Reflections from organization science on the development of primary health care research networks

Evelyn Fenton, Janet Harvey, Frances Griffiths, Andrea Wild and Jackie Sturt


Abstract. In the UK, policy changes in primary health care research and development have led to the establishment of primary care research networks. These organizations aim to increase research culture, capacity and evidence base in primary care. As publicly funded bodies, these networks need to be accountable. Organizational science has studied network organizations including why and how they develop and how they function most effectively. This paper draws on organizational science to reflect on why primary care research networks appear to be appropriate for primary care research and how their structures and processes can best enable the achievement of their aims.

Keywords. Network evaluation, networks, organizational science, primary care research networks.

Introduction

Research in general practice/family medicine has drawn on networks of practitioners prepared to participate in research, and practitioners wanting to lead research have formed alliances with each other and with academic units to support their work. As GPs work in practices, often isolated from others with an interest in research or the necessary resources for research such as academic libraries, networking has been vital for supporting research. In the UK, until the developments of the last 6 years, research networking included research clubs where researchers leading research met to develop their ideas and gain academic support, and research participation networks where practitioners participated in research mostly through patient recruitment.

More recently in the UK, the National Health Service has recognized the need for developing greater research capacity and awareness in general practice and more widely in primary health care. Resources have been committed to the development of research networks for primary health care across the UK. These networks aim to increase the research capacity and research culture in primary health care and promote evidence-based developments. However, they vary considerably in their form of organization, who participates, the context in which they are located and the emphasis given to different aims. Some networks aim to involve primary health care professionals from across disciplines, and across the locality. Others are more centralized, aiming for a small network of research-active health care professionals and academics. As these research networks are publicly funded, evaluations of the effectiveness of the investment are underway. The networks of the former North Thames region (Northern London) are being evaluated by three of the authors who bring their experience of organization science to the evaluation. The paper offers a review of the organization science literature drawn from selected references identified following a Proquest database search. The Proquest database draws on published literature in the fields of management, organization studies and economics, and includes both academic peer-reviewed articles and articles from the business and practitioner press. The search terms networks, inter-organisational networks, network form and organisation were used to undertake a review for an ESRC project and later assimilated for the development of a framework for network evaluation. This literature forms the basis for this paper and aims to reflect on the understanding of networks from organizational science and how this understanding can inform the development, and ultimately the evaluation, of primary health care research networks.

Articles that were excluded from consideration here included those on the micro-economics of interfirm collaboration and those on the strategic benefits of
Changes in the production of knowledge

Recent organizational literature has charted the growing importance of the development of links between organizations and the increasingly multidisciplinary and team-based emphasis emerging around the organization of work and the production of knowledge. There appears to be an increasing trend towards larger, more multidisciplinary research groups, employing complimentary skills and leveraging critical mass to undertake the large range of disparate tasks associated with the research process. The production of knowledge is a central purpose of the strategic alliances now forming in this way. The development of research networks in primary health care appears to be part of this trend.

It is argued that a new kind of production of knowledge is emerging. This new model of knowledge production is called ‘Mode 2’ and is emerging alongside the traditional ‘Mode 1’. An example of Mode 1 would be natural science research, characterized as discipline driven, with the research question conceptualized and analysed within a disciplinary framework. The research process here is a linear progression from generation of a hypothesis, through to dissemination of results, undertaken by generally homogeneous research groups in terms of skills and experience. Mode 1 research is also characteristic of learning via higher degrees such as MDs and PhDs, where the lone researcher predominates. In contrast, Mode 2 knowledge production is characterized as multiprofessional driven, allowing ideas and knowledge to be generated and reflected upon within research groups which combine heterogeneous skills and experience. Within Mode 2, research groupings change from project to project and tend towards non-hierarchical, networking arrangements. An example is seen in PCRs where groups may cluster according to clinical interest, exchanging professional priorities and identifying knowledge and evidence gaps.

A PCR is an example of Mode 2 research where it engages inter-disciplinary group participation and experience and builds capacity and capability for knowledge and expertise to be exchanged and processed between research groups. Many PCRs currently facilitate the development of research practices, research by higher degrees, academic training schemes and primary care fellowship schemes where the individual and group learning may also be fed back to the wider network, through their annual conference, for example. In this sense, PCRs may be considered as complements to other learning initiatives. A successful PCR needs a learning organization perspective skilled at creating, acquiring and transferring knowledge and at modifying its behaviour to reflect new knowledge and insights. Mode 2 research is transitory as research participants move between studies, and is associated with non-hierarchical forms of organization, suggesting that the conduct of research is via relational processes of interaction and exchange. This characteristic can be found in PCRs but poses challenges to the organization as there currently is inequality of access to research participation across primary care disciplines.

No comparative data currently exist on the mode of research activity conducted within PCRs and other, more traditional research sites, such as academic departments of general practice, for example. The most which can be inferred at this time is that PCRs are well placed to facilitate multidisciplinary and non-hierarchical research activity within the context of the low base of research experience and capacity in primary care and where the goal of a PCR is to build capacity in its locality. This capacity-building element, we believe, currently is low if not absent from academic departments of general practice.

