ARTICLE

A SYSTEMS ORIENTATION TO RESEARCH CAPACITY DEVELOPMENT: A SOUTH AFRICAN PERSPECTIVE

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ABSTRACT

Research capacity development is essential for quality and cost-effective healthcare, and well-prepared healthcare professionals. This case study used an exploratory design to gain insight into the contributions that a novice researcher programme makes towards research capacity development. Data were collected from reports to the board of a professional organisation acting as custodian of the project and three reflection workshops. The case was deductively analysed using the literature on research capacity development as the point of departure. The Cooke integrated framework for research capacity building in healthcare was used to evaluate the development that took place. The findings of the analysis are described and discussed according to the eight dimensions of the Cooke integrated framework indicating that this novice programme fulfilled all the dimensions of the framework.

Keywords: novice; research capacity development; Cooke integrated framework

INTRODUCTION AND BACKGROUND

Research capacity development supports the production of evidence for decision-making, education and practice. It is considered vital for cost-effective and quality healthcare

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as well as for well-prepared healthcare professionals. Although various healthcare and educational institutions have invested in a number of training programmes to build the research capacity of professionals, such capacity remains fragmented and to a large extent limited to the experience of postgraduate students (Montalvo and Larson 2014).

Capacity development or capacity building is described as an investment in human capital, institutions and practices (Chu et al. 2014). The United Nations Educational, Scientific, and Cultural Organization (UNESCO) describes capacity building as being focused mainly on skills building that would enable the attainment of development goals through education (Edwards, Kaseje, and Kahwa 2016). Research capacity development varies in focus. Bates et al. (2006) and Lansang and Dennis (2004) explain it as the improvement of the abilities of individuals, organisations and systems to conduct research and disseminate quality reports. A strong emphasis in research production and dissemination is placed on knowledge translation and uptake (Edwards, Kaseje, and Kahwa 2016). Therefore, strengthening both the supply and demand side of research capacity development is important.

Following an annual nursing education conference, the absence of presentations on research done by nurse educators from nursing education institutions (NEIs) not attached to universities was noted with concern. Taking into consideration that nursing programmes are migrating to higher education, research and public presentation skills are essential for all nurse educators. A research capacity development programme was developed for novice researchers to contribute towards bridging this gap.

The programme invites applications from nurse educators to participate in the programme provided that they do not yet have a Master's degree, have less than eight years' experience in nursing education, and have their employer's support to attend the programme. Applicants are required to commit to full participation in the programme. An essay on how nursing education could be improved in the country must accompany each candidate's application. The aim is to select one candidate per NEI. Under the supervision of the authors, successful candidates undertake a small research project to expose them to the full research process. The research project is written up, presented at the annual nursing education conference and published as an article. The candidates undertake this work in a group thus strengthening their ability to work in a team. These activities are undertaken over nine to twelve months. The group meets for (at least) six workshops to complete the project they have selected with the last workshop reserved for the preparation of the presentation for a conference and writing an article.

PROBLEM STATEMENT

The novice researcher programme was implemented in 2010. To date, six programmes have been completed. The seventh programme is currently (2017) running. No formal evaluation of the programmes has been conducted previously. The purpose of programme evaluation (i.e. the evaluation of a programme with regard to its practice

or intervention) could be to improve the programme and to assess the value and net impacts (outcome evaluation) of the programme (Polit and Beck 2012). To understand the contribution and sustainability of the programme it has, therefore, become necessary to assess the outcomes of the programme.

The question that the authors were asking was: How does the novice researcher programme contribute to research capacity development in South Africa? The purpose of this article is to assess the novice researcher programme against the Cooke integrated framework as described by Edwards, Kaseje, and Kahwa (2016, 23).

Definition of key concepts

Novice researcher is a nurse educator with less than eight years' experience and who does not have a Masters' degree.

Novice researcher programme is a planned series of workshops to execute a small research project under supervision of expert researchers.

Research capacity development is the improvement of abilities of individuals to conduct research and disseminate quality reports.

RESEARCH METHODOLOGY

An exploratory case study design was used (Crowe et al. 2011; Thomas 2016) to gain insight into the contributions that the novice researcher programme makes towards research capacity development. A case is defined as a "phenomenon of some sort occurring in a bounded context" (Baxter and Jack 2008, 544). This definition makes the case study design suitable for this study. Thomas (2016) explains the single case as where a single issue or matter is studied for its character, meaning and purpose, with an emphasis on understanding of what is going on in this situation. A single case with embedded units was used. This method provides the ability to look at sub-units that are situated within a larger case, in this instance the novice researcher programme. The sub-units were made up of the six annual novice researcher programmes that were offered in two regions. Being able to analyse sub-units within the larger case separately, makes this type of case study more powerful (Baxter and Jack 2008). The case was formed from the annual reports, reflective activities and conference presentations. The "global" nature of the case was then examined holistically, as described by Polit and Beck (2012).

DATA COLLECTION METHOD

Data were collected from the six annual reports (2010 to 2015) on the completed programmes that were required by the board of the professional organisation that was the custodian of the programme, and from three conference presentations and three reflection workshops. The reflection workshops took place at the end of each

programme and were attended by all the participants of the respective programmes. During the reflective workshops, participants shared their experiences using mind maps and reflective essays.

DATA ANALYSIS

The authors deductively analysed the case by using the literature on research capacity development as the point of departure. The analysis of the data was done in two stages, first independently by each researcher and then as a group to reach consensus. The Cooke integrated framework for research capacity building in healthcare was used to evaluate the development that took place in the novice researcher programme. This integrated framework (Edwards, Kaseje, and Kahwa 2016) was deemed to be suitable as it provided the "best fit" given the nature of the study. An important characteristic of this framework deals with the sustainability and continuity of the programme that is assessed. A deductive approach was used with the framework as a foundation for the exploration of how the research capacity development took place. Purposive sampling of information from the case was used to categorise the data into meaningful discussions based on the eight dimensions of the Cooke integrated framework. The analysis was an iterative process (Baxter and Jack 2008) because the authors interpreted the content of the case and categorised it according to the dimensions in the Cooke integrated framework.

MEASURES FOR ENSURING TRUSTWORTHINESS

Trustworthiness was ensured by providing a dense description drawn from the case. A clear research question was formulated which directed and demarcated the study effectively. The researchers eliminated the problem of anecdotalism by including all data that formed the case in the analysis (Gibbert and Ruigrok 2010). Credibility was achieved through prolonged engagement over six years as presenters of the programme. As the case study was constructed from various units of analysis submitted to the executive committee and a research ethics committee, it could be transferable to other contexts. Should the study be repeated, the evidence provided in the study would be similar in that the data analysis was based on a well-researched conceptual framework to evaluate research capacity building in healthcare. Confirmability was assured in the audit trail of the individual sub-units that were used to create the case. Reflexivity is an essential element in qualitative research. One of the requirements of the custodian of the programme is that reporting on the programme has to be done at each Research Ethics Committee meeting. This approach ensured that the presenters reflected on all aspects of the programme at least twice a year.

ETHICAL CONSIDERATIONS

The researchers upheld scientific integrity in all phases of the research to prevent or minimise bias. Permission to use data from the novice researcher programme was obtained from the Research Ethics Committee of the professional organisation who is the custodian of the programme, and also the participants. As researchers, the authors take responsibility for the integrity of the interpretation and presentation of the findings. Only two of the presenters were present at the reflective workshop at a time. The names of the organisation and its chapters are not mentioned to ensure confidentiality and anonymity. No harm is inflicted on the organisation or any of its participants as no personal data were included in the analysis.

FINDINGS

The findings of the analysis are described according to the eight dimensions of the Cooke integrated framework (see Figure 1). These eight dimensions fall within a structural context that was used as a basis for the discussion in the next section.

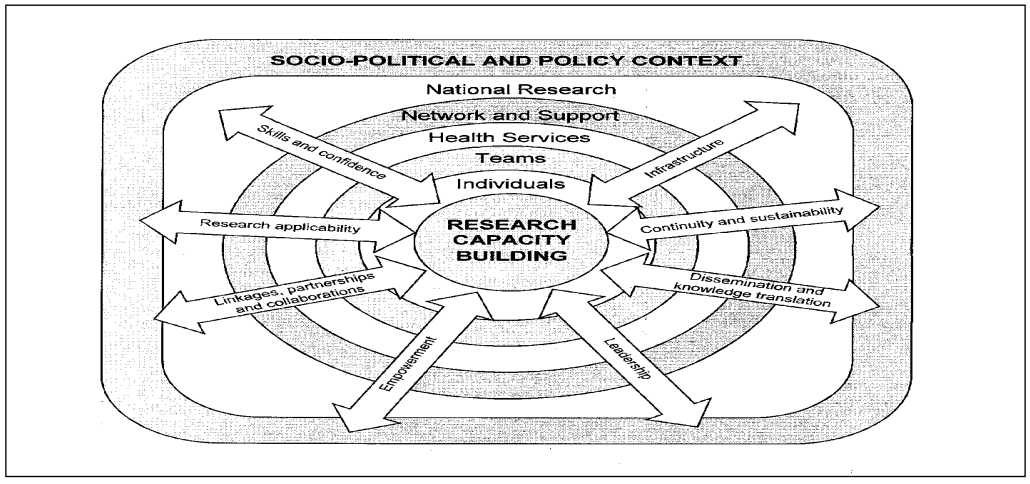

Figure 1: The eight dimensions of the Cooke integrated framework

(Adapted from Edwards, Kaseje, and Kahwa 2016, 23)

Skills and confidence

The first dimension of research capacity development entails the building of research skills, self-confidence and a positive attitude to conducting and utilising research. This is achieved through training, mentoring, sharing of knowledge and skills, guidance and engagement in activities that will build and reinforce newly acquired skills. To plan

capacity development initiatives, a thorough assessment of the knowledge and level of skills of the target population is necessary (Cooke 2005; Edwards, Kaseje, and Kahwa 2016).

No assessment was required before entry into the programme as participation was centred on the participants' career needs and not their knowledge. Programme participants engaged in the research activities of the programme with the authors providing training, guidance, mentoring and sharing knowledge and skills. They obtained presentation skills at national and international scientific conferences, and also obtained scientific writing skills. Continuous informal assessment of their progress was done through their participation in the workshops. While most participants had a positive attitude, some groups experienced negativity of some group members but, eventually, all groups established cohesion. Twenty six of the 28 participants enrolled for postgraduate programmes after completion of the novice researcher programme.

Research applicability

An essential aspect related to research is the production of research evidence that is relevant to fundamental issues and concerns related to the research focus. An overall aim of research should be that the study and findings are useful, relevant and informative to practice. Therefore, it is important that research questions be developed in consultation with stakeholders in the particular field (users, providers, policymakers). Of importance is not only the topic under investigation but also the methodologies used to answer the research question. By getting the buy-in from relevant stakeholders, one not only ensures engagement or uptake of the findings but also stimulates a research culture that in turn improves evidence-based practice (Cooke 2005; Edwards, Kaseje, and Kahwa 2016).

Employers gave permission for educators to participate thus demonstrating their engagement. Results are taken back to the workplace where research-related initiatives are implemented. From the numerous postgraduate enrolments and presentations at conferences, it is evident that the programme has helped stimulate a research culture in the educational institutions. The topics chosen by novice researchers were all useful and relevant to practice and arose from needs within the education field. The board of the professional organisation who is the custodian of the programme were kept informed of topics chosen and were supportive of the choices made. An effort was made to expose novice researchers to qualitative and quantitative research methods as appropriate to their chosen studies, and all projects were reviewed and approved by a research ethics committee. As the project is registered under a university community engagement project, partial financial support was available.

Linkages, partnerships and collaborations

Collaboration in research is crucial to expanding intellectual and social assets. Therefore, relationships between all role players such as professional organisations, academics, expert and novice researchers, funders, research consumers and policymakers, are important (Cooke 2005; Edwards, Kaseje, and Kahwa 2016).

The participating professional organisation is the custodian of the project while the university community engagement partially funds the project. Academics present the programme. All of the research is done in NEIs and hospitals, from which permission must be obtained to do the study. These institutions also require reports on the study conducted in their institutions.

Dissemination and knowledge translation

Dissemination and knowledge translation are necessary to ensure the effective impact of research on practice. Techniques to disseminate information range from the written form (peer-reviewed publications, reports, lay publications, fact sheets) to public presentations (oral and poster conference presentations, presentations to committees or boards). However, dissemination is regarded as a one-way flow of information. Knowledge translation, on the other hand, is an interactive strategy that is more complex and promotes taking ownership of the information and application to practice (Cooke 2005; Edwards, Kaseje, and Kahwa 2016).

The results of the studies were disseminated as both oral presentations and posters at the annual nursing education conference and were useful, relevant and informative to practice. In addition, articles were written and at least two published by the groups. Knowledge translation occurred when participants used the knowledge gained to guide their students to conduct research. Ownership of the outcomes was demonstrated when, for example, peer support strategies, identified in the 2015 study, were implemented.

Continuity and sustainability

When essential research structures are established and opportunities are created to apply and extend knowledge and skills to practice, sustainability is enhanced. However, sustainability needs a strong mentor-mentee relationship where established researchers support and work alongside novice researchers (Cooke 2005; Edwards, Kaseje, and Kahwa 2016).

The programme was firstly initiated and fully funded at national level. Once funding became limited, the programme was devolved to provincial level to limit costs for travel and accommodation, which had an added benefit of becoming accessible to more novice researchers. While established researchers coordinate the programme and co-author with participants, shadowing of the project facilitators has been incorporated to improve continuity and sustainability of the programme. Funding remains a threat to

sustainability and continuity as researchers coordinate the programme voluntarily and over and above their normal work responsibilities.

Infrastructure

Research and research capacity development initiatives require appropriate infrastructure. Human resources (supervisors and administrative support), dedicated time slots, research positions and funding opportunities are essential components of a research-related infrastructure (Cooke 2005; Edwards, Kaseje, and Kahwa 2016).

The professional organisation's boardroom and human resources office are made available to the programme with supporting universities providing support in terms of infrastructure. Dedicated and motivated supervisors from universities and the custodial organisation are available for support and assistance. These individuals continually explore funding opportunities.

Leadership

Edwards, Kaseje, and Kahwa (2016) identified leadership as another dimension in research capacity development. They specifically mention the value of servant leadership approaches that are necessary where established researchers support novice researchers either as individuals or as a team. Such a leader would have to champion the research, ensure the allocation of protected time for research and provide infrastructure (venue, ICT, finances, administrative support, ethical clearance processes and experienced research staff). Furthermore, dynamic leadership is important at the organisational level and committed scientific leadership is needed for research progress.

Expert researchers champion the research of this programme, plan workshops, and provide Wi-Fi and venues, some funding, administrative support and ethical clearance of research projects. Volunteer expert researchers from universities lead the project while participants' employers allow time and in some cases fund them to attend. The professional organisation that initiated the programme remains committed as custodian of the programme. The CEO of the professional organisation is fully involved in the project.

Empowerment

Regarding empowerment, the second additional dimension added to the Cooke framework, Edwards, Kaseje, and Kahwa (2016) explain that the necessary tools to engage in research should be provided. By empowering all researchers, the power dynamics and control over decisions and resources that are potential inhibitors during research could be prevented. Researchers should share responsibilities and power to prioritise and successfully mobilise skills, resources and influence networks.

The novices have control over decisions on their research topic and work in a group where they take ownership of the project and take turns to lead in various tasks while sharing responsibility. This includes the development of PowerPoint presentations and presenting them at the conferences, searching the literature, and writing scientific articles. The authors give assistance in obtaining the ethics clearance as the participants are not registered students at any university.

DISCUSSION

The findings presented in this section are discussed according to the sociopolitical and policy context of the Cooke integrated framework.

Research capacity building is a subject that has received a great deal of attention internationally. As stated in the introduction to this article, Bates et al. (2006) and Lansang and Dennis (2004) explain it as the improvement of the abilities of individuals, organisations and systems to conduct research and disseminate quality reports, a definition compatible with the Cooke integrated framework. In reviewing other studies on the topic, it becomes clear that the term, research capacity building, is subjective and tends to be context-specific and therefore difficult to define (Levine et al. 2013). Examples of research capacity development done within professional groups in healthcare are numerous. These professional groups include physiotherapists (Janssen et al. 2013), epidemiologists (Dodani et al. 2012), clinical educators (Ahmed et al. 2016), nurses and midwives (Begley et al. 2014; Moore, Crozier, and Kite 2012; Sheehan et al. 2015), mental health practitioners (Pilowsky et al. 2016) public health practitioners (Hulcombe et al. 2014; Rusen et al. 2015), and medical practitioners (Bhardwaj et al. 2013; Ewigman et al. 2016). The motivation for engaging in such programmes varies from aiming to promote research in apparent under-researched areas in the field to much broader motives such as increasing research output for professional recognition purposes.

In reviewing the findings of our research, the programme was started partly owing to the undersupply of research on nursing education in South Africa. This notwithstanding the primacy to assist the nurse educators based at nursing colleges to engage in research to enter the higher education arena where participation in research is a requirement for the job. This is not a unique situation as the move to academia has happened relatively late in the nursing profession. Begley et al. (2014) instituted a research capacity development programme in Ireland as relatively few nurse educators had Masters' and Doctoral degrees and it was recognised that it was essential to remedy this problem if nurse educators were to shift their focus from teaching to teaching and research.

Measuring the success of research capacity development efforts varies as do the motivations for programmes. Levine et al. (2013), however, concluded that publication and presentation rates, an increase in research funding, change in organisational culture, and a positive impact on the community were standard indicators for measuring the

success of research capacity development initiatives. In reviewing the findings of our study, it must be acknowledged that this is a relatively new initiative and that, apart from measuring the number of postgraduate registrations, publications and presentations made, we have not yet seen positive results regarding the other indicators. The initial success of the project was, in part, owing to targeted funding that was made available. However, sustainability is a challenge.

Higher education institutions have well-established sources of funding based mainly on research output, but non-governmental organisations such as the one sponsoring the programme reported on in the study do not have this luxury. As Stewart (2015) mentions, reliance on donor funding to promote research capacity development in South Africa is high and should not therefore be the main source of funding. Collaboration with higher education institutions may well be an answer to the problem, and to a certain extent, this has been received in kind by the two higher education institutions supporting the programme. But, particularly in Africa, where funding for research is limited, this may not be a comfortable solution. Chu et al. (2014) examined the possibility of high-income countries supporting the research capacity of low- and medium-income countries. These authors suggest caution to ensure that collaborators from high-income countries have the support from their institutions and that the focus of the research is on building the capacity of the low- and medium-income countries rather than simply advancing the research careers of the supporting high-income countries.

