

Action research and teacher leadership

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The present article reports on a case study into the influence and impact of action research carried out by teachers in a special school. The action research was an important component of the two-year, post-initial, in-service course in special educational needs, provided by Fontys University of Applied Sciences, Department of Inclusive and Special Education. From the outset the case study was based on the premise that action research can be seen as a strategy for teacher leadership. Not only was it expected to help teachers to get to grips with their own work in the classroom, it was anticipated that their action research would also have an impact on the work of others in the school. We found that this was indeed the case, provided certain conditions were met.

Action research as a strategy for developing teacher leadership

In the present article, action research is seen as a strategy for the professional development of teachers (Ponte, 2002a, 2002b). The key note is the idea that theory cannot prescribe how teachers should act in their day-to-day practice, because the job of a teacher is too complex for that. Teachers ultimately have to decide for themselves what it is best to do in given circumstances and why. Carr and Kemmis argued that day-to-day practice 'is always risky; it requires the practitioner to make a wise and prudent practical judgment about how to act in this situation' (1986, p. 17). They start from the assumption that teachers can go through the action research cycle several times and that going through this process can help teachers to take decisions. Teachers formulate research questions, gather and analyse data and then go on to carry out actions for improvement and evaluate them. On the basis of their evaluations, they can then adjust their research questions and actions for improvement (Ponte, 2002a, 2002b). The research may be carried out by individuals or groups but,

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whichever is the case, the assumption is always that the action researchers will work with those who form part of the situation to be changed.

Ponte (2002a) distinguished a continuum of more and less intensive forms of cooperation. The least intensive form of cooperation is individual action research, using colleagues as a source of information. The most intensive form of cooperation is where a group of teachers engage in a joint action research project and all members of the group are equally responsible for planning and carrying out the research. It is reasonable to assume that such collective forms of action research will not only help teachers with their own work in the class, but that they will become more motivated to take responsibility for educational improvements in the school as a whole. Little research has been done into how insights and findings obtained from action research carried out by a group of teachers can be embedded into the school culture. However, research into teacher leadership has shown that collective learning by teachers does foster teacher leadership in schools and that teacher leadership contributes to school development (Frost & Durrant, 2003; Frost *et al.*, 2000 ; Harris & Lambert, 2003 ; Harris & Muijs, 2005, 2006). In this sense it is reasonable to assume that action research that involves collective learning can be seen as a strategy for developing teacher leadership.

Harris and Muijs (2005) described teacher leadership as a form of leadership in which teachers are given and take responsibility at diverse organisational levels. This kind of leadership develops when teachers work together, learn together, make sense of their work together and pursue goals that they have set for themselves. Views on teacher leadership vary. This article is based on the concept of informal leadership, as distinguished from formally delegated leadership tasks. Our concept is partly based on the ideas of Harris and Muijs, who argued that teacher leadership does not arise from the delegation of formal responsibilities by the school management team but from social interactions between school staff: 'Teacher leadership is not a formal role, responsibility or set of tasks, but a fluid and emergent phenomenon separated from individual role and status, concerned with the relationships and the connections among individuals' (2005, p. 17). Frost and Durant also took informal leadership as their starting point: 'It is not a matter of delegation, direction or distribution of responsibility but rather a matter of teacher's agency and their choice in initiating and sustaining change' (2003, p. 3). It is crucial that teachers initiate activities themselves to improve the education in their schools, not only in the classroom but in the school as a whole. Teacher leadership is therefore defined as a way of working and living, in which both management and teachers are able to give their colleagues opportunities to make an active contribution to educational change and school development. The relationships between the people in schools are seen as the most fundamental condition for bringing about change. This raises questions such as: what relationships do teachers try to foster in school in order to exercise influence, what kind of influence is that, and are teachers given sufficient opportunity to exercise influence outside the class? Translated into action research as a strategy for extending teacher leadership, these questions can be reformulated as:

- (1) What influence do teachers have to decide for themselves what they want to study and how, and what influence do others in the school have on the action research?
- (2) What impact does the action research have on the educational practice of the researchers themselves and on that of others in the school?

These were the key research questions of this case study. In the following sections we introduce our descriptive model, followed by the research design and our research findings. Finally, we present our conclusions and a discussion of the consequences of our research findings for post-initial, in-service education courses.

Influence on and impact of action research in a school

To attempt to answer the research questions, we developed a descriptive model with two types of influence:

- Influence of teachers on their own action research.
- Influence of others in the school on the action research.

We also distinguished two types of impact:

- Impact of the research on the action researchers' own educational practice.
- Impact of the research on the educational practice of others in the school.

These types of influence and impact are explained below.

Influence of teachers on their own action research

It would seem to be stating the obvious to say that teachers will influence their own action research. After all, the assumption is that they formulate their own research questions and decide on the detailed design of their research projects. The question is whether this is what actually happens in practice. In this study, teachers did their action research in a group, and in groups individual and group interests may not be the same. The question is, therefore, how can different interests be accommodated in a joint project?

Wenger (1998; Wenger *et al.*, 2002) argued in this context that professionals in groups where people work and learn together have to negotiate on values, outlooks and strategies. Such negotiations can lead to mutual engagement and the power to give to others. The literature on teacher leadership also underlines the importance of negotiation. For instance, Frost *et al.* (2000) and Frost and Durrant (2003) argued that teacher leadership begins with the collective clarification of views and the underlying values feeding into these views.

It seemed important to us, therefore, to include under the heading 'influence on their own research' not only the influence of the individual teachers but the influence of the research group as a whole. We assumed that action researchers experience their own influence largely on the group process and therefore define group decisions as their own decisions.

Influence of others in the school on the action research

School principals, the management team and fellow teachers can influence the action research in all kinds of ways. They may be participating in the research, involved in data-gathering, cooperating as critical friends or contributing insights from experimenting with action research in their own situation. The school management can prescribe, facilitate or support action research; colleagues can contribute ideas, show interest or be encouraging. The conditions for collective learning and informal teacher leadership cannot always be taken for granted, however. Harris and Muijs, for instance, pointed out that:

Much also depends on the internal school conditions – often set by the formal leadership – to support and nurture collaborative learning and to harness the leadership energy that results⁴. Formal leaders in the school need to orchestrate and nurture the space for distributed leadership and they have to create the shelter conditions for the leadership of collaborative learning. (2005, p. 29)

Impact of the action research on the action researchers' own practice

Since action researchers study their own practice and the situation in which they are practising, it seems logical to expect that the action research would have an impact on their own educational practice. The question is whether that is true. Do teachers find that their action research contributes to improving their work with pupils? Does it help them to feel they can get to grips with their own practice better? Research has shown that the sense of getting to grips with their educational practice strengthens teachers' sense of self-worth (Short & Rinehart, 1992; Bogler & Somech, 2004). The concept of self-efficacy is used in the literature. This refers to how highly teachers value their own teaching and other actions with pupils. An increase in self-efficacy is reported to be associated with greater commitment to the school as a whole (Bogler & Somech, 2004). Harris and Muijs (2005), for instance, concluded that there is research evidence for a positive relationship between self-efficacy and teacher leadership.

Impact of action research on the practice of others in the school

Teachers who do action research improve their own teaching. The question here, however, is how far they also have an impact on others in the school. Carr and Kemmis (1986) found that it is not enough for teachers as individuals to reflect and use insights gained in this way. They should also want to contribute to an educational community in which dialogue and debate take place, in which teachers develop knowledge and in which they are not afraid to take a critical look at their own teaching: 'Teachers must establish self-critical communities of teacher researchers which systematically develop the educational knowledge which justifies their educational practices and the educational situations constituted by these practices' (Carr & Kemmis, 1986, p. 88). The characteristics of teacher leadership formulated in the professional literature appear to fit in with this view. Harris and Muijs (2005, 2006)

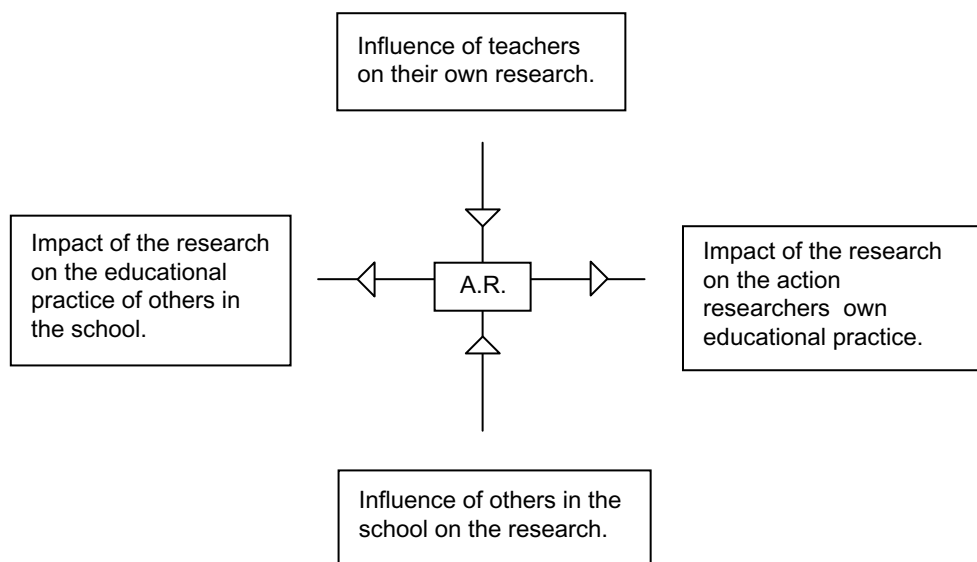


Figure 1. Influence on and impact of action research in a school

concluded from their research that actively taking the initiative to encourage and initiate educational improvements with colleagues is an important dimension of teacher leadership.

These two types of influence and two types of impact are presented in Figure 1, with the different directions of influence and impact shown by the arrows. The vertical line represents the dimension *influence on the action research* with two directions: influence of teachers on their own action research and influence of others in the school on the action research. The horizontal line forms the dimension *impact of the action research* and also has two directions: impact of the action research on the researchers' own practice and the impact of the action research on the practice of others in the school. We assume that the dimensions or directions can reinforce each other.

Research method

Research questions

Based on the descriptive model, the two main research questions can be broken down into four subquestions:

1. What influence do teachers have on their own action research?
2. What influence do others in the school have on the action research?
3. What is the impact of the action research on the action researchers' own practice?
4. What is the impact of the action research on the practice of others in the school?

The case study explored:

- to what extent and how teachers experienced this influence and impact;
- their appreciation of it; and
- how it came about.

Research strategy

This is a descriptive case study. The subjects of the case study were teachers in a special school who were following a two-year in-service education course. There were four groups of teachers participating in the course, two of which were studied for this research project. These two groups were therefore treated as research units.

Research context

The research was carried out at De Hondsborg Paedological Institute and its special school for children with emotional and behavioural problems. One hundred children and young persons who attend the school live as residents in De Hondsborg care home; another approximately 100 pupils live at home. It is a characteristic of a Paedological Institute that scientific research is conducted in conjunction with universities. The schools attached to these research institutes are places where the research can be carried out. The school employs around 90 staff, not only teachers but also professionals from other disciplines such as educational psychologists, speech therapists, physical education teachers and social workers. Paedological Institute schools, therefore, are schools that have a formal role to contribute to research, and the staff who work in them are used to being involved in interdisciplinary cooperation.

Thirty employees of the school were involved in action research. The action research was carried out in four groups, two of which were involved in our case study. These two groups – unlike the other two – were in the final phase of their action research. The action research was an important component of the new two-year, post-initial, in-service teacher education course in special educational needs, provided by Fontys University of Applied Sciences, Department of Inclusive and Special Education (Fontys-OSO). This is a part-time course for professionals working in education. The course combines an academic and practical orientation, and successful participants are awarded a diploma.

Group A consisted of six teachers and one teaching assistant. The members of the group chose their own research topic and put the group together themselves. Six action researchers from this group were interviewed. Group B consisted of a class teacher, an educational psychologist, a speech therapist, a specialist teacher for autistic children, a physical education teacher, a play leader, one internal counsellor, one peripatetic counsellor and a social worker. Six researchers from Group B were also interviewed.

We decided to limit the number of interviews in order not to place too great a burden on the teachers. Besides, Braster (2000) had made the point that where open

or semi-structured interviews are used, few interviews are needed as a rule to gather sufficient data to answer the research questions. The selected interviewees were action researchers who stated at the beginning that they were in the final phase of their research projects. They were all experienced, well-educated professionals.

The action researchers in Group A researched an approach to ‘stimulate thinking’, which they developed themselves step by step and then tried out with the pupils. The members of this group hoped that their approach would prevent negative interactions between teachers and pupils.

The action researchers in Group B wanted to improve the action-based diagnosis in the school for day pupils who lived at home. This group soon split up into subgroups, each of which worked on research questions they had chosen for themselves that were based around the common theme. One of the subgroups examined how all parties (school staff, parents and pupils) could be most effectively involved in the action-based diagnosis. Other subgroups focused on action-based diagnosis and autism, on movement education and on social-emotional development. This group alternated between meetings of the small subgroups and meetings of the group as a whole.

The two groups came together for plenary sessions about 10 times a year during the two course years, so they had 20 such meetings in total. These meetings were led by two teacher educators from Fontys-OSO. The quality criteria for action research were largely defined by the five basic assumptions underlying action research as described by Ponte (2007):

- Action research is focused on teachers’ own practice and on the situation in which they are practising.
- Teachers engaging in action research reflect on the basis of information that they have systematically gathered and interpreted.
- Action research involves dialogue with colleagues in and outside the school.
- In action research, pupils (or other target groups of the teachers’ practice) are seen as partners and are used as an important source of information.
- The results of action research are published and discussed with others.¹

Data gathering

The 12 teachers in the two groups were asked about the influence on and the impact of the action research, both at the *start* and during the *process* of the action research. At the start this concerned the choice of theme and formulation of the research questions, the composition of the group and the choice of facilitator. The process of the action research was defined as the gathering and analysis of data, the implementation and evaluation of actions for improvement and, on the basis of that, the adaptation of the research questions and actions for improvement.

Images with a scale from 0 to 10, called ‘thermometers’, were used in the interviews. The teachers used these thermometers to indicate the influence and impact they had experienced. Then they were asked to rate their appreciation of the influence

Own influence
on the action research



Influence of others
on the action research

Four areas of focus:

- T 1: Influence on action research at the start
Own influence 10-----0-----10 Influence of others
- T 2: Influence on action research during process
Own influence 10-----0-----10 Influence of others
- T 3: Impact of action research at the start
Own practice 10-----0-----10 Practice of others
- T 4: Impact of action research during process
Own practice 10-----0-----10 Practice of others

Figure 2. Thermometer 1

and impact. Four images of thermometers were used, one for each research question. For each thermometer, the interviewees were questioned about the situation at the start of the action research and about the process later on. This produced four areas of focus (see Figure 2 as an example of one of the areas of focus).

The thermometers were intended as tools to encourage the interviewees to look back to the start of the action research and how it progressed from there, and to talk about their experiences. The visualisation process using the thermometer scales involved the interviewer first asking open questions about the types of influence and impact experienced by members of the research groups. The assumption was that presenting and explaining these discussion openers to the interviewees would encourage them to tell their stories more or less spontaneously. If necessary, the interviewers would ask them specific questions.

In addition to the interviews, information was gathered with the aid of documents specifically produced for the action research. This is a form of method triangulation. Reports of meetings of the action research groups were used, as were reports on the meetings with the rest of the team and the management, as well as the action research reports themselves. Finally, information was gathered through a focus group, with four representatives from the action research groups studied. The focus group was held one year after the completion of the action research. The purpose of this was to

find out how far the detected development in the school had continued after the action research came to an end.

Data analysis

All of the interviews were fully written up and then analysed in three phases using Atlas, a computer program for qualitative data analysis. Six interviews from Group A were used for the first phase, which analysed the data based on seven labels: the two types of influence and the two types of impact; the experienced strength of the different types of influence and impact; the participants' rating of this; and how the type of influence or impact in question came about. In the second phase, four interviews from Group B were used. Six extra labels emerged from the first two rounds of analysis: attitude as leader, giving others opportunities, sense of empowerment, dealing with dilemmas, gaining insight and engaging in dialogue. The 13 labels identified in this way were used in the analysis of all 12 interviews in the third phase. Finally, the research findings were described on the basis of the four directions from Figure 1. Each description included:

- the strength of the experienced type of influence and impact;
- the rating of the participants' appreciation of the type of influence or impact in question; and
- how the type of influence or impact in question came about.

The data that emerged from the analysis were checked against the results from the document analyses and the focus group. Member checks were also performed by presenting the analyses to all the interviewees. The member checks did not produce any reasons to adjust the analyses.

Research findings

It was striking that the teachers often spoke in a similar way about their experiences. The descriptions of the research findings therefore reflect these general trends. Where differences were found between the groups or between individual members of the groups, they are reported.

Influence of teachers on their own research

Perceived influence on their own research. The influence on their own research as perceived at the start of the action research varied greatly between interviewees, ranging from little, through average to great.² The perceived influence during the course of the action research was great to very great for all interviewees.

Ten out of the 12 teachers said that they felt less influence at the start of the action research than they did later during the process. Several teachers described the start as a 'diffuse period'. There was one teacher in each of the groups who was an exception to this. These two teachers reported that they had a firm idea of how to design their

action research from the beginning and they felt that they had a lot of influence on it themselves from the outset. All the other interviewees reported that these two group members together with the teacher educators had a great to very great influence at the start and that they therefore influenced the choice of theme and formulation of the research questions. As the research progressed, the interviewees reported that the teacher educators became increasingly integrated into the group, even though they did have different responsibilities. They spoke explicitly about a group process in which the influence of all the individual members of the group became more and more equal.

Appreciation of the influence on their own action research. Participants ascribed the sense of uncertainty at the beginning to their lack of familiarity with action research, and they also said that lack of familiarity with the chosen research theme played a role. Paradoxically, everyone appreciated their own influence from the start, no matter how limited it was. This appreciation stemmed mainly from their feeling that they had a lot of influence on the choice of the research themes. One of the teachers expressed it as follows:

You will make more effort and be more committed to a topic that you think you can make something of yourself rather than something that is imposed. It is personal commitment more than anything else that leads to personal growth.

All of the teachers were highly appreciative of the fact that they had had input into the composition of their own research group. Group B especially felt that this was a decisive factor in their success. Being able to work on their own themes in self-selected subgroups was also a critical factor for their enthusiasm and good progress, according to these teachers. The participants also valued their own influence on the process. One teacher from Group B put it like this:

I now know how to set to work on a process of change at school or anywhere else, without getting frustrated. The main thing the action research has taught me is to think and plan in stages, and it has taught me to always involve other people in all the stages. This gave me a lot of confidence when I was doing my research.

How the researchers' own influence came about. A remarkable finding that emerged was that all the interviewees rarely spoke about their own influence separate from the group process. They felt that their own influence was mediated through the group to a large extent. In response to the question about who took most initiatives and decisions, in 11 interviews those asked said that they did not really know. Initiatives and decisions were taken by different members of the group at different times and in different ways. Interviewees felt that the fact that group members actively listened to each other was important. Many interviewees also expressed the view that a sense of equality was an important basic condition for them being able to exert influence themselves. One teacher from Group A put it as follows:

At the start one fellow researcher took the lead. Apart from that I can't remember now whether anyone took more or less initiative and who did exactly what and when. It actually

all happened naturally in our group. Everyone took turns to take the initiative and as I saw it everyone made an equal contribution to the whole process. The most important thing actually was that people listened to you properly and that you felt that you could always take the initiative if you wanted to.

Exception to the general trend. There was one subject teacher who constituted an exception to this general trend of devising the action research together as a group. Because she was the only teacher of her subject involved, she felt that she was in an isolated position in the school. She elected to work on her own on a way to get colleagues more involved in her subject area. Action research offered her opportunities to end the isolation of her subject in the school. She reported encountering some opposition from the teacher educator at the beginning, because of her decision to do action research on her own, but she appreciated the guidance and support she received later on. She felt that she had a very great influence on her own research and she also mentioned the supportive role of the school management.

Influence of others in the school on the action research

Perceived influence of others in the school on the action research. Fellow teachers. It emerged from the 12 interviews that there was very little influence from teachers outside the action research groups at the beginning of the project. The interviewees ascribed this to lack of familiarity with action research and to the fact that they were intensively occupied with setting up their research. As the project progressed, all interviewees perceived that influence increasing; and by the time of the interviews they all described it as great. One of the researchers from Group A had this to say about the start phase:

Everyone starts with their own way of doing things and their own set patterns and is not inclined to lay this on the table. You could really feel this in the early stage of our action research. People were suspicious about the pedagogical approach we were studying; a few colleagues took a sceptical position on this.

School management team. It emerged from all of the interviews that the school management team had very little or no influence on the content of the action research at the start. During the course of the project that influence was very variable, ranging from no influence to average influence, with one of the action researchers reporting very great influence in the form of support. All of the interviewees reported that the school management team had a great influence as the facilitating party.

Appreciation of the influence of others in the school on the action research. Fellow teachers. The influence of fellow teachers in the school on the action research gradually increased, according to all of the interviewees. That was greatly appreciated. The action researchers felt they had a head start because they were doing the research. They said that dialogue in the school was important for getting feedback and being

able to share the knowledge and insights they had gained, and ‘*to bring it to life*’ in the school. Some teachers outside the action research groups were valued just as highly as their colleagues in the research groups, as they showed interest, contributed thoughts and ideas, asked questions and gave constructive feedback. One teacher expressed this:

Other colleagues in the school treated me with respect and had a positive attitude to my research. This meant that I could open up to them more for feedback and so I could improve my practice even more.

School management team. Appreciation of the role of the school management was very variable. Four action researchers felt that it was fine if the school management confined itself to a facilitative role; the rest felt that there should have been more interaction. Group B, for instance, submitted an action plan to improve the action-based diagnosis in the school. They did not appreciate the fact that the school management team took a long time to respond to this. The management team, for its part, expressed the view that the plan was well founded but that they needed time to assess all the implications. After this plan was approved, the researchers’ opinion of the school management team took a turn for the better, because the management actively helped them to implement the plan in the school.

