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Research management in water for development research projects

F. Odhiambo, UK

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This paper presents findings of a study into the role of management in the conduct of water for development research. It provides a definition of research management and describes the attributes of a good research manager. It further explores the ways in which research managers are selected and the shortcomings that flow from the present criteria for selection. The paper argues that given the current changes in the make-up of research groups and the tendency towards multi-disciplinary research, there is an urgent need for research managers to undergo continuing professional development in traditional management skills to complement their scientific and academic disciplinary knowledge.

Introduction

Research can be defined as "a procedure by which we attempt to find systematically, and with the support of demonstrable fact, the answer to a question or the resolution to a problem" (Leedy, 1989). Though much has been written about research methods, the conduct of research projects has received very little attention from the perspective of management science. That is, what management principles should be applied in research projects for them to be effective and deliver optimal returns? Erno-Kjolhede et al. (2000), in their research noted that there is very little literature on the management of research and especially in the field of public sector research.

Gibbons and colleagues in their seminal work, *The new production of knowledge* (1994), described an emergent type of research which they coined Mode 2 research. Mode 1 research refers to the research process we are most familiar with which is disciplinary and cognitive in nature. This research is more concerned with theory than with practice. Mode 2 research is more concerned with the discipline base and knowledge as it works in practice in the context of application (Starkey and Madan, 2001). It is often formed of heterogeneous teams, will usually be multidisciplinary, and often seeks to contextualise or localise research in new social spaces (adapted from Smith, 2004).

A good proportion of the type of research that is required for the water for development sector can be characterised as Mode 2 in nature. Whereas Mode 1 research is much more academic in nature and can effectively be managed using traditional academic approaches to research, it is in Mode 2 research where there is greater need for good research management skills. This need is compounded by the recent trend whereby research is commissioned in the form of large multi-national consortia with the implied demands in management terms.

This paper presents an overview of a study into research management at the project level undertaken within an EU-funded Framework 6 Coordination Action, SPLASH. The EUWI SPLASH Era-NET is a consortium of 15 ministries, funding agencies and national RTD authorities from 11 European countries. It aims to improve the effectiveness of EU member state funded research on water for development and to develop capacity of local organisations to coordinate and communicate research activities. The project focus is Africa and the Mekong region.

The paper examines the concept of research project management and what it means. It discusses desirable attributes in good managers and considers how these can be fostered. It concludes by highlighting research managers' need for continuing professional development in management skills.

Methodology

Two methods were adopted for this study: a desk review and key informant interviews. The desk review consisted of a review of the primary literature on research project management. The review was not restricted to water for development research only but was opened up to the development research domain and wider.

Twelve key informants were interviewed all of whom were either managing or commissioning water for development research projects funded by EU member states. The key informants were identified opportunistically through recommendations from SPLASH partners. Semi-structured interviews were conducted by telephone and lasted up to an hour. The topics covered included the scope of research management, the attributes of a good research manager and issues relating to capacity development.

The interview data was analysed manually as there were only 12 interviewees. Techniques used included coding, patterning, clustering, counting, and plausibility checks. These were informed by themes identified in the desk review and the author's own knowledge and experience. Because the sample size was small, every effort was made to improve the internal validity of the results mainly through the use of member checks and data and theoretical triangulation during interviews.

What is research management?

At face value, project research management seems a straight forward concept. It is to do with how research is managed. However, on further scrutiny, research management is ambiguous. It could mean for example management of the scientific aspects of the research; the inquiry function. It could refer to the management of individual researchers in human resource terms. It could also mean overall project management i.e. in accordance with the "project cycle" from inception to evaluation. Key informants identified a range of activities when asked what they thought the field of research management encompassed. Their responses are summarised in the table below:

Table 1. Research management activities identified by key informants

Research Management Activity			
Identifying funding sources	Identifying research needs	Human resource planning	Assuring quality
Financial management	Defining research objectives	Dissemination of project results	
Directing the research team	Planning for lesson learning	Identification of target groups	

This list is by no means exhaustive. In addition to the above, the following were mentioned by many of the key informants as belonging to research management. Providing intellectual leadership was seen as an important function of a research manager. Intellectual leadership was interpreted as keeping the research on course and providing guidance to the research team. Issues around the governance of research were also identified as important. The decision-making process was highlighted as important to get right and therefore transparency and fairness in decision making was seen as critical. Communication and management of the cultural milieu within research were also identified as important governance issues. This observation is borne out in the literature where it is reported that better social and professional communication and interaction are the most commonly cited by researchers when asked what needs improving in the workplace. (Erno-Kjolhede et al., 2000). Above all, transparent and accountable financial management was identified as an important governance issue.

Logistics and administration were also thought to be important. It was pointed out that the emphasis in research management should not just be about getting the research process right in a structural sense, but also about putting in place the right administrative and logistical structures to facilitate efficient working.