What are the benefits of networks?

The two basic resources derived from a network are social capital (relationships) and intellectual capital (knowledge). Social capital is created when new network relationships become a valuable resource for both the individual practitioner and the network organization, enabling assets such as knowledge to be mobilized through the network. Social capital has two key characteristics: it forms some part of the social structure, e.g. the social element of a training event or meeting someone new within your field; and it leads to some form of outcome for those who are so engaged. Social capital such as social relations can improve the diffusion of information, facilitating creativity and learning. It enables co-operative behaviour, thereby encouraging...
the development of new forms of association and innovative organization. \textsuperscript{12} This co-operative behaviour may also confer a series of positive returns. For instance, by creating high levels of trust, the probability of opportunism is diminished, which in turn obviates the need for costly monitoring processes.\textsuperscript{10,12}

Intellectual capital refers to the knowledge and knowing capability of a social collective and would include a network’s research capability encapsulated within the skill levels of the membership.\textsuperscript{10} It has been argued that all new resources, including knowledge, are created through the processes of combination and exchange.\textsuperscript{13} Both incremental and radical changes in knowledge creation involve either combining previously unconnected elements, or developing novel ways of recombinining previously associated elements. Where different parties hold resources, such as in a multidisciplinary team or a multiprofessional research club, this process of combining is dependent upon exchange between them. Thus interaction and co-activity are important.

What are the disadvantages of networks?

Network building is a long-term, emergent process of development that may have unintended consequences,\textsuperscript{6} for example members may become overdependent on the network centre expertise. There are other documented hazards from networking such as increasing complexity, loss of autonomy and information asymmetry,\textsuperscript{8} all of which can hamper innovation and the learning process. Social capital too, may not always be beneficial. For example, strong norms and mutual identification, while positive for groups, can, at the same time, produce a collective blindness through an overconvergence of viewpoints leading to poor outcomes.\textsuperscript{10} This poses challenges for primary care where many uni-professional work groups have existed, often, over long periods of time.

Networks also have cost implications, and the creation and maintenance of social capital often requires significant investments of time and other resources. One of the three most important reasons for withdrawing from the US Ambulatory Sentinel Practice Network (ASPN) was given as the additional burdens associated with involvement with ASPN.\textsuperscript{15} These burdens are likely to be influenced by the size and complexity of the network, since the costs of maintaining linkages such as research clubs, project meetings and training events usually increase exponentially as a network increases in size.\textsuperscript{10} In terms of sustainability, networks are time consuming to create and maintain but may also collapse if not seen as productive by participants, or if key players pull out.\textsuperscript{14} The importance of identifying the productive components of a PCRN for its participants, including the funding body, grows ever more important in achieving sustainability.

Network processes conducive to research and development

Socialization
Not all knowledge can be transferred between groups and individuals with the same ease. While explicit knowledge can be articulated easily in taught programmes or by experts giving advice, tacit knowledge (or uncodifiable knowledge) has an important cognitive dimension that is more difficult to articulate. It is tacit knowledge that frequently distinguishes the performance of highly experienced teams.\textsuperscript{10} Socialization is the only means of transferring tacit knowledge between individuals through observation, imitation and practice.\textsuperscript{8,16} Networks must therefore have mechanisms in place to socialize multidisciplinary professionals into each other’s fields and into the world of research. Examples of this might be new researcher schemes where the interested novice has a training placement on an externally funded study. Some important mechanisms of socialization transferable in these schemes are shared norms, identification, shared language and trust.

Part of this socialization process involves acceptance of the norms, which can establish a strong foundation for the creation of intellectual capital.\textsuperscript{11} These include openness and teamwork, willingness to value and respond to diversity, openness to criticism, and a tolerance of failure. Such expectations may offset the tendency to group think. They may also open up access to parties for the exchange and combination of knowledge and help maintain the motivation to engage in such exchange.\textsuperscript{12}

Identification
To identify with a network means to take on the values and standards of the group. Kramer et al.\textsuperscript{17} have found that identification with a group or collective enhances concern for collective processes and outcomes, thus increasing the chances that the opportunity for exchange will be recognized. Identification, therefore, acts as a resource to influence the anticipation of value to be achieved through participation.

Shared language
It is important for participants to have a shared context in order to facilitate social exchange and the combination of knowledge.\textsuperscript{10} This comes about through shared language and vocabulary and through the sharing of collective narratives. Shared language facilitates the ability to gain access to people and information and influences perceptions of common understandings. Shared language also enhances the ability to combine and develop concepts and narrative norms in order to advance knowledge. Narratives in the form of stories, full of seemingly insignificant details, facilitate the exchange of practice and tacit experience between technicians,\textsuperscript{18} thereby enabling the discovery and development of improved practice.
Trust
The development of trust is important for guiding interpersonal relationships. There is much evidence to suggest that where parties trust each other, they are more willing to engage in exchange in general, and cooperative activity in particular, through which further trust may be generated. Trust may open up access to people for the exchange of intellectual capital and increase anticipation of value through such exchanges. Support for this view is evident in research demonstrating that where there are high levels of trust, people are more willing to take risks. This may represent an increased willingness to experiment with combining different sorts of information. For example, the regular meetings of the European General Practice Research Workshop serve to build trust and thereby facilitate international collaborative research. There is a two-way interaction between trust and co-operation; trust lubricates co-operation, and co-operation itself breeds trust. This may lead to the development over time of generalized norms of co-operation, which increase yet further the willingness to engage in social exchange. In this way, trust in itself becomes an asset that group members can rely on more generally to help solve problems of co-operation and co-ordination.

Implications for network configuration and development

The network centre
The importance of socialization in a network suggests that a strong culture is going to be vital for its success and sustainability. In this, the centre of a network has an important role. It can be a creator of value for its members, by acting as a lead in galvanizing interest in research, as a rule setter for behaviour and as a capability builder by putting individuals and groups in touch with opportunities and resources for learning. The centre will need to develop and nurture overlapping social networks by providing a forum for the development of different social groups such as research theme groups or courses. In all this, communication is important, not just of knowledge and goals, but also to signal trouble spots, conflicts or changing situations.

Network communication and relationships
The way groups and individuals are linked, or tied, for the exchange of information is an important facet of social capital that can affect the development of intellectual capital. The structures of networks affect the level of contact between network members. Contacts are shown to increase where links between professional roles are strong, multidimensional and reciprocal rather than hierarchical. A good example of this is the Israeli Family Practice Network.

Networks need to maintain a balance between loose and strong ties to facilitate different types of information and research capacity. A sparse network, with only a few redundant contacts, provides a more efficient structure for information exchange than a dense network where there may be redundant links. Central to this argument is the role of loose ties in the diffusion of information through communities. These ties are the third party contacts which link individuals in a network and prevent the formation of inward looking cliques. They serve to create intellectual capital by combining knowledge across health authorities, trusts and disciplinary groups.

However, much richer patterns of relationships and denser interaction are required where information is uncertain and ambiguous, or surrounding a challenging research method where parties to the exchange have inequalities in research capacity. The particular problem facing community pharmacists’ access to a research forum, for example, may require focused attention by a small number of closely tied members of the network centre. This would facilitate exploration of the barriers to pharmacist participation and establish ways of enabling the combination and exchange of pharmacy knowledge within the network.

Resourcing the network
Despite the emergence and success of practice-based research networks in the USA over the past two decades, it has been noted that their development is curtailed by underfunding. This finding was supported further by a report on a national survey of UK PCRN. The commitment of resources to the network, whether they be financial, human, technical or other, requires rigorous and flexible planning and must be free to move within the system. There must also be perceived equality of contribution and benefits by the various parties involved in the collaboration. Inequalities are likely to lead to dissatisfaction, resentment and possibly the termination of relationships. Information technology and methodological support are examples of PCRN resources that can be in great demand. Research collaborators who work outside of a network’s academic host institution may have considerable difficulty in gaining access to these resources. The creation of a win–win situation where all partners gain from the collaboration is important for success.

The development of social relationships over time
Social relationships are generally strengthened through interaction but die out if not cultivated. Therefore, it is important to maintain a momentum of interaction within the network. It may be necessary to reaffirm cultural norms and values through periodic network events or publications, in particular the dissemination of progress and achievements. The latter is particularly important during the early stages of a network to secure commitment and participation.
Like other forms of capital, social capital accumulates over time, reflecting investments in social relations and social organization.26 This time, in terms of stability and continuity, is important for the development of social capital. So, for instance, it will take time to build trust, relationship stability and durability that are associated with high levels of trust and norms of co-operation.12,22,27,28 The stability of the relationships that underpin the network also influences the clarity and visibility of membership obligations.23 In this respect, networks must be seen as long-term development projects.1

Conclusion

The UK policy context is now ripe for primary health care to be at the vanguard of the new production of knowledge labelled Mode 2 research. The NHS is committed to multidisciplinary research and encouraging collaboration between academic centres and practitioners, both of which have strong characteristics of the Mode 2 model of knowledge production. The requirements for this form of knowledge production have a strong resonance with network modes of organization. Networks are capable of encompassing greater diversity and more contradictions than formal organizations. They are characterized by greater flexibility and opportunities for creativity, as multidisciplinary researchers are afforded opportunities for contact.29 The network form of organizing appears to be ideally suited to the goals of the learning organization in general, and primary care research and development in particular. PCRNs may encompass both traditional learning formats such as higher degrees, research practices and fellowships, as well as funding practitioners to carry out research within their locality. The benefits of PCRN membership afford the lone researcher enrolled on a higher degree, or a research practice group, with opportunities for interaction with other primary care professionals in the exchange of knowledge and ideas. PCRNs provide formal opportunities for actual, and potential, research collaborators to engage with multiple learning partners in long-term relationships that facilitate the sharing and production of knowledge.

References