How the influence of others in the school came about. Fellow teachers. Members of both action research groups reported having to take the initiative much of the time at the start to get a dialogue going with other members of the teaching team. At the beginning, only a few colleagues responded on their own initiative. The action researchers reported that they had to become more and more creative in their attempts to arouse the interest and curiosity of teachers outside the groups. Much of this was informal:

I actually kept on putting thoughts and ideas about our action research to my colleagues. I found all kinds of occasions to do this, whenever I met up with them. This allowed me to think through various issues myself in discussions with colleagues, but it also generated trust and interest in our research.

Members of the action research groups worked together on preparing presentations for the rest of the teaching team. This helped them to realise how the impact of the action research on the school was increasing and how at the same time others in the school were having an increasing influence on the research.

School management team. The interviews revealed that members of the school management team held different views on the value of action research at the start of the project. Later, as they got to know more about action research, they appreciated it more. One member of the management team initially had a problem with the fact that she could not get to grips with the action research and that its ultimate purposes and end products were unclear to her, and so she started to hold meetings with

representatives of the action research groups and the group leaders. Everyone involved in these meetings reported that their influence on the action research increased. The particular manager reported that monitoring the action research placed her in a better position to supervise bottom-up processes in the school. The experiences of the action research groups were one factor that led the school management to change the whole consultative structure in the school at a later date. The purpose of this change was to allow teams in the school more scope to determine their own consultation agendas, which facilitated consultation on a smaller scale.

Impact of the action research on the researchers' own practice

Perceived impact of the action research on the researchers' own practice. The impact of the action research on the researchers' own teaching practice was perceived as very great by all the participating teachers without exception, and they described it as growing significantly from the outset. One teacher from Group A put it as follows:

I got to grips with my work better through the observations I made on how I operated in the class. Discussing my observation notes in the research group was also important. In particular, the phase in which we tried to uncover when and why the approach did or did not work produced a lot of insight and led to me change the way I work. When I catch myself now working in a way that does not encourage thinking, I stop and ask myself right away why I didn't do it differently.

Appreciation of the impact of the action research on the researchers' own practice. The sense of getting to grips better with their work with pupils led the researchers to value their action research very highly. In the words of one of the teachers: 'The fact that the approach that we devised ourselves worked in practice made me and the other members of my group very proud'. The researchers offered a variety of explanations for the very great impact on their own teaching practice.

Group A applied an approach they had designed themselves to encourage thinking in their classes and investigated how it worked. This led to the development of more theories about this approach, and at the same time led to continual adjustment and improvement of their own classroom practice. According to all of the group members, this approach led to more positive feelings among both pupils and teachers:

During the course of the action research, I started to use more varied educational practices from a greater repertoire of options. I am now able to make more deliberate choices and make better use of different pedagogical interventions, depending on the situation and the individual traits of the children.

Group B worked on the theme of action-based diagnosis. One of the subgroups wanted to use action research to further improve communication about the pupils. This resulted in the production of a policy plan with actions for improvement, which gained broad support in the school. They believed that improving communication at school level could lead to the sharing of experience and expertise, and that this would result in teaching that would be more in tune with the pupils' needs.

Another subgroup concluded from their research that knowledge about autism in the school was fragmented. They organised study days, and the evaluations of these days revealed that they led to a more univocal, shared frame of reference and use of language.

A physical education teacher took as her research aim the production of a practical observation instrument for motor development coupled with an unambiguous learning line. She assessed how the learning line worked in practice. She also assessed the usefulness of the learning line for teachers' work in the classroom. Her action research produced a policy plan for physical education. She said about her activities:

My research has reduced my tendency to look at the pupils' behaviour from a behaviour management perspective. The learning line helped me to offer more varied and developmentally stimulating education.

How the impact on the researchers' own practice came about. Seven of the 12 teachers reported that the quality of the reflection and dialogue in the action research groups was a decisive factor for the development of insights and also for the impact of the action research on their own work as teachers. There were areas of agreement but also major individual differences on how and when these insights came about. One teacher from Group A stated the following:

At first I found it difficult to reflect while I was working in the classroom. Only at a later stage did I manage to consciously direct how I operated in the classroom. Then I started to get thoughts in my head like "I need to do that differently next time and try again, because that didn't go well." Gradually in that way I was able to improve my work. I learned a lot from this cycle of trial and adjustment. The logbook that I kept in the class gave me something concrete to hold on to and I was able to make good use of it when discussing my progress with my actions for improvement in the group. The most striking thing, I think, is that through action research I've learned how I learn myself and how I develop new insights.

Impact of action research on the practice of others in the school

Perceived impact on the practice of others in the school. All members of both action research groups reported that they did not know at first how to develop dialogue with colleagues outside the research group. One of the researchers from Group B said:

We were becoming more and more enthusiastic and, together with our critical friends, were finding more and more support for our ideas through our research. But in our enthusiasm we tried to run before we could walk. Questions that we were soon forced to address were: how could we motivate other colleagues in the school and get them involved in this process; how could we integrate our project and embed it in the existing structure and culture of the school?

Nevertheless, the impact on the teaching of the other teaching staff in the school did grow fast. Some likened it to a spreading oil-slick in the school.

In the focus group that was held a year after the research came to an end, the teachers reported they felt largely responsible for the further embedding in the school of the insights and findings obtained from the action research. However, they were not

entirely satisfied with their own efforts and reported that the interview in the focus group had given them some new ideas.

Appreciation of the impact on the practice of others in the school. All of the interviewees expressed great appreciation for colleagues in the school who were increasingly open to insights from the action research, and they also appreciated the impact of the action research on the school as a whole:

The action research has facilitated a process of growth at school and I can see that I am growing too because of it. Because I've not been working very long, I still have a lot of ideals. It's great to see that one of these ideals will work through our research.

How the impact on the practice of others in the school came about. Group A worked on improving class teaching. First they gathered data through observations of teacher–pupil interactions. The second stage was the propagation and application of insights at school level. One of the teacher-researchers described this process:

I was given the job of setting an example to the other teachers with whom I work closely and who saw me occupied with the action research on the thought-stimulating approach to teaching. I think that all the members of the action research group influenced about three colleagues by setting an example in this way, so they also started to consciously work in a way that encouraged thinking. The workshops for the whole school team did produce discussion and willingness to change, but have not yet resulted in changes in classroom practice.

This quotation shows that fellow teachers mastered the teaching approach by learning from the example of the action researchers. In this way a dialogue developed on-the-job about their own practice. The action researchers reflected on this dialogue and discussed its outcomes at their own meetings, which enabled them to develop their own insights further. One of the action researchers spoke of a catalyst effect between the action researchers and the rest of the teaching staff in the school. In the end all of the teachers in the school did a mini-study of the thought-stimulating approach and fed their experiences back to the members of the action research group.

Group B worked on improving communication at school level. Members of the team were an important source of data for the research from the outset. This meant that they had an indirect influence on the decision-making in the action research group. The improvement proposal arrived at in the end had consequences for all members of the team and enjoyed broad support as a result of the way the research had been designed.

Conclusions and discussion

At the beginning of this article we expressed an expectation that action research carried out by teachers would have a significant impact on their own teaching practice and on the teaching of others in the school. This expectation was confirmed by the case study. The impact of the action research on their own practice was perceived as very great by all of the interviewees; the impact of the action research on the practice

of other colleagues in the school was perceived as great and still increasing. From the outset, the participants reported that they had a great influence on their own action research and that fellow teachers and school management had a positive influence that was also increasing.

The form in which the influence and impact were experienced bore a great resemblance to aspects of teacher leadership, such as informal, developing, fluctuating, shared among teachers, and based on collective learning and mutual influence. Teachers also reported initiating educational changes in the school themselves more and more often, and feeling responsible for preserving what they had gained from the action research. Many of the teacher-researchers' statements alluded to their feelings of growing leadership, and also indicated that the conditions in the organisation were developing in tandem with the teachers' development. The descriptive framework used (see Figure 1) was found to be workable for this research. The results were entirely positive, with one qualification—namely that the research findings are not very amenable to generalisation.

This case study was carried out in one school. Moreover, this was a school where research is a formal duty and where staff are used to working across disciplines. The conclusions from this study cannot, therefore, be easily generalised to other schools. Yin (2003, p. 10) defined a characteristic of case studies as follows: 'Your goal will be to expand and generalize theories (analytic generalization) and not to enumerate frequencies (statistical generalization)'. We see further theory development—or analytical generalisation as Yin called it—as a necessary sequel to our research. The descriptive framework we developed could, for instance, be validated in more schools, where important context characteristics would vary.

As noted early on in this article, one of the aims of the case study was to identify some important issues for post-initial in-service education courses with a focus on action research. These building blocks are discussed below with reference to four themes: conditions in the school, action research and leadership in schools, leadership in the research group, and leadership through research at the workplace.