Fourth, key informants were of the opinion that research management should focus on the big picture: the research problem and its solution. Therefore management decisions should be driven by a desire to obtain results and findings that are useful, rather than by a desire to implement flawless and elegant research. One informant explained that research managers should be "engaged problem solvers". Most informants lamented that this mindset is uncommon among research managers; rather, there is often a resistance to

abandoning a science-driven mindset for an approach more geared towards thinking of the problem the research is addressing and what would be useful for the beneficiaries of the research.

Finally, an equally important aspect of research management identified was the communication and dissemination function. One key informant emphasised this by saying that the research deliverables should be useful. He went on to say that while at face value this might seem obvious, too often deliverables and the products of research in general are not relevant and this was indicative of failing management. Where research is conceived in response to real and practical problems, this should not happen. It follows therefore that research managers should link their research to national priorities, policies and programmes or alternatively, identify research problems in conjunction with stakeholders. In summary, research management was understood to encompass a range of activities concerned with providing proper direction and leadership of research.

What are the qualities of a good research manager?

Having reviewed the types of activities research management involves, it might be useful to consider what makes a good research manager. We can surmise that a good research manager will be proficient at doing all or many of the functions outlined above.

Top of the list of important attributes identified by the key informants was, unsurprisingly, management skills. The prevalent view was that a good research manager will need more than just excellent scientific knowledge and that traditional management skills are essential too. These include leadership, communication, financial management and general project management skills. Other commentators have argued that in addition to research training, research managers should also have skills in risk analysis, priority setting, planning budgeting, human resource planning, team-building, and developing incentives and rewards White (2002).

Apart from the skill areas mentioned, there was consensus too that the ability to know what is relevant in research terms is a desirable attribute in a good research manager. Horizon scanning was therefore identified as an important element of the strategic planning of research and research management.

What are the common failings in research management?

Most of the informants argued that academics rarely have all the skills needed to make a good research manager (especially traditional management skills), and yet most research managers including the informants are by default academics.

Key informants stated that not only are many academics poor at management, but they are reluctant to become involved in non-scientific aspects of research management and when they do, they do so perfunctorily at best. A key informant from within a funding agency described a recurring weakness in research management as, "a lack of understanding by academics of the time required to administer large research consortia … academics are notoriously bad managers …". The prevalent view was that the quality of research management is generally low and that this should change. There was however pessimism things would change because the reward system in academia does not recognise 'good management'.

How is research management learned?

So why is the quality of research management low? Black (2001), notes that most research managers start off as scientists or engineers and over time, assume project management responsibilities. This implies that there is no qualification that prepares people to become research managers. Key informants interviewed confirmed this in saying that the only research management 'qualification' known is expert knowledge of the discipline in question and for this reason, research managers tend to be academics. There was however consensus among key informants that the scientific aspects of a research project are best managed and delivered by academics.

Though the term research management is acknowledged to be conceptually sound, none of the key informants could identify what discipline it 'sits' in or how one acquires research management skills except simply by doing it. However defined, research management has no recognised programme of education /training. Research method courses taught at post-graduate level are probably the closest researchers get to learning aspects of research management in a formal setting.

The prevailing convention is that research management capacity evolves from doing research rather than by being trained in management. It is curious that scientific capacity needs to be proven in proposal documents but management arrangements, though increasingly common in proposals, do not appear to

attract significant weighting in the proposal evaluation criteria. The most that funding agencies insist on is that there should be some form of consortium agreement where the research is let to a consortium.

In spite of the acknowledged lack of management skills among academics, informants believed that few academics were convinced of the necessity of research management skills or even of the need for having a project manager with business management skills for large research consortia and that this mindset needs to be challenged. The desk review identified just one EU framework project that had recruited a dedicated business manager. This was the SWITCH project (http://www.switchurbanwater.eu/) on sustainable urban water management.

Where do we need to be?

Research project management has not received the attention that it deserves. Research managers are generally the principal investigators of individual projects. Management skills are not a prerequisite for receiving research funding. Meanwhile, the nature of water for development research is changing not least because research is both increasingly multi-disciplinary and conducted by large multi-national consortia. It is bound to become increasingly important that research managers have management skills but at present, there is no mechanism for equipping research managers with these skills. It is undisputed that academics (principal investigators) should be research managers as clearly, a good understanding of the science of the research problem is a basic requirement of good research. However, there is a genuine need for continuing professional development of research managers and both research funding agencies and managers of research should prioritize and insist on management training to take account of the changing nature of research.

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Contact details

Francis Odhiambo
WEDC, Loughborough University
Loughborough, Leicestershire
LE113TU
United Kingdom
Tel: +44 1509222 396
Fax: +44 1509211 079
Email: f.o.odhiambo@lboro.ac.uk
www: