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Contents

Editorial

This issue of the *International Journal of Action Research* inaugurates a new phase in the life of the journal. As announced in the last issue of 2016, the *International Journal of Action Research* will from now on be published by Barbara Budrich Publishers (Barbara Budrich Verlag). We thank again Rainer Hampp for these years of companionship with him as publisher, and reaffirm our commitment to continue, as stated in our guidelines, providing "a forum for an open and non dogmatic discussion about action research, both in present situation and in future perspectives."

The issue presents five articles from different geographical and cultural contexts. It may be an expression of a growing interest in action research and in IJAR around the world, which is certainly welcome. On other hand, it also shows that we are dealing with a research practice that, while encompassing other realities, presents new challenges in terms of conceptualization. Furthermore, the diversity also refers to the accumulated experience with action research in a given region or field, and consequently the level of sophistication in terms of analysis. It raises important issues about our present sociopolitical context and action research, as well as about the very foundations of action research.

The first article explores how action research takes place within and between four contexts: adding practical value, improving institutions, developing professions, and contributing to theory. The authors, Gertjan Schuiling and Hans Vermaak, present and discuss a model developed in the course of two decades of practice, highlighting its relevance for creating a common language among stakeholders, dealing with tensions, and aiding in research design. At the same time, they argue that there may not be one best way of doing action research, and that the design of any action research project must be situated.

The paper by Joacim Rosenlund and Erik Rosell analyses the method of dialogue arenas applied in two environmental research projects. There are presented and discussed two of these dialogue arenas, understood as boundary zones: the first boundary was found in the research system between social science and natural science; and the second boundary refers to the practice system between the collaborating sectors. Among their conclusions is that, confirming the core idea of action research, the dialogue arena method can be used as a way to democratise research and close the gap between research and society.

Alboni Marisa Dudeque Pianovski Vieira describes the use of action research for teaching history of education in a transdiciplinary perspective. The premise is the necessity to overcome the positivist conception of history and history teaching, developing methodologies that not only make the discipline more attractive, but promote the development of the

students' awareness as subjects of their own history and, as a consequence, helping them to assume their role in society. As shown in the study, history, without losing its specificity, enabled the interaction between many disciplines, contributing to a transdisciplinary perspective. The studies raised ethical, social, political, economic, psychological questions in their relations with the complexity of contemporary life.

"The Action Research story of a student–teacher", by Nicolina Eriksson, Jan-Erik Romar, Ben Dyson, tells the movements of a student-teacher who uses action research for implementing an innovative teaching model in physical education in a Finnish school. Even if based on a rather simple experience, the paper allows us to follow the paths of someone that learns to deal with several concomitant roles: as professional (teacher); as a student-teacher, and as a researcher. There is much to be learned from someone who, at the beginning of the carreer, engages in acion research, and at the end of the project recommends that action research by student–teachers could become a platform for the learning of academics. It may also be never too late to be reminded "that for the action research process to be successful, it requires a huge amount of time and commitment but the rewards can be educative" for everyone involved.

The last paper comes also from the field of education. Vahid Rahmani Doqaruni, Behzad Ghonsooly and Reza Pishghadam, use a mixed methods research to understand, as stated in the article's title "Teachers' beliefs about action research in second language education". The study was conducted with English teachers in Iran using a questionnaire and interviews. Among its findings, it is interesting to notice that while action research is widely known among teachers, it is little used and scarcely seen as a way for professional development. This kind of assessment on what people think of action research is also relevant in other areas, and the study may provide some insights for knowing what professionals know about action research, and how it was part – or was not part – in their education.

Danilo R. Streck
Editor-in-chief

Four contexts of action research: Crossing boundaries for productive interplay

Gertjan Schuiling, Hans Vermaak

Abstract
This paper explores how action research takes place within and between four contexts: adding practical value, improving institutions, developing professions, and contributing to theory. We argue that action research is more than those activities conducted within these contexts: it is a process of handling the generative tensions in the boundary regions. Framing action research this way has proven helpful in recasting such tensions as meaningful, in thinking through research designs in teaching and practice, and in paying sufficient attention to boundary work. This model for conceptualising action research has been refined over two decades of practice and reflection by the authors.

Key Words: Action research, context, tension, contradiction, boundary work, design

Cuatro contextos de investigación acción: Cruzando fronteras para una interacción productiva

Este artículo presenta un modelo de investigación acción que distingue cuatro contextos en donde este tipo de investigación tiene lugar: aportando valor práctico, mejorando las instituciones, desarrollando profesiones e investigando la teoría. Argumentamos que la investigación acción no es solo una combinación de actividades dentro de alguno de estos contextos, pero más importante es un proceso de manejo de las tensiones generativas en las regiones fronterizas entre contextos. En este artículo, primero discutimos los contextos, identificamos sus contrastes y señalamos las tensiones que éstos pueden crear. Seguidamente, mostramos como el 'tetra-modelo' resultante puede ser usado para guiar elecciones de diseño, ayudando a una investigación acción a medida para situaciones específicas y objetivas. Tanto el modelo como su aplicación han sido perfeccionados durante dos décadas de práctica continua y reflexión de los autores.

Palabras Clave: Investigación acción, perspectiva multi-contexto, contradicción, diseño, cruce de fronteras

Introduction

Action research has grown to take on many different forms that do justice to diverse situations and needs (e.g. Bradbury, 2015; Noffke & Somekh, 2013). However, this diversification of approaches has made it easier to lose sight of common principles, and it has made it harder to select which combinations of action and research are best suited for specific situations. Typologies seek to clarify the many possibilities, such as the '27 flavours' framework of action research (Chandler & Torbert, 2003), which distinguishes types of action research along the dimensions of voice, practice, and time. While such typologies enable the classification of diverse forms of inquiry (e.g. Bradbury, 2016), they do not provide guidance in tailoring an action research project to a specific situation.

We developed our views on action research through our work as scholar-practitioners, having our institutional 'home' first in consultancy and second in education and academia. We have found it useful to emphasise distinctions between the types of situations that practitioners often face. This began 20 years ago, in acknowledging the divergence within action research projects between the needs of various actors (such as managers, workers, educators, researchers) and their institutional settings (such as client organisations, workplaces, schools, academia). Over time our experiences and insights have evolved into a recognition and modelling of four contexts of action research that we present here. This view of action research has proven useful in multiple ways: for collaborators, it has provided a common language and legitimised tensions as meaningful, and for practitioners, it has aided us in thinking through action research designs and encouraged us to pay more attention to boundary work. In this paper we present a meta-perspective of action research as an activity spanning multiple contexts, discuss the tensions in the boundary regions between contexts, and present three ways to apply this approach, each illustrated with a case

The multiple contexts of action research

Action research as a triangle

In his only paper on action research, Lewin (1946) describes a 'change experiment on minority problems' that aimed to train community workers in Connecticut to address race relations, as an example of 'experimental comparative studies of the effectiveness of various techniques of change' (p. 145). Interestingly, he hardly reports on his findings other than a few realisations, including that intergroup relations are a two-way affair, which means that so-called minority problems are in fact majority problems. Instead, Lewin focuses on 'the tremendous pedagogical effect' that the research activity had on the training process. The research activity in question involved recording: observers, group leaders, and trainees gave daily reports on leadership and group development in the training groups by speaking into a recording machine, apparently while in each other's presence. The result was an 'atmosphere of objectivity' and a 'readiness by the faculty to discuss openly their mistakes' (p. 149). This generated:

"a mood of relaxed objectivity which is nowhere more difficult to achieve than in the field of intergroup relations which is loaded with emotionality and attitude rigidity even among the so-called liberals and those whose job it is to promote intergroup relations". (p. 149)

Lewin's excitement about the impact of introducing research activities into emotionally charged situations may still resonate with present-day action researchers. He concludes that we should consider action, research, and training 'as a triangle that should be kept together for the sake of any of its corners' (p. 149). The action-research dichotomy was thus identified, in the earliest writing on action research, as more accurately a trichotomy.

A fourth area of focus emerged from studies on participation in the world of organisation and management. The Harwood experiments, which involved operators in designing and implementing changes in production methods, showed that such changes not only improved productivity but also reduced aggression and turnover (Coch & French, 1948). This gave rise to theories of participative decision-making (McGregor, 1960; Likert, 1961; Tannenbaum, 1968). Building on McGregor's suggestion that managers examine the fundamental assumptions they make about human beings, Argyris (1971) unravelled the dynamics that enable or frustrate managers' examinations. He observed that attachment to control, rationality, and position reduces the probability that an organisation will produce valid information, reach effective decisions, and commit to the decisions made. He also noted that a commitment to inquiry and experimentation stimulates such examination. Argyris's work reveals 'organising' and 'learning' to be 'essentially antithetical processes, which means the phrase "organisational learning" is an oxymoron' (Weick & Westley, 1996). While learning is not necessarily impossible, the refusal to handle this tension makes it so. In this vein we see the fourth context of action research: the promotion of organisational learning by management to develop institutional responsiveness. The apparent duality of action and research can thus be better understood to encompass four domains: action, research, training, and institutional development.

'Different kinds of people'

In the seven decades since Lewin's work, professional practice, research practice, training practice, and institutional practice have each become more distinct as fields of professional activity. We may be practitioners, researchers, educators, or managers, each role with its own contexts, practices, and methodologies. The upside is a boost in performance, as each field has developed a specific logic for communication within its speciality; the downside is the loss of capacity to communicate with other fields due to syntactic (language), semantic (meaning), and pragmatic (practice) differences (Carlile, 2002). Underestimating these boundary issues leads to tensions and conflict and, when unresolved, poor performance.

We see such boundary issues early on in the field of organisational psychology, notably between the UK and USA research communities that were both inspired by Lewin's work. The UK community combined people with backgrounds as socio-clinical psychiatrists and social scientists in the 'Tavistock group' and had conducted action research projects in the British army during the war, while the USA community had done work on food habits and community relations. They came together in the 1949 London conference to discuss their work on group dynamics. Both communities had focused on group interactions and presumed their motives might be similar, but their loyalty to different contexts instead created alienation. Trist (1997, p. 677), who attended the conference, describes it thus:

"What transpired was that our crowd in the UK were headed in the direction of taking up projects in the real world. … [T]he American group had now located themselves in a university … and had begun to turn in the direction of academic research on propositions dealing with group theory. … We continued to publish together the journal Human Relations … but we had discovered that we were different kinds of people."

Lewin (1946) saw the study of laws and the study of specific situations as enhancing each other. He referred to engineering institutions like MIT who turned more and more to basic research, and expected basic research to follow applied research in 'social engineering' as well. This is however not what happened in the management sciences. The business school reform of the 1950s was based on the reversed expectation that applied research should follow basic research: generalisable knowledge would be applied after it was tested scientifically. But this is also not quite what emerged. Instead we have had a debate for 60 years about the gap between 'rigour' and 'relevance'. Kieser and Liener (2009) have studied this debate and conclude that the logic of basic research is incompatible with the logic of applied research: they have conflicting organising principles and prescribe different actions, goals, and means. One cannot follow both logics at the same time. Most scholars follow the logic of rigorous research, while merely talking about responding to the practical needs of management. Bullinger, Kieser, and Schiller-Merkens (2015) interpret this as a compromise that follows management scholars' strategy of compartmentalising their work into separate scholarly and practical realms. They publish in separate outlets, either for academics or for practitioners, and for the latter only later in their careers. When writing for practitioners, they rarely utilise their research findings. And when they do so, their recommendations generally do not correspond with the scientific results reported in their academic articles (p. 443). So when it comes to practice, scholars are not that rigorous at all.

Similarly, many organisation development practitioners claim action research as a preferred method, but their activities often focus on developing organisations and professionalising management, rather than contributing to scholarship. Vansina (2008) and Feltman (1992) critique consultants for spending too much time in boardrooms and training centres, rather than in the lived reality of how organisations add value; they conclude that there is too little action in action research. On top of that, consultants' research activities do not necessarily translate into knowledge that can withstand scientific scrutiny. It may help to explain why action research still struggles to be published in top-ranked journals (Kieser, Nicolai, & Seidl, 2015, p. 165). Thus, compartmentalisation is also a coping strategy for action researchers in the field of organisational development: when it comes to building theory, they tend to be less relevant.

One pitfall seems to be the tendency to place responsibility for 'bridging the gap' between scholars and practitioners on just one of the parties, rather than encouraging a new type of interaction involving both sides. Just as Lewin found that 'minority problems' are better conceived as a two-way dynamic, we argue that 'bridging the gap' should be approached as a mutual effort. A new expectation about the boundary work between action and research needs to be developed, and this paper is an invitation to do so.

Of course, there are inspiring examples where boundaries between the different contexts are crossed, and co-operation bears fruit. Schein is a well-known example: he developed the general practice theory of process consultancy, and built theories about learning, career development, leadership, and culture. He labelled this route 'clinical inquiry', and posited that useful data can be gathered in situations that are not created by the researcher, but by someone

who wants help (Schein, 1987, 2001). The client creates the setting and defines the subject matter, and the consultant helps the client to address these while also observing how the client responds and comparing this with theoretical models. This enhances the helping process *and* creates an opportunity to use the data to amend and improve theoretical models. Argyris and his colleagues are another good example. They have stressed the value in combining the study of practical problems with research that contributes to theory building and testing. Labelling this route 'action science', they posit that action theories can be developed and tested by building communities of inquiry in social practices (Argyris & Schön, 1974; Argyris, Putnam, & McLain Smith, 1985). This has resulted in an impressive range of constructs, such as organisational learning, espoused theory, and defensive routines, which have impacted the whole field of management research deeply.

With these examples in mind, we feel it is important to acknowledge the specific logics of each of the four different contexts and the types of tensions that boundary crossings often create. People live out their professional lives in different worlds, such as academia or consultancy, and action researchers are challenged to contain the feeling of being marginalized in both (Wasserman & Kram, 2009, p. 24). Put differently, none of the four contexts is our home exclusively, as we feel most attracted to the boundary regions between them.

The four contexts of action research

We developed and refined a model that recognises four contexts in which action research takes place (Schuiling, 2001; Vermaak, 2009), which allows us to ask in each specific situation: what aspects of these contexts allow us to best suit our aims and abilities in designing our approach? In this section, we describe each of the contexts, which are visually represented in Figure 1. The characteristics of each context are delineated in Table 1.

Adding practical value: In context I people seek to create value for the outside world. The key actors here have generic labels like 'clients', '(knowledge) workers', and 'first-line supervisors'. In context I, people in work systems seek to meet clients' requirements in the best way they can, and to develop the means, technology, and methods for doing so (Hoebeke, 1994, pp. 45-71). Many organisations cannot add value on their own and require collaborative arrangements between different organisations and between these organisations and their clients. Thus organisational boundaries are not the prime concern, rather the challenges at hand define who should be involved; similarly, the skills and facilitation of multidisciplinary work become important.

Improving institutions: In context II people focus on institutional arrangements for work processes. This includes aligning the internal and external environment, negotiating legitimacy and objectives with key stakeholders, and providing resources such as facilities, finances, systems, and leadership. Managers and staff are regarded as key actors here, but agency is not exclusive to them. While institutional arrangements condition behaviour, they also respond to actors' agency in context I to challenge and improve those arrangements (Delbridge & Edwards, 2013). This may extend beyond the organisational level, to larger arenas, such as an industry sector or a professional field. Success is evaluated in terms of embedded agency: have we encouraged the necessary conditions for value creation (context I) and staff development (context III)?

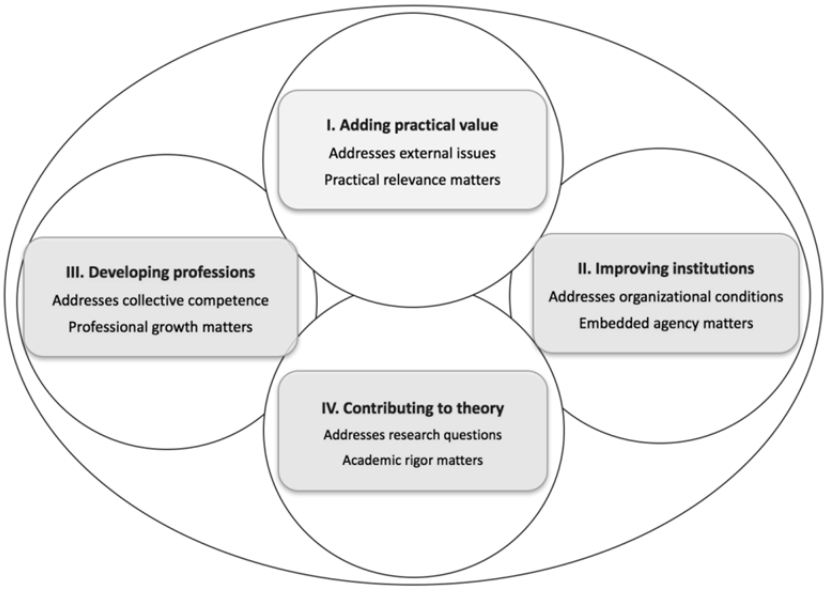

Figure 1. Action research takes place within and across four contexts.

