high-tech companies (Schönström 2005)
- Supply networks in the public sector (Knight et al 2005)

Format used to describe the research projects

A 12-step method suggested by Locke et al (2004 pp99–109) to understand qualitative research has been used to describe the four research projects, to capture the main features of these projects.

Essentially the 12 steps are:

1. Citation
2. Purpose and general rationale
3. Fit and specific rationale
4. Participants
5. Context
6. Steps in sequence
7. Data
8. Analysis
9. Results
10. Conclusions
11. Cautions
12. Discussion

Research Project 1: Connecting knowledge in the Australian public sector

Citation

Mau, M (2005) Action research: connecting knowledge in the Australian public sector. DBA thesis, Lismore, Australia: Southern Cross University.

Purpose and general rationale

The main purpose of the research was to investigate how explicit and tacit knowledge could be transformed into effective action in an organisation. The organisation where this research was carried out was found to have a great deal of duplicated information whose

accuracy and currency were not verified. The knowledge of the people using the information in the organisation's information systems was not being captured effectively. Compounding this problem was a loss of knowledge as many employees of the organisation were close to retirement and it was realised that useful operational knowledge was being lost.

Fit and specific rationale

A review of the literature supported the view that, in a knowledge-based economy, organisations have realised the crucial value of information and knowledge in dealing with pressures being applied by actors in their supply chain. Knowledge has become a valuable asset that needs to be harnessed and nurtured to provide value. Integrating knowledge into an organisation's business processes and systems would lead to innovation and continuous improvement providing more value to its customers. The organisation under investigation, which was part of the public sector, was being corporatised and would face new pressures as it will now compete with commercial organisations. Hence, an investigation into how information and knowledge were managed in the organisation was timely when the research was started.

Participants

Employees from various locations participated in the initial surveys that were carried out in the organisation. These were the head office staff located in the state capital and field office staff located at field offices where actual operations were carried out. An attempt was made to interview as many people as possible over five months. The total number of respondents interviewed was 214. The respondents were divided into four groups based on their job descriptions. They were classified into:

1. General management and office administration.
2. Executive, professional and technical management.
3. Field personnel who carried out physical activities.

As a result of the survey four action plans were identified and carried out through projects to enhance information and KM in the organisation. As these projects were carried out in project teams, these teams were also involved in contributing to the research through their participation and evaluation of the respective project.

Context

The study took place in a large public sector organisation in Australia that was undergoing a major change due to impending corporatisation. The organisation employed nearly 19,000 people including both permanent and casual staff. The researcher was a systems analyst who was required to improve the management information systems in the organisation as part of her function.

Steps in sequence

The main methodology adopted for this research was AR that used both quantitative and qualitative methods. The first step was a survey carried out using a questionnaire and analysed using SPSS software to explore the similarities and differences between administration, professional and field-based employees with respect to their perceptions and expectations in using, sharing and distributing knowledge.

Based on the findings of the survey, four action plans were selected to improve information and KM in the organisation. The lessons learnt form the implementation of these projects also provided data for the research. The four projects were:

1. A business intelligence reporting project that helped decision making and problem solving supported by a corporate intranet that provided relevant access to managers and general users.
2. A migration project that was used to merge disparate applications being used in the organisation into a single database.
3. An intranet redevelopment project to provide access to documents, enhance corporate image, and ensure that all documents and contact details used by the employees were current. The project also rendered the intranet to be easily accessible to everyone in the organisation irrespective of where they were located.
4. An electronic document and records management system to capture documents created using different formats, and provide easy retrieval, and proper retention and disposal schedules that would also meet the government's statutory regulations on records management.

Data

Data for the survey portion of the research were the answers from the survey. The data collected for the AR projects were the reflections recorded while implementing the four AR projects as well as relevant project documentation.

Data analysis

The data analysis of the survey used descriptive statistics. It used frequency distribution using percentages and bar charts to answer questions related to how the employees used information, systems and knowledge to carry out their work and to record the difficulties encountered in accessing information and knowledge. Comparisons were made between the three groups of respondents to see if they had different requirements.

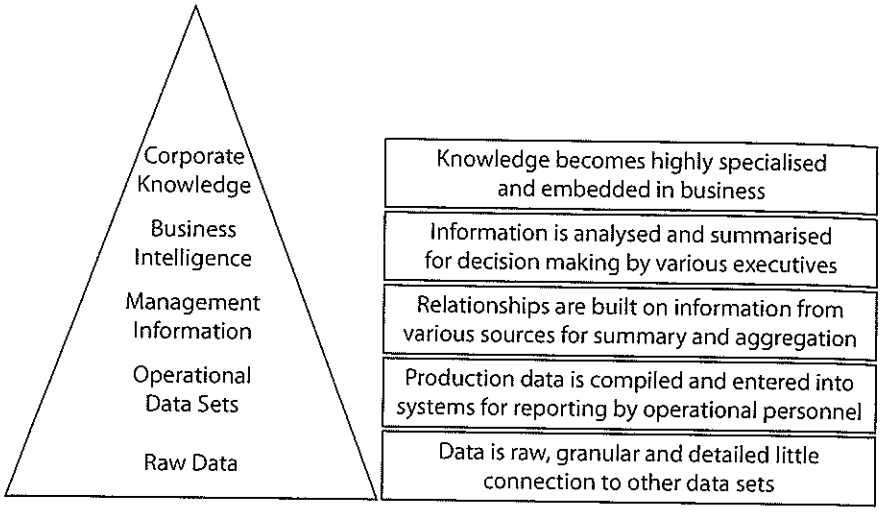
The data collected during the AR projects were mainly the lessons learnt that were then content analysed to find common themes.

Conclusions

The analysis of the survey showed clearly the gaps in the delivery of information and support for KM initiatives in the organisation under investigation. This resulted in the implementation of four projects that improved the situation resulting in increase of productivity by reducing the time necessary to acquire required information and knowledge to do work in the organisation. The AR projects also helped in preserving the corporate memory. One of the key findings of the research was the identification of crucial information used by various groups to manage the overall knowledge in the organisation. The researcher also concluded that making the information visual made it more useful to the organisation, The findings from the survey helped the organisation to understand the flow of information—where it came from, what was done with it and where was it sent to—which helped the researcher to advocate the implementation of suitable projects that helped a smoother flow of information. The researcher was able

to present a working model of a 'knowledge pyramid' shown in Figure 1.3.2 based on the model by Radding (1998) that linked corporate knowledge to business intelligence, management information, and operational and raw data. The research also contributed some useful steps for implementing a KM strategy in a public sector organisation.

Figure 1.3.2:
Worldview of knowledge hierarchy



(© Mau 2005 p261)

Limitations

The researcher was unable to directly observe how learning occurred among the people who used the systems in the organisations. She had to measure this indirectly through investigating how information was processed in the organisation. The study was not able to investigate the link between the use of knowledge and performance indicators that people were expected to achieve in their work. The framework to establish a KM strategy developed during the research was essentially developed in one organisation. Although the steps could be useful to other public sector organisations in Australia some adjustments to the local situation would be required.

Discussion

This is a good example of 'insider action research' where the researcher's own role as a systems analyst and the encouragement given by the top management to her work resulted in useful and successful projects in the organisation. As a systems analyst, the researcher was familiar with quantitative methods. Hence she started with a survey as an initial intervention tool to study the information and knowledge flows in the company. The second phase of her research used a more qualitative approach. The study is also a good example of mixing quantitative and qualitative methods in sequence. The research stresses the importance of the role and influence of the researcher to deliver useful practical outcomes using AR.

Research Project 2: Barriers to implementing KM projects

Citation

Walker, S (2007) What are the major barriers to the successful implementation of knowledge management projects in the telecommunications industry?: A participatory action research study. DBA thesis, Lismore, NSW: Southern Cross University.

Purpose and general rationale

The thematic concern of the researcher of this study was the identification of major barriers to the successful implementation of KM programs. The researcher was appointed as the Knowledge Manager for the European services division in a multinational company to drive their KM strategy for the region. The purpose of identifying the barriers was to find countermeasures to overcome such barriers when implementing a KM strategy.

Fit and specific rationale

A review of the literature identified several barriers to implementing a KM strategy including organisational culture, structure, politics and memory, communication, measurement, reward and recognition, leadership, resources, technology, success factors and knowledge types. The organisation where the researcher conducted the research was facing increased competition due to increasing demand and sophistication of customers, advances in technology, globalisation and the drive to harmonise technical standards. Deregulation and privatisation of the industry and the embracing of a wider variety of services had resulted in unprecedented and discontinuous change in the industry. Due to these changes, customer service performance became a key determinant of competitive advantage. The customer demand for better service with multiple options for service necessitated a new support delivery strategy where effective generation and reuse of knowledge became critically important. The organisation had previously embarked on a KM strategy that had not been successful. To develop a strategy to implement KM successfully demanded a study of barriers to its implementation.

Participants

The participants of this AR project were project teams, some of whom were designated as champions to implement the KM strategy. There were nine champions located in 10 different countries in Europe.

Context

The study took place in various countries in Europe where a company-wide KM strategy was deployed in three phases in the telecommunications industry.

Steps in sequence

The research used a model proposed for by Perry and Zuber-Skerritt (1992) with the researcher using reflections from three core AR projects to carry out a thesis AR project to meet the requirements of a doctoral thesis. The core AR projects were carried out in three phases:

1. Phase 1 was a pilot project carried out in the United Kingdom where the researcher was located.

2. Phase 2 was the implementation of the program in Germany, the Netherlands, Ireland, Poland and Belgium.
3. Phase 3 was the implementation of the program in Spain, Russia, Italy, France and Portugal.

Data

Data were collected from multiple sources, including:

- Minutes (or action registers) of meetings including reflections
- Reflective memos written by the researcher
- Secondary data from company records
- Feedback from peers who were doing doctoral studies in the same program and from the doctoral supervisor
- Detailed feedback by another researcher doing doctoral research in KM who acted as a 'critical friend'
- Project documentation—project plans and project definition reports for each cycle, in particular, after action reviews conducted regularly to capture lessons learnt.

Data analysis

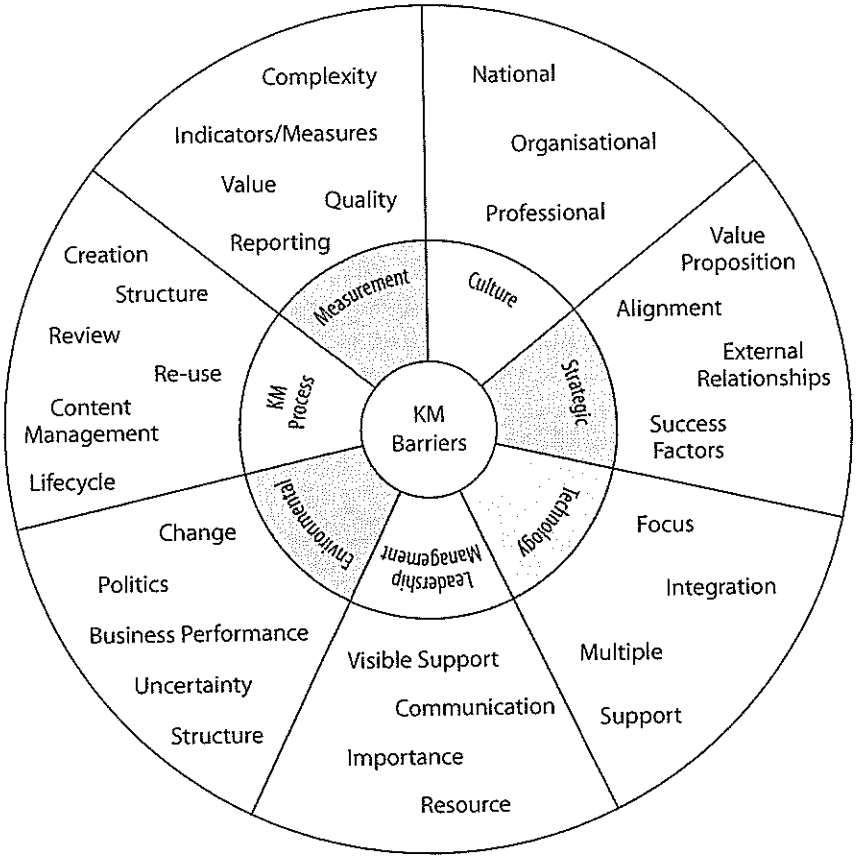
A qualitative analysis software using QSR N6 was used to analyse the data. Grounded theory techniques were used in arriving at themes from the data collected from multiple sources. Open codes, axial codes and selective codes were generated to arrive at conclusions from the research.

Conclusions

In addition to the national and cultural barriers mentioned in the literature, professional culture also emerged as a barrier to implementing KM. The need for a compelling value proposition, alignment of business and KM strategy, and external relationship emerged as an additional barrier.

The effective integration of KM technology with existing infrastructure was determined to be a technology barrier. While confirming that measurement complexity was a major barrier in determining returns from KM, the research also pointed out issues with reporting performance from KM implementation as a hurdle. The research revealed processes-related barriers to implement KM which was rarely discussed in the literature. A model called the 'wheel of barriers', as shown in Figure 1.3.3, was developed from the conclusions arrived at from the research.

Figure 1.3.3:
Wheel of barriers



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Limitations

One of the major limitations of the research was that it was carried out in one organisation in one industry. The researcher had to deliver the KM program while pursuing his research, which put him and his team under pressure to deliver while investigating the barriers. Additionally, there was the time pressure to complete the doctoral research within a reasonable period of time.

Discussions

This is a good example of using the two-cycle model of AR where reflections from 'real' projects carried out in an organisation were used as data to write an AR thesis. This model is quite useful for insider action researchers who are using an organisational change program to conduct their AR. While the researcher started this project as a study of the implementation of KM, the research team came across many barriers to their projects and this became the focus of their study. This shows that when one embarks on an AR project the initial problem may change as the project proceeds. Action researchers

need to remain flexible and responsive to the situation as it emerges. Local management politics and top management support also played a key role in the implementation of the project.

Research Project 3: Knowledge asset management

Citation

James, P (2005) Knowledge asset management: the strategic management and knowledge management nexus. DBA thesis, Lismore, NSW: Southern Cross University.

Purpose and general rationale

The study looked at the nexus between strategic management and KM through a lifecycle of knowledge assets within the Australian public sector. The Australian public sector has recognised the importance of knowledge to provide services to the public. One of the reasons for this realisation is the impending retirement of more than 120,000 (close to 23%) of staff between 2005 and 2010.

Fit and specific rationale

The research specifically looked at the benefits and requirements of knowledge assets in the Australian public sector. Traditionally, asset management is a term used in business mainly to look at the physical and financial assets of an organisation. However, as knowledge has achieved equal status with land, labour and capital, knowledge assets have gained equal importance. So the focus of this research was to examine how knowledge assets are managed using a lifecycle model, which is often used with tangible assets. In particular, the research addressed the following questions:

1. What are knowledge assets?
2. Why do organisations need knowledge assets?
3. Which knowledge assets are important?
4. How is the need for knowledge assets determined?

Participants

Seventeen participants were interviewed in the first round, followed by six participants in the second round. A purposeful but diverse sample was used as informants. The diverse sample used to collect data included consultants, practitioners and a review panel.

Data

Data consisted mainly of interview transcripts. The literature was also used to triangulate the findings. A survey was used to collect numerical data to supplement the qualitative data.

Data analysis

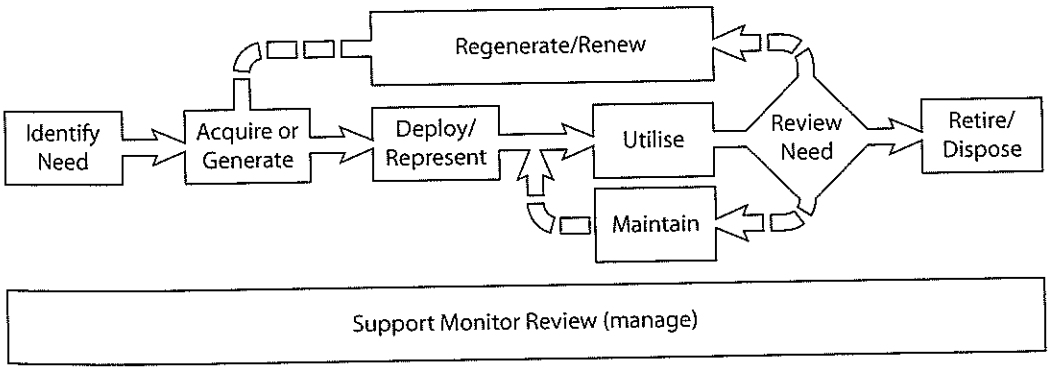
After recording the interviews, they were transcribed. The transcribed data were member checked and content analysed. A within-case content analysis was conducted followed by a cross-case analysis to derive common themes. The theory was continuously updated as an

ongoing process. The results were compared with the literature to enhance the final theory generated from the research. The coding process included open coding, axial coding and selective coding to develop core codes contributing to the theory.

Conclusions

The researcher found that there was no clear definition of the term knowledge asset, which was also true of the literature. However, there was a bias towards equating knowledge assets to people and their attributes in the public sector. This view that people are the key knowledge assets creates a problem of ownership as people can and do leave an organisation. The researcher found that while knowledge assets are normally identified during the strategic planning process, the relationship is not that direct. Knowledge assets are identified through a gap analysis of knowledge required to achieve organisational strategy. One of the interesting findings from this research was that the public sector had no specific strategy to identify redundant knowledge assets. It was also found that available knowledge assets influenced the strategy but did not limit it. A knowledge asset lifecycle, shown in Figure 1.3.4, was developed through the research as a contribution to knowledge.

Figure 1.3.4:
Knowledge asset lifecycle



(© James 2005 p167)

Limitations

The main limitation of this study was the choice of cases being limited to one industry—the public sector. In the original research plan it was envisaged that staff at various levels would be interviewed in a small number of organisations. This was not possible as there were insufficient respondents meeting this requirement. Therefore, singe participants were interviewed from 12 different organisations.

Discussion

Although this research was based on a case research approach (Yin 2003; Carson et al 2001), it used elements of AR in designing the overall research process. The interview questions were modified based on reflections from previous interviews. The theory was developed as the research progressed. When the research met some hurdles the candidate

and his supervisor reflected on what was the best course of action to find countermeasures to progress the research. There was some doubt whether an industry-wide survey among KM practitioners to confirm the findings would result in sufficient response. Therefore, the candidate made a presentation at a KM community called actKM in Canberra to have an open discussion about his findings. The idea was to invite participants to form focus groups to triangulate the findings from the research. Through this forum a second round of interviewees were identified to triangulate the findings from the research.

Research Project 4: Implementing electronic health knowledge management systems

Citation

Orr, M (2006) The implementation of health knowledge management systems. DBA thesis, Lismore, NSW: Southern Cross University.

Purpose and general rationale

The basic purpose of this research was to explain how an 'action research reflective learning approach' was applied to successfully implement a series of electronic health knowledge management systems in a large, complex New Zealand District Health Board.

Fit and specific rationale

While New Zealand has one of the highest rates of information and communication technology implementations in healthcare, there have also been major failures. In this research, lessons learnt from and challenges faced by the failed projects were combined with the emergent experiences of the team that implemented the KM projects. A specific aim of this research was to use the reflective cycle of AR (plan-act-observe-reflect) to develop conceptual models that were used in the implementation of the KM projects.

Participants

The main participants in the research were a core AR team of 10 to 12 participants who were involved in the implementation of the KM projects. The team was not a constant team due to change of personnel involved in the implementation.

Data

Data were collected from monthly facilitated reflection sessions, workshops that were conducted during the research, convergent interviews, reflective emails called 'imails' and formal project documents.

Data analysis

Data were analysed using content analysis and presented in 11 papers during the candidature and incorporated into the thesis using a common theme for the study.

Conclusions

Several organisational benefits were realised through an innovative approach to implementing KM systems using an action learning reflective approach. The benefits of the projects included improvements in access to patient information, clinical safety,

accuracy of patient information, communications with patients and primary care, clinical reporting, audit tracking and valuable organisational investment. The conceptual models developed to support the implementation were a contribution to knowledge. While the project started out as a series of information and communication technology project implementations, the focus of the research moved towards building the capability of teams and individuals involved in the implementation through the AR process.

Discussion: Rationale for using AR

Mau (2005 p63) argues that the major reasons for choosing AR were:

1. Traditional methods were not suitable to observe and understand how knowledge is created in their natural settings and to devise practical action plans to resolve issues.
2. The researcher herself was involved in the organisational change process and had a dual role of observing as well as being part of the change process.

Mau (2005 pp66–67) also argues that AR provided specific advantages to conduct research in KM:

1. AR helped to identify issues to develop an appropriate framework to draw action plans that needed adjustments due to social, cultural and structural issues that are important when implementing KM.
2. AR allows close relationship with the stakeholders including group consultation and discussion.
3. AR, as a reflective process, encourages learning about oneself and the environment that helps in a change process associated with implementing KM.

Walker (2007 pp84–85) states that to solve a business problem that was poorly understood (ill-structured problem) he decided to use AR. He chose a version of AR, called participatory action research (PAR), which allowed him to be flexible to adapt to both the context and research findings as they changed throughout the study. He gives the following reasons for using PAR (Walker 2007 p86):

1. The phenomenon (barriers to KM) he was studying did not fit traditional research methods as he had to remain flexible in a dynamic business environment.
2. The opportunity could help him to pursue a consultancy career as a change agent in the future.
3. His preferred learning style was learning by doing.

James (2005 pp99–100) used case research as his research methodology but used AR as a meta-methodology to improve his research process and his theoretical model as his research progressed. He adapted the AR cycle of plan-act-observe-reflect to plan, collect data (act and observe) and reflect-revise during the data collection phase. This helped in progressively analysing individual cases and improving the research process.

Orr (2006 p18) states that AR helped his research for the following reasons:

1. Its focus on change and learning.
2. Its qualitative, exploratory and theory-building nature.
3. It empowers people involved (emancipatory).
4. It treats participants as co-researchers.

5. It is responsive to the situation.
6. It allows flexibility in complex, changing situations.

There are some similarities between what these researchers found to be the advantages of using AR with what has been reported in the literature about the benefits of using AR in business research (Sankaran et al 2005–06 p2):

1. It uses action as an integral part of research. It integrates thought and action.
2. It helps to improve practice at the workplace.
3. It helps managers in their professional development by critically examining their own beliefs and practices.
4. It helps managers in implementing change effectively. AR is founded on a research relationship in which the managers involved are participants in the change process. It pursues both change, in the form of action, and understanding through research.
5. It is problem-focused and context-specific.
6. It can use a variety of data collection methods that suit an organisation's environment.

So why does AR suit KM? KM projects can be classified as Type 4 projects in Turner's (1999 p26) classification, ie similar to organisational change projects where both the project goal and work methods are not well defined but evolve as the project progresses. Turner (1999 p26) advocates the use of soft-system methodologies. AR and soft-systems methodologies have a lot in common (Checkland 1993). Davenport and Prusak (1998) analysed several KM projects and concluded that there was no standard methodology being applied in industry. Therefore, a flexible and responsive methodology like AR would be very useful in devising an appropriate framework to implement KM, which was evident from at least three of the research projects discussed in this chapter. Two of the researchers have pointed out that AR has helped in dealing with the dynamic and complex nature of KM implementation. KM processes also have to deal with social, cultural and political issues (Dalkir 2005), where a flexible and responsive methodology that allows the use of multiple sources of evidence is useful. This is confirmed by some of the researchers whose work has been described in this chapter.

However, one has to approach the use of AR with caution. It is difficult for an action researcher to implement change when he or she does not have a power base in the organisation either directly due to status or through influence. In the four research projects described, Mau's role as a systems analyst and the support she received from her management was instrumental in the practical outcomes that resulted. In Walker's case, local political issues in a geographically and culturally diverse firm created barriers to progress. Orr (2006 p56) has raised some ethical issues that arose due to complex individual and group psychological processes and psychotherapeutic processes in conducting AR. Intellectual property is often an ethical issue when informants become co-researchers and contribute to the knowledge of a doctoral thesis. When AR is used to address business issues, politics and time pressure may also become constraints in doing good research. Often, AR is carried out with other people who may act as co-researchers. Sometimes, this team may change due to operational reasons or particular members of the team may not participate equally as reported by two of the researchers.

One of the limitations pointed out by three of the researchers was that the investigation was confined to one organisation or industry making the generalisation of the conclusions difficult. Some managers may see it as an advantage as the solution is focused and context specific. This takes us into the debate about rigour versus relevance in practitioner research.

Conclusions

The four research projects discussed in this chapter support the use of AR either as the main methodology or as a meta-methodology to conduct research in KM. The flexible and responsive nature of AR seems to suit complex KM implementation projects. The reasons why AR is used in KM research, as explained in the research projects described in this chapter, seem to echo what is reported in the literature. The researchers have also gained personally by becoming more reflective as individuals and realising their own inhibitions to being part of the change when a KM project is implemented. However, using AR is not easy and requires skill and patience and is fraught with problems. But when used well it can result in real benefits to the organisation in realising value through knowledge while at the same time contributing to the theory

Acknowledgments

The author would like to acknowledge his thanks to the four researchers whose doctoral theses were used to discuss the use of AR in KM research. This chapter had its genesis in a paper that was presented at a KM conference in Rhodes in 2005 on a similar topic when the research projects used in this chapter were still in progress (Sankaran et al 2005–06).

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