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Action research: what, why and how ?

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Abstract

Action research is a form of research that enables practitioners to investigate and evaluate their own work. It is increasingly used in health care research; it is a research strategy in which the researcher and practitioners from the setting under study work together in projects aimed at generating new knowledge and simultaneously improving practice. This article gives an overview of the theoretical background of action research, its international historical development and explanations of its varied forms and related practical applications. Ethical problems are discussed as are questions of rigour. The article shows that action research can be used to bridge the gap between theory and practice by generating knowledge fitting the particular circumstances in the practical setting, thereby avoiding problems of implementation of research findings due to lack of fit or lack of motivation. Action research lastingly increases the capacities of practitioners to solve problems encountered in practice.

Key words: Action-research; research methods; research practice gap.

Introduction

Action research is a form of research that enables practitioners to investigate and evaluate their own work. It is increasingly used in health care research; Pubmed hits 56 articles reporting action research in several health care fields published in 2008 from January to July 11. There are few examples yet of action research used in the care of neurological patients (Hoogwerf 2002, Mitchell *et al.*, 2005; Spetz *et al.*, 2008). Action research is suitable because it is a form of research enabling practitioners and consumers to participate in the development of knowledge which they themselves will subsequently use or will be used in their care.

Action research allows making use of the knowledge present in practice, increases the impact of the viewpoints of those involved both as practitioners and consumers on the solutions developed and often aims at emancipatory effects.

Action research can help practitioners to identify problems in their own clinical practice and subsequently to develop strategies to improve this practice (Hart and Bond, 1995). Besides the improvement of practice, action research is directed at improvement of understanding of the practice by its practitioners, and the improvement of the situation in which the practice takes place (Carr and Kemmis, 1986). In action research "knowledge is not produced with a view of *later* (author's italics) incorporation into practice as is the case in most forms of research; knowledge production is embodied in the enactment of emerging understanding. That is, the *research* (author's italics) aspect of participatory action research is not an end in itself, it defers to practice" (McTaggert 1999, p. 496).

This article briefly reviews the historical background of action research and its development over the years, and subsequently describes the various forms of action research and action cycles existing today. The ethical problems which may arise are addressed, as are the possible approaches to rigour in action research. To illustrate the application of action research in nursing two action research projects in which the authors were involved are discussed. The first is an action research project developed between 1996 and 1998 in an assessment, treatment and rehabilitation unit for older people in a large metropolitan hospital in New Zealand (Hoogwerf, 2002). The second is a project developed between 2004 and 2006 in a unit for long term care of an epilepsy centre in the Netherlands (Vallenga *et al.*, 2008).

Backgrounds of action research

The theoretical roots of action research are usually traced back to Dewey (Dewey, 1933 in Hoogwerf, 2002; Neilsen, 2006), who developed a model for

reflective thinking consisting of five stages: suggestion, intellectualisation, hypothesising, reasoning and testing the hypothesis by actions.

In describing the historical background of action research, Hart and Bond (1995) focus, as do many others, on the pioneering work of Kurt Lewin (1890-1947) and John Collier (1984-1968). John Collier was the commissioner of United States Indian Affairs from 1933 to 1945 and Kurt Lewin was a German social psychologist who arrived in the United States in 1933. According to Neilsen (2006) the major goals of action research for both Lewin and Collier were to create changes in practice and to develop new, or refine existing theory. Collier used the term 'action research' for the first time in a 1945 academic publication (Neilsen 2006). Collier wrote (1945, p. 294) "What they were striving for was action-research, research-action, and participation by administrators and local laity". His work made clear that improvements occurred when strategies were developed collaboratively with all involved parties.

In 1946 Lewin used the term 'action research' to describe a means of generating knowledge about a social system and within the same process trying to change it, and applied this approach to several different situations (Hart and Bond, 1995).

From the early 1940's action research was applied to problems in American industry such as industrial conflicts, morale, absenteeism and the relationship of work-group behaviour to productivity (Hart and Bond, 1995). In the1950's it was taken up by the teaching profession to encourage teachers to explore what they were doing and propose improvements. In the late 1950's action research went into decline in America; however it began to take hold in the United Kingdom in the context of teaching education and organisational consultancy (McNiff and Whitehead, 2006). The Tavistock Institute of Human Relations became a major force behind the development of action research throughout the world (Hart and Bond, 1995; Holter and Schwarz-Barcott, 1993). Since 1980 action research has become increasingly used in nursing. The work of Grundy, Kemnis and McTaggart influenced the growth and popularity of action research in health care settings particularly in Australia and New Zealand (Hoogwerf, 2002).

Action research developed over time. While the aim in early days was to create social change by seeking universal laws of human behaviour, in recent decennia action research has been focused on raising awareness and empowerment. In nursing and education, action research is seen as a way of closing the gap between theory and practice (Holter and Schwarz-Barcott, 1993; Hart and Bond, 1995; Rolfe 1996).

Forms of action research

Action research is considered a style of research rather than a specific method (Meyer, 2000). Fundamental to action research is participation and collaboration between the researcher and practitioners. Holter and Schwarz-Barcott (1993) explain the term practitioner in action research as referring to an individual who knows the field or work-place from 'the inside' and who is seen as the expert for the setting under study. The nature of collaboration between the researcher and practitioners can vary and depends on the aim of the study and the orientation of the researchers.

In order to clarify what is meant by action research and the different approaches within it, Hart and Bond (1995) presented an action research typology built on four broad traditions: Lewins' experimental approach, organisational change, community development and education/nursing. They identified four types of action research approximately corresponding with these traditions: the experimental, the organisational, the professionalising and the empowering. Subsequently they introduced seven criteria to be cross-linked with these four action research types. They contended that these criteria, in dynamic interaction, distinguished action research from other methodologies. The criteria, placed in the left column of table one are: action research 1) is educative; 2) deals with individuals as members of social groups; 3) is problem-focussed, context specific and future orientated; 4) involves change intervention; 5) aims at involvement and improvement; 6) involves a cyclical process in which research, action and evaluation are interlinked; 7) is founded on a research relationship in which those involved are participants in a change process.

Action research types can be seen as a developmental process over time and placed on a continuum, shifting from the more technical approach of testing theory in a real life situation to the qualitative approach in participative or cooperative enquiry in which practitioners and researcher collaborate closely (Hart and Bond 1995, Rolfe 1996). The action research types to the left of the continuum will be more strongly research focussed, while action research studies to the right of the continuum will be more strongly action focussed (Hart and Bond, 1995).

Many authors refer to the work of Habermas to explain action research. Habermas contends that human knowledge is determined by three directions of interest: technical interest, practical interest and emancipatory interest (Carr and Kemnis, 1986; Hoogwerf, 2002; McNiff and Whitehead, 2006).

Table 1

Action Research typology, Hart and Bond 1995 p. 40-43

Four types of action research are compared by cross-linking them with seven criteria listed in the left column. In practice the four types distinguished here may occur in dynamic interaction

	Consensus model of society Rational social management ⟷			*Conflict model of society Structural change*
Action Research type: Distinguishing criteria	*Experimental*	*Organisational*	*Professionalizing*	*Empowering*
1 Educative base	Re-education	Re-education/ training	Reflective practice	Consciousness-raising
	Enhancing social science/administrative control and social change towards consensus	Enhancing managerial control and organisational change towards consensus	Enhancing professional control and individual's ability to control work situation	Enhancing user-control and shifting balance of power; structural change towards pluralism
	Inferring relationship between behaviour and output; identifying causal factors in group dynamics.	Overcoming resistance to change/ restructuring balance of power between managers and workers	Empowering professional groups; advocacy on behalf of patients/clients	Empowering oppressed groups
	Social scientific bias/researcher focussed	Managerial bias/client focussed	Practitioner focussed	User/practitioner focussed
2 Individuals in groups	Closed group, controlled, selection made by researcher for purposes of measurement/ inferring relationship between cause and effect	Work groups and/or mixed groups of managers and workers	Professional(s) and/or (interdisciplinary) professional group/negotiated team boundaries	Fluid groupings, self selecting or natural boundaries or open/closed by negotiation.
	Fixed membership	Selected membership	Shifting membership	Fluid membership
3 Problem focus	Problem emerges from the interaction of social science theory and social problems	Problem defined by most powerful group; some negotiation with workers	Problem defined by professional group; some negotiation with users	Emerging and negotiated definition of problem by less powerful group(s)
	Problem relevant for social science/ management interests	Problem relevant for management/social science interest	Problem emerges from professional practice/experience	Problem emerges from members' practice/experience
	Success defined in terms of social science	Success defined by sponsors	Contested, professionally determined definitions of success	Competing definitions of success accepted and expected.
4 Change intervention	Social science, experimental, intervention to test theory/or generate theory	Top-down directed change towards predetermined aims	Professionally led, predefined, process-led	Bottom-up, undetermined process-led
	Problems to be solved in terms of research aims	Problems to be solved in terms of management aims	Problems to be resolved in the interests of research-based practice and professionalization	Problem to be explored as part of process of change, developing an understanding of meanings of issues in terms of problem and solution
5 Improvement and involvement	Towards controlled outcome and consensual definition of improvement	Towards tangible outcome and consensual definition of improvement	Towards improvement in practice defined by professionals and on behalf of users	Towards negotiated outcomes and pluralist definitions of improvement: account taken of vested interests
6 Cyclic processes	Research components dominant	Action and research components in tension; action dominated	Research and action components in tension; research dominated	Action components dominant
	Identifies causal processes that can be generalized	Identifies causal processes that are specific to problem context and/or can be generalized	Identifies causal processes that are specific to problem and/or can be generalized	Change course of events; recognition of multiple influences upon change
	Time limited, task focussed	Discrete cycle, rationalist, sequential	Spiral of cycles, opportunistic, dynamic	Open-ended, process driven
7 Research relationship, degree of collaboration	Experimenter/respondents	Consultant/researcher, respondent/ participants	Practitioner or researcher/collaborators	Practitioner researcher/ co-researchers/co-change agent
	Outside researcher as expert/research funding	Client pays an outside consultant – 'they who pay the piper call the tune'	Outside resources and/or internally generated	Outside resources and/or internally generated
	Differentiated roles	Differentiated roles	Merged roles	Shared roles

McNiff and WhiteHead (2006, p. 249) explained these forms of human interest as follows:

Technical interests focus on the production of technical knowledge, with the aim of controlling the environment. Knowledge becomes instrumental activity.

Practical interests focus on meaning-making and interpretation, with the intention of understanding the social life world and with an awareness of its historical and political emergence.

Emancipatory interests enable people to understand the influences that lead them to think and act as they do, and to liberate their own thinking in order to resist closure of any kind.

McNiff and WhiteHead (2006) supplemented these interests with a fourth: *educational interest*, which focuses on establishing inclusional practices that are grounded in people's capacity and desire for relation, and self-government in communitarian work.

They emphasize that critical theory research played a major role in the development of action research. Critical theory research is based on the following assumptions:

- It is important to understand a situation in order to change it.
- Social situations are created by people, and can be de- and reconstructed by people.
- Taken-for-granted situations need to be seen in terms of what has brought them into existence, especially in terms of relationships of power (McNiff & Whitehead, 2006, p. 41).

While understanding a situation in order to change it is the primary aim in critical theory, the central issue in action research is 'how can the situation be changed?' (McNiff & Whitehead, 2006).

Titchen and Binnie (1993) discuss collaboration in action research and develop two models based on partnership between practitioners and researcher. They describe the outsider model, situated on the left side of a continuum. In this model the researcher is external to the setting, has a diagnostic function and feeds back observations to participants. The researcher does not initiate or carry out changes, but supports and facilitates the change process. The insider model is located to the right of the continuum and here the researcher combines the role of actor, change agent and researcher. As the role of the parties involved can change during the action research process, responsibilities may shift during the process. Depending on the learning process and the trust within the action research group, participants are able to take increasing responsibility (Hoogwerf, 2002).

The action cycles

Lewin developed the classic model of action research that proceeds in a series of steps, starting from a general idea and a general objective. Lewin suggested a spiral of steps creating a circle of planning, action, and fact-finding about the results of the action (Hart and Bond, 1995). Many other action researchers organized their work on this spiral framework. A four-step repeating spiral of planning, acting, observing and reflecting can be considered the basis for many of the more modern definitions of action research (Meyer, 1993).

Action research intends to be a disciplined systematic process, starting with the identification of what is going on in a situation and the concerns of those involved. Action research poses questions such as: how do I/we see the situation, how do I/we improve the situation? (McNiff & Whitehead, 2006). Action research builds on peoples' own motivations to change, authorising them to change programmes, and offering support and resources to those trying to develop new ways of working (Towell & Harries as cited in Webb, 1989).

Goal-setting is an established motivational technique for individuals and groups (Lewin, 1944; Locke, 2002). Lewin indicated that even if there is motivation to raise production, without setting definitive production goals to be reached, the effect is much less marked. The goal-setting theory formulated by Locke and Latham over a thirty-five year period and summarised by Locke in 2002 gives insights also useful for action research. The theory is based on Ryan's (1970 as cited in Locke 2002) premise that conscious goals affect action; a goal is the object or aim of an action usually within a specified time limit. Findings include that difficult and specific goals tend to produce the highest levels of performance, provided the people involved are committed to the goal and have the ability to achieve it. High commitment is attained when a person is convinced that the goal is important and when that goal does not exceed his or her capacities. Self-efficacy, or task-specific confidence, has a direct effect on task performance (Bandura, 1986; as cited in Locke 1996, 2002). Goals may be assigned, participative or self-set. There is no consistent evidence that participative goal-setting leads to greater commitment, motivation or task performance than assigned goals. Goal-setting is most effective when there is feedback showing progress in relation to the goal. It is clear that goals in action research, whether assigned or self-set, must be tailored to the practice and to the capacities of the practitioners involved.

Reflection is integral to action research. As a means of extending learning it can be traced back to Dewey. He identified three characteristics of reflective individuals: open-mindedness, responsibility, and wholeheartedness (Yost *et al.*, 2000). Several authors refer to two forms of reflection distinguished by Schön (1987), *reflection in action*, taking place during actions in order to make decisions about the next move; *reflection on action,* to later evaluate actions and decisions previously made (McNiff and Whitehead, 2006; Yost *et al.*, 2000; Atkins and Murphy, 1993). Atkins and Murphy (1993) posit three stages in the process of reflection: the awareness of a problem; critical analysis of the situation; and the uncovering of new perspectives. Essential is that reflection involves the self and leads to a changed perspective. Rearick and Feldman (1999) described three forms of reflection occurring in action research: autobiographical, collaborative and communal. In autobiographical reflection people examine the literal meaning of their stories to achieve greater clarity about their feelings and actions. Collaborative reflection involves greater openness to the perspectives of others and can result in a new level of communication and to problem-solving. Communal reflection involves reflecting on the self in interaction with others in a broader cultural, historical and institutional context. This type of reflection is helpful to better understand the perceptions, values and deeper meanings that direct social actions.

Ethical issues

In action research ethical problems may arise such as how to guarantee voluntary participation, informed consent, shared decision-making, anonymity and confidentiality and how to resolve conflicting needs (McNiff and Whitehead, 2006; Walker and Haslet, 2002; Williamson and Prosser, 2002). Voluntary participation can be an ethical problem because when a team participates collectively it may be difficult for an individual to withdraw (Meyer, 1993). Informed consent, a prerequisite for shared decision-making, should be based on accurate information about the facts and implications of an action. This is difficult to provide given the context of change, and the inherent uncertainty about the direction of change and the developments underway. Consent in action research stems from the willingness to take part in the process of change and research and in the acceptance of the researcher as facilitator of change (Meyer, 1993). Special attention is necessary for those who cannot sufficiently understand the information to give their consent. Seeking permission from their representatives or parents is necessary (McNiff and Whitehead, 2006). Anonymity is a problem occurring when a team is asked collectively to participate in a project. While many participants in action research wish to be named, others prefer to remain anonymous (McNiff and Whitehead, 2006). Another difficulty in guaranteeing confidentiality in action research is that non-participants within the organisation will always know which colleagues are participating (Meyer, 1993; Williamson and Prosser, 2002).

During group activities, failures and shortcomings of individual participants may become visible to the group but not necessarily to the individual concerned. The researcher has the responsibility to ensure that no participant is harmed in the research process and should be aware of conflicting interests and possible consequences of decisions made (Walker and Haslet, 2002). Participants are in a double role as they are (co)researchers and also responsible for the changes in the researched situation. These effects, not always appreciated by colleagues, can make their position vulnerable. Problems may also occur when the effects of action research are in conflict with the interests of managers or existing organisational policy. These conflicting interests can terminate action research projects (Hoogwerf, 2002). This emphasizes the necessity of involving the whole organisation in a project and the search for shared values.

The use of qualitative data in action research

Although in action research both quantitative and qualitative techniques of data gathering can be used and combined, the participative enquiry in which practitioners and researcher collaborate closely makes a qualitative research design evident. Maso and Smaling (1990) and Smaling (1992) gave a broad definition of qualitative research. In qualitative research the object of the study is the world as defined, experienced or constituted by the investigated people. The design is interactive and cyclical, and phases of data-collection and data analysis alternate and influence each other continuously. The method of data-collection is open and flexible and although systematic, not pre-defined. Data analysis in qualitative research is an interpretative process in which newly gathered data are systematically and rigorously compared to previously gathered data and interpreted in relation to the whole.

Smaling (1992) discusses that objectivity in qualitative research does not lie in value-free interpretation, which would be impossible, but in doing justice to the object. Doing justice to the object supposes a dialectic and dynamic balance between letting the

object speak and avoiding distortions (p. 177). In this approach the object of study should always be seen within the context of the research question. The object of study in qualitative research is subjective because the object of the study is, as said, the world as defined, experienced or constituted by the investigated and investigating persons. The researcher by his involvement with the object under study may also been seen as subjective. This is clearly the case in action research where practitioners and researcher collaborate closely. If the goal is that meaningful results should have a wider significance than only to the researcher directly involved it will be necessary that procedures and results are verifiable (Swanborn 1990).

Methodological rigour in action research

In considering validity in relation to action research Hope and Waterman (2003) noted that the same themes are apparent as in other research approaches. They outline the search for validity criteria in qualitative research and describe three prominent views (Table 2).

Firstly, the perspective of those who promote the use of the same criteria to judge both qualitative and quantitative research; secondly, those who move away from analogies to quantitative research toward distinct criteria for judging qualitative research; and thirdly, the view that seeking standards for the establishment of validity for qualitative research is a 'fruitless endeavour'. The latter leads to the complete rejection of predetermined criteria. Hope and Waterman (2003) refer (among others) to Lather (1986) and to Rolfe (1996). Lather offers four minimum standards for the enhancement of validity in so-called open ideological research. 1) triangulation of methods, data sources and theoretical schemes; 2) construct validity achieved by systematic reflection revealing altering perspectives during the research; 3) face validity through member check; and 4) catalytic validity achieved by seeking evidence of the extent to which participants have been reoriented and motivated by the research project. Rolfe (1996) sees the researcher/practitioner as the most important judge of the quality of an intervention, not making his or her evaluation on some external, objective criteria, but on his or her own personal professional judgement. Regarding qualitative research Rolfe (2006) argues that the search for a generic framework for assessing quality should be abandoned, in favour of individual judgements of individual studies. He argues that the quality of a research study is not only revealed in the writing-up of that research, but also that it resides in the research report (p. 309) and is therefore subject to the judgement and insight of the reader. Reading, interpreting and judging this presupposes wisdom and research-experience on the part of the reader. He suggests that all research reports be supplemented with a detailed reflexive research diary to facilitate quality assessment. The suggestion of Hope and Waterman (2003) is to be aware of the added value of action research. This value is determined by personal factors and addresses issues of power, participation and ethics. They argue for the rejection of naïve ruled-based formulae and for recognition of the impact of contextual and pragmatic concerns.

Innovation and change in a rehabilitation unit for the elderly

The action research described by Hoogwerf (2002) was undertaken in a ward for the assessment, treatment and rehabilitation of older people in a large metropolitan hospital in New Zealand over a period of 18 months in 1996-1998. The study aimed at developing participative care and the clinical nurse consultant role, and advancing nursing practise. It was thought that action research was a suitable methodology with which to encourage health professionals to become involved with their practice and to stimulate patients to participate in their care.

The following research questions were defined: "1) Is emancipatory research suitable to advanced nursing practice by developing the clinical nursing role within the service? And 2) Can participative care be developed in collaboration with older rehabilitation patients based upon their feedback?"

The researcher distinguished two phases in the study. Each of these phases consisted of stages in which the action research group completed several action cycles. The collaboration between researcher and participants in the action research group started in the first phase. Initially collaboration was guided by the primary researcher, but following the action research spiral participants became increasingly engaged in the continuous process of data gathering, data analysis and the development of action plans. Participants became more involved in the study and became co-researchers; they interviewed patients about their opinion about the care-giving practice in the ward and invited them to participate actively in decisions regarding their rehabilitation. This process led to an understanding of the current practices in the ward and to the developing of a research culture. At the end of the first phase action plans were still based on the perspective of health care professionals, but feedback of patients was increasingly sought. In the second phase, the patients became involved in

Table 2

Research approach and quality judgements
Four types of action research and the methods of judging quality frequently used in each

Approach:	**Technical/experimental**	**Organizational**	**Professionalizing**	**Empowering**
Judgement of quality	Methodological rules and standards as in quantitative approaches	Distinct criteria for judging qualitative research		The researcher / user judges the quality

the project. Mutual goal-setting by nurses, patients and their families proved to be a method of involving patients in planning and decision-making about their rehabilitation. This mutual goal setting led to participative care, developed in collaboration with the patients of the ward and their family. It gave patients self-control and influenced their well being positively. In this phase, the multidisciplinary team encountered patients disagreeing about their goals with the other team members and it was a learning experience that these patients were able to make the decision and to discuss the consequences of their decision with the other team members.

For a positive outcome of the study and emancipation of nurses and patients, continuous reflection, feedback and the discussions between researcher, action group members and informants (patients, their families and ward staff) were crucial. A communication framework developed by Quirke (1996 as cited in Hoogwerf 2002) was used as a communication tool (Fig. 1). This framework pays attention to different degrees in communication moving from awareness, understanding support and involvement to commitment. These degrees of change in communication are in line with degrees of change in involvement in the action research.

Data gathering included group discussions, open ended one-to-one interviews, research journals, minutes from meetings, audio tapes from goal setting meetings, and evaluation interviews.

This action research led to major changes in practice. Prior to the study practice tended to be non-reflective and based on routines. A gap existed between theory and practice. Nurses acknowledged the importance of research but could not find the time to read research reports. During the study the ward moved from health professional directed care towards participative care, which was developed in collaboration with older patients and based on their feedback. Professionals indicated that participative care enabled them to work together in a structured way and to develop patient directed goals. Mutual goal setting also facilitated the development of a common direction, consistency of care and mutual learning.

The researcher in the role of the clinical nurse consultant guided and facilitated this process. The study showed that the position of clinical nurse consultant as conceived in this study contributed to practice development, improved quality of care, clinical leadership and the implementation of research on the ward.

Although the study was successful both in changing practice and in empowering participants, the project was discontinued by the management. As the managers were not included as participants in the study, it may have become difficult for them to adapt themselves to the changes the participants had gone through.

Decision-making about risks in people with epilepsy and intellectual disability

The second action research discussed here took place in the long stay unit of a specialised epilepsy centre in the Netherlands. Residents of these units often have multiple handicaps besides severe epilepsy. Caregivers have to find a balance between taking risks and protecting the client against injuries, as both can have a negative impact on quality of life. The clients, their representatives and caregivers are involved in this decision-making process. Vallenga *et al*. (2008) reported a participative action research project developed in 2004-2006. The action research was preceded by a literature study and a case study (Vallenga *et al.*, 2004, 2006). The following research questions were defined: 'Is it possible to improve decision-making about risks in the care for people with epilepsy and intellectual disability using action research? and 'To which improvements can this lead?'

A participative method was chosen because decision-making about risks is not only a rational process. Anxiety about possible seizures, attitudes to care-giving, feelings of responsibility for client's well being and personal competencies play an important role.

The management of the long stay units of the epilepsy centre determined the overall goal of the project which was the context in which attainable goals, tuned to the specific situations in the units,

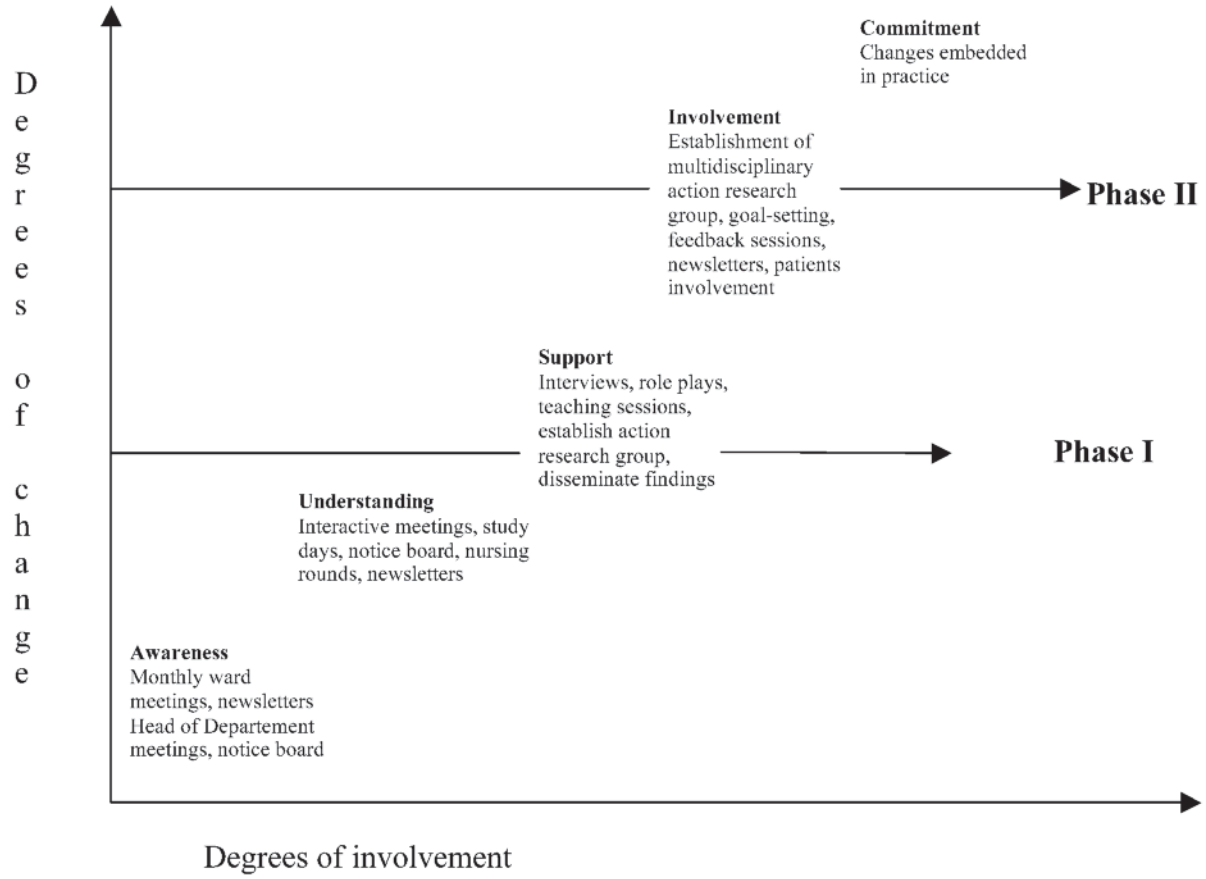

FIG. 1. — Quirke's (1996) communication framework (Hoogwerf 2002 p. 42).
The vertical axis shows the degree of change effectuated by the action research project. The horizontal axis denotes the level of commitment in the participants.
The anticipated means of communication for the various levels are shown, starting from awareness and growing to commitment.

were set by focus groups in which care-givers and client representatives participated. Care-givers from two units formed the action research groups and because the situations were different, each group developed a different path. Data were gathered continuously over a 22-month period by interviews, observation, written reports of meetings and personal histories.

The project started with a phase of research preparation and facilitating cooperation of participants. After this phase, the study was organised on a spiral framework in which each cycle led to the following cycle. Each cycle included a meeting in which reflection on the process took place and goals were adapted to renewed insights. Data were analysed continuously because the results of each action cycle led to questions for the following cycle (Fig. 2).

The data gathered in each action cycle were structured thematically and analysed using the constant comparative method (Boeije, 2002). Subsequently data and analyses of the action cycles were compared to each other and finally the complete data sets from the units were compared with each other. An evaluation phase completed the project. The first evaluation was held shortly after the last action cycle and the second three months and half a year later.

The action research had resulted in an ongoing process of improvement. The teams reflected on gained insights in the analysis and evaluation of the risks the clients were exposed to; the effect of contextual influences; and the importance of communication with clients and their representatives. Participants started to work more systematically and goal-centered. They learned to share insights and to discuss solutions tuned to daily practice and to clients' wishes. To facilitate decision-making in everyday practice, the phases in risk management were described, as was an outline for an individual guideline for decision-making. This guideline can be a useful tool to tune decisions about risk to the

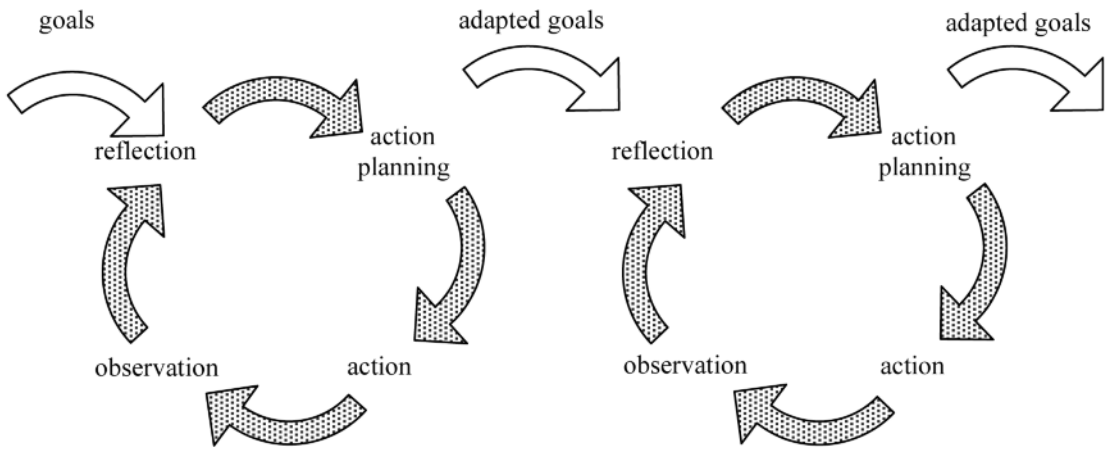

FIG. 2. — Action cycles (Vallenga *et al.*, p. 59).
The figure shows the four basic steps in action research: planning, action, observation and reflection. Reflection will lead to renewed planning, action, observation etc. This spiral framework is characteristic for action research projects.

severity of seizures and to contextual and personal influences at any given time.

It is unlikely that solely the recognition of phases in risk management and the creation of individual guidelines will improve decision-making. It was the participative approach, with its continual reflection and mutual goal setting that led to a learning process and to changed insights, skills and behaviour. This can deepen understanding of the use of instruments which support decision-making.

The authors concluded that using action research to improve decision-making provided the preconditions for improving decision-making and risk management in the institution involved and suggested a way to improve processes like this in other institutions.

Conclusion

In this article we endeavour to show that action research is a valuable research approach which is also applicable in the field of neurology. Action research is a research form which can effect changes in both the attitudes and the technical knowledge of participants. This knowledge can be applied in subsequent studies, where it can be incorporated in action cycles and refined to the specific situation.

Action research is not a fast and easy way of developing knowledge or of changing practice. However, the reports of action research published in scientific journals testify to its usefulness and warrant a broader interest than it actually receives.

Action research has been developed as a tool to bridge the gap between research and practice by involving practitioners and consumers in the research, by developing local knowledge fitting the particular circumstances prevailing in practice and by empowering practitioners in order to increase their competencies to tackle the problems and giving them the position to do so. Action research avoids problems of implementation of research findings due to lack of fit or lack of motivation. Most importantly, action research increases the capacities of practitioners to solve their own problems.

REFERENCES

Atkins S, Murphy K. Reflection: a review of the literature. Journal of Advanced Nursing. 1993;18:1188-1192.

Boeije H. A purposeful Approach tot the Constant Comparative Method in the Analysis of Qualitative Interviews. Quality and Quantity. 2002;36:391-409.

Carr W, Kemmis S. Becoming Critical. Oxon: Routledge-Falmer; 1986.

Collier J. United States Indian Administration as a Laboratory of Ethnic Relations. Social Research. 1945,12:265-303. © Bell and Howell Information and Learning Company, New School of Social research; 2000.

Hart E, Bond M. Action research for health and social care: a guide to practice. Buckingham, Philadelphia: Open University Press; 1995.

Holter IM, Schwartz-Barcott D. Action research: what is it? How has it been used and how can it be used in nursing? Journal of Advanced Nursing. 1993;18: 298-304.

Hoogwerf LJR. Innovation and change in a rehabilitation unit for the elderly: Through action research. Ghent: Wetenschappelijke uitgeverij Academia Press; 2002.

Hope KW, Waterman HA. Praiseworthy pragmatism? Validity and action research. Journal of Advanced Nursing. 2003;44:120-127.

Lather P. Issues of Validity in Openly Ideological Research: Between a Rock and a Soft Place. Interchange. 1986;17:63-84.

Lewin K. Group Decision and Social Change. From Newcomb TM, Hartley EL, eds. Readings in social psychology. New York: Henri Holt; 1948. In: Gold M, ed. The Complete Social Scientist: A Kurt Lewin Reader. Washington, DC: American Psychological Association; 1999, pp 330-341.

Lewin K. The Dynamics of Group Action. From Educational leadership 4, New York: Henri Holt. In: Gold M, ed. The Complete Social Scientist: A Kurt Lewin Reader; 1944. Washington, DC: American Psychological Association; 1999, pp 195-200.

Locke EA. Motivation through conscious goal setting. Applied and Preventive Psychology. 1996;5:117-124.

Locke EA, Latham GP. Building a Practically Useful Theory of Goal Setting and Task Motivation. American Psychologist. 2002;57:705-717.

Maso I, Smaling A. Objectiviteit in kwalitatief onderzoek: een overzicht. In: Maso I, Smaling A, eds. Objectiviteit in kwalitatief onderzoek. Meppel/ Amsterdam: Uitgeverij Boom; 1990, pp 13-29.

McNiff J, Whitehead J. All you need to know about Action Research. London Thousand Oaks, New Delhi: Sage Publications; 2006.

McTaggart R. Reflection on the Purposes of Research, Action, and Scholarship: A Case of Cross-Cultural Participatory Action Research. Systematic Practice and Action Research, 1999;12:493-511.

Meyer JE. New paradigm research in practice: the trials and tribulations of action research. Journal of advanced Nursing. 1993;18:1066-1072.

Meyer J. Using qualitative methods in health related action research. BMJ. 2000;320:178-181.

Mitchel EA, Conlon A, Armstrong M, Ryan AA. Towards rehabilitative handling in caring for patients following stroke: a participatory action research project. International Journal of Older People Nursing in association with Journal of Clinical Nursing. 2005;14:3-12.

Neilsen EH. But let us not forget John Collier: Commentary on David Bargal's 'Personal and intellectual influences leading to Lewin's paradigm on action research' Action Research. 2006;4:389-399.

Rolfe G. Going to extremes: action research, grounded practice and the theory practice gap in nursing. Journal of advanced Nursing. 1996;24:1315-1320.

Rolfe G. Validity, trustworthiness and rigour: quality and the idea of qualitative research. Journal of Advanced Nursing. 2006;53:304-310.

Rearick ML, Feldman A. Orientations, purposes and reflection: a framework for understanding action research. Teaching and teacher Education. 1999;15:333-349.

Smaling A. Varieties of methodological intersubjectivity – the relation with qualitative and quantitative research, and with objectivity. Quality & Quantity. 1992;26:169-180.

Swanborn PG. Objectiviteit: een poging tot duidelijkheid. In: Maso I, Smaling A, eds. Objectiviteit in kwalitatief onderzoek. 1990, Meppel/Amsterdam: Uitgeverij Boom; 1990, pp 50-74.

Spetz A, Hendriksson R, Salander P. A specialist nurse as a resource for family members to patients with brain tumors: an action research study. Cancer Nursing. 2008;31:E18-26.

Titchen A, Binnie A. Research Partnership: collaborative action research in nursing. Journal of Advanced Nursing. 1993;18:858-865.

Vallenga D, Tan, F, Lendemeijer B, Grypdonck M, Boon P. Risico's bij Epilepsie en Verstandelijke Beperking: een Literatuuronderzoek. Nederlands Tijdschrift voor de Zorg aan mensen met verstandelijke beperkingen. 2004;3:181-196.

Vallenga D, Grypdonck MHF, Tan FIY, Lendemeijer BHGM, Boon PAJM. Decision-making about risk in people with epilepsy and intellectual disability. Journal of Advanced Nursing. 2006;54:602-611.

Vallenga D, Grypdonck MHF, Tan FIY, Lendemeijer BHGM, Boon PAJM. Improving decision-making in caring for people with epilepsy and intellectual disability: an action research project. Journal of Advanced Nursing. 2008;61: 261-272.

Walker B, Haslett T. Action Research in management-Ethical Dilemmas. Systematic Practice and Action Research. 2002;15:523-533.

Webb C. Action research: philosophy, methods and personal experiences. Journal of Advanced Nursing. 1989;14:403-410.

Williamson GR, Prosser SP. Action Research: politics, ethics and participation. Journal of Advanced Nursing. 2002;40:587-593.

Yost D.S, Sentner S.M, Forlenza-Bailey A. An Examination of the Construct of Critical reflection: Implications for Teacher Education Programming in the 21st Century. Journal of Teacher Education, 2000;51:39-49.

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