Developing professions: In context III people are concerned with professional development, especially of the actors in contexts I and II. For example, in context I this may involve nursing in a health care institution or process control at an industrial plant, while in context II this refers to activities common across most organisations, such as human resources, information technology, or management. In context III, educators (role models, mentors, trainers, teachers, coaches) help increase the awareness and skills of those involved (students, participants, trainees) by organising learning environments. The educators' role is no longer exclusive to them as soon as participants are regarded as co-creators in learning, as in communities of practice (Wenger & Snyder, 2000).

Contributing to theory: In context IV people are concerned with building and testing theory by means of research. It addresses research questions that arise from fascinations from real-life phenomena (Alvesson & Kärreman, 2007) or from spotting gaps or problematising assumptions in the existing literature (Sandberg & Alvesson, 2011). Research is conducted to build generalisations, using a collection of concepts, their interrelationships, and the assumptions underlying both (Whetten, 1989). Theories of action can be researched from different epistemological traditions: a positivistic approach focuses on testing existing theories (e.g. Bacharach, 1989), an interpretive approach uses disciplined imagination for sensemaking (e.g. Weick, 1989), and a pragmatist approach builds and tests theories through learning to act effectively (e.g. Argyris, 2014). However divergent the perspectives are on what research is, and how it should be conducted, they all seem to agree that the function of theoretical knowledge is its ability to explain and predict. Key actors in this context are the researchers, their peers, and their research objects, which, depending on research orientation, may also become the subjects of research.

Table 1. Distinguishing characteristics of the four contexts

Context and core activity	I **Adding practical value**	II **Improving institutions**	III **Developing professions**	IV **Contributing to theory**
What is addressed	External issues (related to products or services)	Organisational conditions (ranging from strategic to operational, from technical to cultural)	Collective competence (explicit and embodied know-how)	Research questions (deemed relevant within the academic discipline)
Key actors	Practitioners (clients, knowledge workers, first-line supervisors)	Managers (board members, department heads, professional and support staff, employees)	Educators (teachers, trainers, coaches, students, participants, mentors, role models)	Researchers (students, postdocs, research fellows, professors, participants, sponsors)
Evaluation criteria	Practical relevance	Embedded agency	Professional growth	Academic rigor
Type of knowledge	Practical (based on experience; conveyed in stories and examples; captured in routines)	Institutional (conveyed in formal policies and guidelines but also in cultural understanding)	Professional (captured in case studies, methods, and concepts; refers to a shared tradition and identity)	Theoretical (developed in theoretical debates, articulated in publications shared at conferences)

Crossing boundaries for productive interplay

Tensions in the boundary regions

Our description of this model emphasises the contrasts between the contexts: each has its own processes, issues, actors, performance criteria, and so on. Though distinct, the contexts are of course also interdependent: it is hard to think of providing services or products to the outside world without organisations (contexts I and II) or conducting research without a lived experience to study (contexts I and IV). The boundary regions between contexts also bring to light competing demands. In Table 2 we suggest some typical tensions experienced in the six boundary areas that are depicted in Figure 1.

To illustrate how such tensions can play out, let us look at one such boundary area between ‘adding practical value’ (context I) and contributing to theory (context IV). An action researcher may be torn between adopting an observer stance, in which the focus is on data collection, versus taking an interventionist stance, in which the focus is on helping others. Meticulously collecting data matters especially during meaningful moments when the process may be intense and much is happening (see e.g. Erlandson et al., 1993). However, these are also the moments when the interventions are most wanted, for instance by facilitating the process or introducing new perspectives. It can be tough to combine those roles,

specifically in the moments that matter most. It can however be worthwhile to attempt it in the case of 'wicked problems', which cannot be studied from a detached position but require the active contribution of the researcher (see e.g. Conklin, 2006). Only an active stance allows one immersion in the lived experience, sharing insights in real time and testing the efficacy of interventions in actual practice. This example thus underscores that both tension and potential synergy are present in the boundary area at the same time.

Table 2. Typical tensions between contexts

Six boundary areas	**Possible tensions**	**Behavioural expression**
Between (I) Adding practical value & (II) Improving institutions	Self-organised activity versus managed stability and change	Can local decision making come up with tailored solutions? Or are organisational standards and methods enforced?
Between (I) Adding practical value & (III) Developing professions	Performance versus learning	Is the best person put on the job to assure optimal value? Or is less experienced staff allowed to learn on the job?
Between (I) Adding practical value & (IV) Contributing to theory	Practical relevance versus academic rigor	Is the focus on interventions to solve problems as and when they emerge? Or is the focus on staying detached and maintaining a research protocol?
Between (II) Improving institutions & (III) Developing professions	Organizational demands versus professional loyalty	Is the work driven by what managers or clients require? Or is the work driven by what a specific profession has to offer?
Between (II) Improving institutions & (IV) Contributing to theory	Managing reputation versus critical thinking	Are persuasive policies and reassuring visions striven for to reassure public and personnel? Or are dominant ideas deconstructed and anomalies revealed?
Between (III) Developing professions and (IV) Contributing to theory	Expert confidence versus academic deconstruction	Are methods generalised that have proven their worth in practice? Or are such methods questioned to find why and where they work?