Conditions in the school

The action researchers in the school reported that they were able to develop their leadership skills, because the researchers, teacher educators, fellow teachers and members of the school management team all helped each other, negotiated and were willing to learn from each other. This meant that not only the action researchers were learning; everyone was learning from each other. This process did not just happen on its own from the start. Trust developed between all parties involved as the process went on. Although the action researchers mentioned several conditions in the open interviews, two conditions were particularly emphasised in the focus group:

- colleagues being open to getting deeply involved in the action research; and
- willingness of the school management to facilitate the action research and to monitor it actively and attentively.

The second condition was seen as essential to achieve the necessary balance between top-down and bottom-up processes in the school. The research findings revealed initial scepticism from one member of the management team who had doubts about whether the action research would fit in sufficiently well with the school policy. Consultations between the action researchers, supervisors of the research project and the management team member concerned gradually created space to accommodate the aims and wishes of everyone concerned. Management adopted certain findings from the action research into school policy; the action researchers for their part made allowances for aspects of school policy and translated them into their research.

Viewed from this perspective, the key questions addressed by this case study can be interpreted as questions about the balance of power in organisations. In other words, action research assumes in fact a balance of power between top-down and bottom-up processes, and it is reasonable to assume that such a balance does not always exist. It is also conceivable that this balance will not always develop in a way that favours progress with action research and the aims that the researchers are trying to achieve. A final question that one is forced to consider is where the limits lie and what the challenges are for external supervisors of action research projects who arrive in schools where this balance does not exist. One challenge is to support the staff who are doing action research to engage in dialogue in the school about the absence of such as balance. Limits may be reached if teacher educators take on roles that belong to the teachers and the school management, when they do not have any formal responsibilities in these areas.

Action research and leadership in schools

The conclusions on the teachers' own influence and impact give us reason to assume that a more specific definition of leadership is needed in schools where staff are engaged in action research. Teacher leadership, for instance, involves teachers being able to handle the dynamics of that role; that is, being able to handle different leadership roles and being able to see the roles that others are willing and able to take on. Students on in-service courses should also be given opportunities to develop their views on formal leadership and teacher leadership in schools and on the interplay between them. It is also important that they are able to develop the appropriate behavioural skills to go with that and to encourage other stakeholders in the school to engage in dialogue on this theme. Teacher leadership also involves knowledge about how collective learning comes about in schools, and this knowledge should also be given a place in the education and further training of experienced professionals.

Leadership in the research group

The researchers' own influence on the choice of theme and the composition of the research group was seen as of decisive importance for the successful progress of the research. Contacts outside the school were also appreciated. From this perspective it can be argued that teacher leadership involves teachers forming their own networks;

not only on the course and in their own school, but beyond their immediate environment (at national and international levels). Contacts with critical friends can be partly maintained through digital networking, and courses should offer opportunities for this. This aspect was not given very much attention in the project described here. Teacher educators should also be able to encourage students to develop and maintain relevant networks based on considerations related to content.

Leadership through research at the workplace

The findings from this case study provide evidence of the value of workplace learning through research. The teachers working on this case study gathered data at the workplace, gained insights through practice and applied these insights to their work with pupils. They constructed links between theory and practice, sharing their insights with others in and outside the school. All this took time, and so the students had to be given enough time to do their research both by the course and the school. It was not always easy for the school to allow them the time they needed. Teachers spend the greater part of their working day with pupils, and choices have to be made about how they can spend any periods not timetabled for teaching. Elliott (1991, p. 66) spoke about a constant dilemma that demands a creative attitude from teachers as researchers, and from their educators and the school management in designing practice-based research.

Based on these findings, the implications for in-service courses with an emphasis on action research and teacher leadership can be summarised in terms of a number of course requirements. Courses should:

- facilitate and offer guidance and support to teachers to do action research at their workplaces and to engage in dialogue with all relevant parties;
- create opportunities for teachers to form content-based networks in school, on their courses and beyond (national/international);
- give teachers opportunities to present their action research at national and international conferences and study days, and in so doing to gain new insights; and
- give teachers the opportunity to study themes in depth that should give them something to hold on to in their own work in their own teaching context – themes such as leadership in organisations and collective learning.

Notes

1. The group members gave workshops and presentations about their action research in and outside the school. This produced a large number of products, including video material, learning lines, observation and screening lists, organisational recommendations, policy plans and posters. Product and process results were put onto a national website of cooperating paedological institutes (Pi7) to make them available to the broader education world. <http://www.wecraad.nl/index.php?pid=33>.
2. The degree of influence and impact was rated on the thermometers on a scale from 0 to 10: 0–1 = no influence or impact; 2–3 = very little; 4–5 = little; 6–7 = average; 7–8 = great; 9–10 = very great. The same scale was used for the degree of appreciation.

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