When looking at the individuals who attended the various programmes, it is useful to reflect on their motivation for applying. Certainly, in South Africa, there is a growing realisation among young nurse educators that they need to obtain Masters' degrees, and they thought that the novice researcher programme was a good way to start to learn how to conduct research in a relatively safe and nurturing environment. The most interesting and encouraging aspect of the programme was that so many did indeed go on to study for a Master's degree, which poses the question whether it was internal motivation or whether there were other factors at play. Pager, Holden, and Golenko (2012) found that intrinsic motivators, as well as the presence of enablers such as mentors and links to universities, were more likely to motivate people to engage in research. External factors such as the lack of time and funding were more likely to act as barriers to the individual healthcare professional to engage in research. For the programme to continue to appeal to nurse educators, it will be important to remove as many barriers as possible as the internal motivators should encourage them to participate in the absence of barriers.

One of the challenges of running a research programme where participants are engaged in hands-on team research is that the group needs to agree on a topic and methodology. Many of the participants came with ideas that they were passionate about exploring and had to concede to others in the group. We believe that this active involvement in a team project is a cardinal element of the success of the programme and differs from other programmes (Bhardwaj et al. 2013) that aim at empowering novice researchers by imparting knowledge on research. Even those that are aimed at creating

or improving access for novice researchers to enter existing programmes in higher education institutions (Ewigman et al. 2016) do not supply the necessary input we advocate. A constructivist approach would follow the principles proposed by Vygotsky (1978) who, in his social development theory, suggested that real learning comes from interacting with other people and that sharing is created during this process.

As part of the sociopolitical and policy context, Edwards, Kaseje, and Kahwa. (2016) state the importance of creating an interface between academics who generate research and those in the health services who utilise the research results. In our study, it became clear that the novice researchers are part of the research utilisation system as they conduct research on issues that concern them in both the NEIs and the clinical areas thus adding value to the healthcare services. Many research capacity development programmes are started to build evidence and expertise regarding research in areas of speciality in both the education and the clinical field. These are done to determine and advance research priorities in those speciality fields (Adewole et al. 2014; Chu et al. 2014; Daniels, Nduati, and Farquhar 2014; Wilkes, Cummings, and McKay 2013). We believe the novice research programme was uniquely positioned to fulfil both these roles. Whether the findings of the various studies find their way into the national policy arena and influence nursing education policy in South Africa is questionable at present as the policy arena is dominated largely by senior government officials (Blaauw, Ditlopo, and Rispel 2014).

CONCLUSIONS AND LIMITATIONS

The success of the programme lies in the skills and confidence gained by the participants and the contribution they could make to deal with and resolve their education practice problems. In this process they developed strong partnerships through sharing responsibilities in the execution of the project. Under the leadership of the programme leaders, their work delivered results that could be implemented in their workplaces and that were shared at conferences and in publications. Continuity and sustainability of the programme remain a challenge and was partially promoted by using the premises of the professional organisation or university participating in the project, devolving the programme to organisational chapter or regional level and partnership with universities. Such partnerships should be extended.

It could be argued that a Hawthorne effect is possible owing to the small number of participants and the researchers being involved in the programme, reviewing their programme. The authors also recognise that the participants were so grateful for the opportunity to participate in the programme that it could have affected their views by making them extremely positive in their reviews of the programme. This was overcome by using different units of analysis, keeping the reflections anonymous and using a framework for the analysis of data.

RECOMMENDATIONS

Selection and recruitment should be given careful attention. The confidence of the participants and cohesion of the group improve with interaction. Therefore an ice-breaker or introductory workshop could assist in getting to know one another and identifying where power differentials lie.

It is recommended that further research be conducted to explore the research career paths of the individuals who attended the programmes and what factors motivated or demotivated them in terms of research.

Institutions, where the research is conducted, should be supported through knowledge translation to implement the recommendations of the completed projects. While novices are required to write articles for publication, the funding of page fees for publication may be a deterrent.

Involvement of more universities would assist sustainability, could serve as preparation for postgraduate studies, and provide library access for programme participants.

Sustainability is further promoted through mentorship of the presenters of the project and fundraising initiatives. As the programme is dependent on funding, a dedicated person is needed to drive and manage the programme.

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