The tensions may be labelled differently, depending on the specific environment and one's orientation. Also, each local situation in which the action research takes place will show a unique constellation of tensions. What we wish to emphasise is that these types of tensions will inevitable arise, and acknowledging them will prevent them from ossifying, and assist those involved in learning from them.

Valuing contradictions and mediating boundaries

Tensions are inherent in organisational life, emerging from contradictory but interrelated elements. There are three types of actors' responses to tensions. The first response is 'either-or'. This is adequate when a deliberate choice is required by a situation, rather than being a defensive response to avoid or reduce the negative effect of tensions. In the former the interdependence of the two poles is recognised, in the latter it is ignored or masked. Suppressing one pole inevitably fuels its opposition, leading to vicious circles (Lewis & Smith, 2014). A second type of response is the 'both-and' approach in which the opposites are treated as inseparable and complementary. Paradoxical thinking focuses on recognising opposites, questioning them, and shifting mindsets. Differences are explored and confronted, sharpening a type of reasoning in which people both frame the contradictions as meaningful in relation to the issues that are being addressed and deliberately switch between contexts to develop integrative solutions (Engeström, 2004). A third type of response is the 'more-than' approach, which involves connecting oppositional pairs, moving beyond them, or situating them in a new relationship (Putnam, Fairhurst, & Banghart, 2016). This strategy avoids the premature closure of options by using tensions to embrace a discursive consciousness of the paradoxical situation.

Working through contradictions in this way is the heart of action research, rather than a distraction from it. It requires identifying and facing the contradictions, and managing the tension they create; doing so in a skilled fashion allows one to learn from and experiment with that tension. The action researcher thus has a double task: designing and guiding the action research process and creating a 'holding environment' (Shapiro & Carr, 1991) in which participants can work through the cognitive confusion, emotional uncertainty, and relational frictions (Illeris, 2002) that are part and parcel of figuring out new possibilities.

A constructive response to contradictions implies acknowledging and using what another context has to offer. Each context may then internalise aspects of the others, incorporating them as subordinate processes. Take, for instance, the aim of producing knowledge in context IV (researching): the other contexts might not produce what most academics consider 'theory' but that does not mean they do not produce knowledge. While knowledge development is the primary task in context IV, key actors in the other contexts pursue their own type of knowing as part of their primary task (see the grey text in Table 1). Similarly, while practical solutions, organisational activities, and professional development each are the core activity in one context, they may play a subordinate role within all of the other contexts. However, there is a risk to such internalising as it allows one to work predominantly in one context. This can obscure just how different other contexts are and thus lessen the appreciation for what they have to offer. We therefore argue for deliberately seeking productive interaction between the contexts. The most generative processes of action research seem to take place in the boundary regions, allowing one to achieve results that are beyond what is produced in any context on its own.

This raises the questions: who does the boundary work to mediate contradictions, and how do they do so? We observe two types of boundary-crossing strategies: commuting and intertwining. In commuting, skilled action researchers go back and forth between the different contexts on behalf of those involved. They transfer questions, information, princi-

ples, and concepts from one context to another. In intertwining, the action researcher invites key actors from one or more contexts to cross boundaries as well, thereby participating in the activities of another context, often beyond what they are trained for, and in so doing they experience the contradictions themselves.

Commuting is done sequentially and involves time lags. For instance, action researchers do clinical inquiry in an assignment with a client, then develop a theme that resonates with their other assignments, and then publish their findings, which in turn creates the impulse to do more research on the theme in a follow-up study. Intertwining happens in real time. For instance, several key actors in the client organisation co-produce the research design and execute the research with the action researchers. The action researchers' multiple roles are extended to these key actors, endowing them with additional roles. If, for example, such key actors typically are focussed on adding practical value (context I), they now may also learn to collect and interpret data (context IV) or support organisational learning by exploring with their colleagues the impact of new insights on existing policies (context II). Intertwining thus has the potential to have a wider impact than commuting by collaborative production in the boundary regions (Lüscher & Lewis, 2008). However, complete intertwining for all actors involved across the four contexts is a likely road to mediocrity, as much as one sole person commuting all contexts is unthinkable. It is thus a matter of distributing and sharing roles wisely.

Working with the multi-context model

Recasting tensions as meaningful amongst collaborators

People struggle to make meaningful connections between their own context and those of others when they are not aware of contrasting logics. Even when they do, this understanding is not necessarily reciprocated by their partners, who may also be unaware. Their relationships across contexts can then easily become strained and less productive. Meaningful interactions start by moving away from blaming any one party for such trouble, which is a common response so long as their own context's logic is the implicit measuring stick. The multi-context model can be introduced as a language that invites all involved to acknowledge that each context's logic is one sided. This larger perspective is much easier to swallow than hearing that one's own logic is wrong or that some logic should take priority over others. Recognising strains or conflicts in the relationship as something to be expected can be quite a relief, opening an avenue to appreciate the differences as inherently present and potentially fruitful.

An example concerns the long-standing collaboration between police and academia in the Netherlands. It involves a wide range of parties, such as the National Police, the Police Academy, universities, consultancy firms, research institutions, funding agencies, government ministries, unions, and so forth. In early 2015, frequent discussions were held on how to increase the relevance of all the research that was being done. Many felt that the impact of research was too slow, too little, and too shallow. The Policy Academy proposed a strategic research agenda for the next five years that took centre stage in these discussions. It set common goals and advocated aligning the police's needs with what the researchers

could offer. It was implicitly formulated in terms of 'supply and demand'. Though nobody strongly disagreed with the carefully worded consensus, many had their doubts that the new agenda was a 'game changer'. At that point, one of the main funding agencies held a national conference, inviting key players to reflect on what it would take to change the game. We introduced the multi-context model to inquire into these doubts and make sense of them. We posited that just below the surface of the common vision were very different contexts with their own agendas, which would surely hinder easy alignment.

For instance, researchers did not consider demand-driven research wise at all, as they felt the police knew too little about doing research for that. It would not only lead to mediocre research but, and even more so, it would eliminate the independent role of academia to critique current ideas and (mal)practice. Researchers felt their role was also to create uncomfortable knowledge, because professions and institutions that stifle critique tend to degenerate. In contrast, many at the top of the National Police felt that they had their hands full handling political and public criticism, and deemed it not in their interest to fund and assist research that might present them in a bad light. They would rather have researchers respond to many 'how to' questions related to day-to-day operations with concrete tools, approaches, and solutions. We suggested that only boundary work could help mediate such a contradiction. If researchers demanded complete freedom to criticise anything and everything at will, the police would step out. If the police demanded academics to surrender their independence and critical stance, researchers would lose interest.

We used the multi-context model throughout the conference when concrete projects and issues were discussed to reflect together on 1) contradictions between the contexts, 2) what makes them productive or not, 3) when it is worth the effort. What people often said in private, about the stuff 'under the surface', could now more easily be shared in the room: frequently leading to bouts of laughter. It allowed people to explore what constitutes boundary work. One person labelled it as a process of give and take, based on ongoing interaction rather than a one-time transaction, thus problematising the notion of supply and demand. This framework allowed the participants to see that boundary work instead requires 'clumsy solutions' that are agreed upon incrementally based on different ideas and reasons for each party (Rayner, 2012). They also recognised that the intention of research having 'fast, more, and deep' impact (as stated in the strategic agenda) would not be realistic, at least not all at the same time. Where impact needs to be deep, boundary work needs to be slow to make the best of both worlds, requiring participative methods of research. This led to discussions about which issues warrant such deep inquiry. Some posited that deep inquiry is called for when research focuses on police craft rather than police policies, and is best done during police work instead of through evaluations afterwards. The conference did not produce bold new decisions, but it did legitimise persistent tensions and enabled learning conversations about boundary work.

Thinking through research designs in teaching and practice

Another application of the multi-context model is to discuss how to fit action research to specific situations. We have found this helpful in teaching students or aiding colleagues to design their research, and also in thinking through our own research designs with close collaborators. For this purpose, we often pose three questions. Firstly, we consider which

boundary region has the most generative potential considering the issue and situation at hand. As argued above, action research does not benefit from evenly 'integrating' all four contexts, but by focussing efforts where depth of inquiry pays off. It is a way to combine Smith and Lewis's (2011) low-intensity tactic of 'situated choice' (focussing on specific areas or contexts) with the high-intensity tactic of 'creating integration' (engaging in sophisticated boundary work in the selected area). The first tactic frees up the time and energy to use the second tactic. Secondly, we consider who can best mediate the contradictions in the selected area, especially to what extent boundary crossing is primarily done by the action researcher (commuting strategy) or with those most involved (intertwining strategy). Thirdly, we consider how 'supportive input' from another context may enable generative boundary work. Countervailing change dynamics often emerge, such as certain voices dominating, covering up tensions, or laying blame, and resorting to habitual expectations. Methods or skills from another context can make a difference: think of dialogue facilitation (input from context III) or research methods (input from context IV).

An example concerns the transformation of the whole 'Youth Care' system in the Netherlands in 2015 when it was decentralised, shifting responsibility for programmes from the national to the municipal level. Youth Care includes a range of services for children and their support systems (parents, schools, neighbourhood) aimed at helping children grow up well and find their way in society. As part of this decentralisation, a change towards multidisciplinary, neighbourhood-level teams was meant to enable local decision making, allowing problems to be dealt with faster, while empowering those involved and reducing costs. The boards of the 21 institutions involved in this new arrangement in the Amsterdam region felt a need to monitor whether these intentions materialised, asking: What was the lived reality of the desired transformation? And what could they do to support improvement? With regard to the first question, this brings the boundary area in focus between those workers trying to work in a new way (context I) and those creating the organisational conditions (context II). We suggested to the board members that action research helps to intensify the interchange at this boundary, and the institutions agreed. In Figure 2 this is visualised as a thick arrow going back and forth in the boundary area between contexts I and II.

With regard to the third question, we selected research methods (context IV) to ensure sufficient rigour in selecting and interpreting concrete examples of how kids, their support systems, and the neighbourhood-level teams co-operated. We conceptualised the findings, discussed them with the governors' collective, and published them in a national journal for wider dissemination (Vermaak & Engbers, 2016). Incorporating research methods seemed opportune, as little had been done to generate knowledge about how the decentralisation of Youth Care had progressed. The thin grey arrows in Figure 2 represent the supportive input going to the boundary area and the knowledge output returning back to context IV.

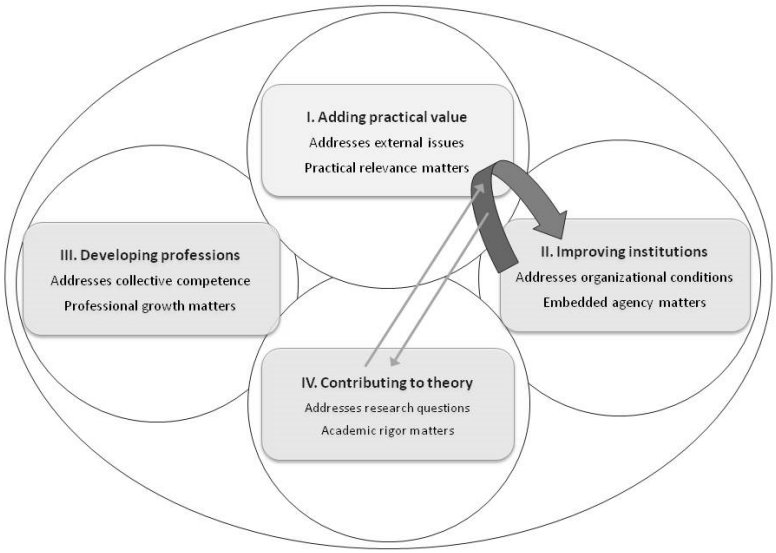

Figure 2. Thinking through research choices to aid Youth Care transformation

In terms of research participation (the second question), the intertwining strategy was used to its full extent with a prominent board member acting as co-researcher: she commuted between the contexts for the benefit of the others who had more limited roles to play. These were concerned workers who participated in interpreting their own cases (at the edge of context I), and other board members who participated in reflecting on the findings (at the edge of context IV), but neither ventured all that far outside their own context. This choice was born out of a need to produce valid conclusions quickly, which is easier with a small inner group that has the ability and commitment to do the hard work. Also, in a period where much was at stake, the political nature of decision-making could be at odds with an open inquiry that could call existing policies and practices into question. Thus it seemed prudent to not hamper the boundary work by involving too many organisational leaders in it, but instead to allow most of them to react to the findings rather than co-create them.

Paying skilful attention to boundary work

A third application of the multi-context model is applying and studying the skills that are effective in working through contradictions. The devil is in the details: deep change results from accumulating small wins in micro-situations (Vermaak, 2013). The starting point is the felt difficulty of the actors involved, who acknowledge tensions between different contexts and are puzzled about effective courses of action. When they engage action researchers, they opt to inquire into such tensions and explore responses to them. One way to do this is through a hermeneutical-developmental process in which they are guided to intuitively grasp the salient features of ambiguous situations and to find a way out of the difficulties

that serves the common good (Shotter & Tsoukas, 2014). In this case, this process consisted of reflexive conversations with all involved, first to appreciate the nature of the tensions, then to better understand the current defensive dynamic, and finally to take steps towards constructive ways to deal with the tensions (Schuiling, 2014).

A small firm in crisis in 2016 serves as example. The employees and managers are polarised in two camps, holding on to negative perceptions of each other. Employees judge the interim director and interim controller as incompetent and unable to listen, and have voiced this to the supervisory board. The two interim managers in turn feel employees need to respond to their instructions and give them insight in their work. The legitimate concerns of both contexts become obscured in the process: employees fail to recognise how management tries to improve efficiency and innovation (context II), while management fails to recognise how the employees' self-organised activities (context I) kept the company running during the prolonged illness and deathbed of the former director and controller's illness during and after his wife's deathbed. Standard tension between two contexts is not extraordinary (see Table 2) but in this case nobody effectively engages in boundary work. The boundary region is filled with trenches in which every action by one side is experienced as an attack by the other. Members of the supervisory board and the shareholders' board are the first to take up a boundary role by having conversations not only with management but also with employees. They are startled by the vehemence of the emotions and ask us as consultants to mediate.

Instead of patching up relationships between the employees and the interim managers who are bound to leave shortly, we suggest they work to create an understanding of what keeps going wrong in the boundary area between the groups. This may prevent future management being pulled into the existing dynamic, and give them a chance to succeed. In the first round we explore the tensions with each party separately as tempers were too heated to do otherwise. We guided conversations toward understanding the polarising dynamic between the two, set in a larger configuration consisting also of difficult relationships between the two boards and new developments in the market. We observed there was no event about which the parties told the same story. We suggested that being a director in that configuration had proven to be a difficult job, and asked both groups: what could help a new director to be more successful? We shared emerging insights from these conversations amongst the parties: we thus enacted a commuting strategy between the two contexts. This seemed sufficient for employees to acknowledge that making their work 'invisible' would obstruct new management from succeeding; their willingness to describe workflows and competences grew.

In a second round we introduced the concept of 'organisational neglect' into the reflexive conversations to deepen the understanding of the present dynamic. The concept explains non-responsiveness in organisations as a result of laissez-faire by management: it is a pedagogical frame of emotional neglect of children by parents used here as a metaphor for organisational life (Kampen, 2015). The concept can be regarded as supportive input from the academic world (context IV). The frame resonated with all involved: employees had felt lost when both their former director and controller fell ill ('the trusted parents') and a first interim-director ('the guardian') they trusted was pushed out without consultation. They felt driven into the arms of a second interim director ('the custodian') and those of an interim

controller ('the warden') they could not accept and who in turn felt rejected. This realisation helped people see it was time to start 'putting their house in order again'; they started to agree that basic maintenance was due in many areas, not only in coping emotionally with their losses but also in improving product development and competence development, as well as in facilities and governance structure. However, they still differed markedly regarding which solutions they deemed best to achieve this.

Given the convergence of both their understanding of the past and their agenda for the future, we felt the time was ripe to move beyond separate conversations to collective settings with all sides present: only that would allow them to explore common solutions. To take this step we felt other people than us should start taking up boundary roles. We sensed the former controller ('the trusted parent') would be one of the few people who could pull that off, though he was on sick leave and in negotiations for leaving the company permanently. He still had the employees' trust and members of both boards were willing to support him, though some board members were apprehensive he might be embittered. The interim director and the controller had battled before, saying that 'if he stays, I go'. When we reflected on this with the controller, he remarked 'this is why we get stuck'. Realising this, he reported back to work two days later to replace the interim controller: he wanted to be part of a new start.

We prepared the first plenary meeting with all involved. The chairman of the supervisory board led the meeting and we kicked off by reiterating the diagnosis and recommendations that had resonated in separate conversations. That sufficed to reach agreement within an hour on a collective agenda to move forward. Before we could embark on that road, there was still some relational work to be done. The interim director had thus far been silent and left alone during the meeting. We shared that observation and suggested somebody should speak to that. The returned controller stepped in, acknowledging the interim director as somebody he always appreciated but who had been handed an impossible task: the wrong role at the wrong moment. The controller thus took up a much needed boundary role that helped people to acknowledge each other's struggles. It allowed employees to move beyond their harnessed angriness towards management, board members to move beyond their apprehension about the controller, and the interim director to move beyond his frustration about having been ineffective. The atmosphere relaxed and people allowed themselves to be moved both by the controller's words and the possibility of moving forward.

Conclusion

This paper introduced a meta-perspective on action research as taking place within and across different contexts that have different logics and actors. The multi-context model does not prescribe how one should connect action and research, but does help practitioners to reflect on what makes such connections difficult and how to make them work. Such reflection aids those involved to increase their shared understanding and use of action research. This makes sense given that successful action research demands collaborative exploration. It implies that sharing is meaningful with those most involved, but less so with participants who have no interest in the methodological aspects of action research.

The model has been helpful to bridge different worlds. Having said that, a word of caution seems warranted as any such model may also reinforce boundaries (Oswick & Robertson, 2009). We have noticed on occasion that introduction to the model makes people aware of other , but only up to a point. It is hard to fully comprehend other contexts when one has limited experience, and even more difficult not to interpret the model from the context that one is most familiar with. It points to the issue of incommensurability (e.g. Scherer & Dowling, 1995): it is impossible to talk about the four contexts in a context-free way, to be an objective observer with a bird's-eye view.

There is no one best way of doing action research, and therefore the design of any action research project must be situated. The multi-context model points to some design choices based on what most benefits the issue at hand, while being mindful of the capacities of those involved. To further discussions about the methodology of action research, we find it makes sense to assess the contributions made by action research projects in connection to such design choices. Related to this point we have found the model helpful as a lens through which to better understand the diversity of action research methods and to distinguish the different boundary roles employed. The term 'scholar-practitioner' surely needs to be unpacked to know to which 'practice' it refers: the practice of managers, workers, or educators? When we focus on boundary work: such as making it easier to add practical value by institutional improvement or furthering the ability to add practical value by professional development, subspecies come to mind, such as 'managing practitioners' or 'practice-based educators'.

We have seen how the model can create a common language, legitimatise tensions, and aid in research design. It helps create the conditions for good action research, but has its limits beyond that. Real impact comes from mediating the contradictions to generate new insights in real-life situations, requiring skill, stamina, and passion from all those involved. The real magic happens on a micro-level; the model helps set the stage for it.

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About the authors

Gertjan Schuiling combines consulting with academic work. From 1992–2002, he served as internal OD-practitioner at two industrial life sciences companies, and is now based at Thierry & Schuiling. He is a lecturer at VU University Amsterdam since 1991 and earlier served as Professor of Organisational Learning at HAN University of Applied Sciences. His interests are collaborative redesign, leadership dynamics, extraordinary conversations, and action research.

Hans Vermaak is an independent consultant, researcher, and lecturer. He is associate partner at the Twynstra Consultancy Group and associate partner at Sioo, Inter-university Centre for Development in Organisational Studies and Change Management. His work focusses on the dynamics of complex issues and the change methods to address them. He frequently publishes about organisational development, systems thinking, and action research. His English publications include the handbook *Learning to Change*.

Authors' addresses
Gertjan Schuiling
Thierry & Schuiling; VU University Amsterdam, The Netherlands
Mail: g.j.schuiling@vu.nl

Hans Vermaak
Sioo; Twynstra Gudde, The Netherlands
Mail: hans@hansvermaak.com

Using dialogue arenas to manage boundaries between sectors and disciplines in environmental research projects

Joacim Rosenlund, Erik Rosell

Abstract
An interactive research strategy, a form of action research, was used in two environmental research projects. This strategy emphasises a balance between research and practice. Further, the method of dialogue arenas was used, meaning the creation of different types of meeting places where research and practice interact with each other. This paper shows the strength of these dialogue arenas to identify and cross boundaries. During these dialogue arenas the interactive researcher encountered two such boundaries. The first boundary was found in the research system between social science and natural science. The second boundary was found in the practice system between the collaborating sectors. Dialogue arenas helped in managing these boundaries by clarifying the role of the social scientist, facilitating collaboration, and democratising the research process.

Keywords: Interactive research, boundaries, cross-sector collaboration, transdisciplinary science, environmental science

Utilizando espacios de dialogo para gestionar los límites entre sectores y disciplinas en proyectos de investigación ambiental

En dos proyectos de investigación ambiental fue utilizada una estrategia de investigación interactiva, una forma de investigación acción. Esta estrategia hace hincapié en el balance entre la investigación y la práctica. Además, se utilizó el método de los espacios de dialogo, lo que significa la creación de diferentes tipos de lugares de encuentro donde la investigación y la práctica interactúan entre sí. Este artículo muestra la fuerza de estos espacios de diálogo para identificar y cruzar límites. Durante estos espacios de dialogo, el investigador interactivo encontró dos de estos límites. El primer límite fue encontrado en el sistema de investigación entre las ciencias sociales y las ciencias naturales. El segundo límite fue encontrado en el sistema de práctica entre los sectores colaboradores. Los espacios de diálogo ayudaron a manejar estos límites, aclarando el papel del científico social, facilitando la colaboración y democratizando el proceso de investigación.

Palabras Clave: Investigación interactiva, límites, colaboración intersectorial, ciencia transdisciplinar, ciencia medioambiental

1 Introduction

Environmental problems need to be addressed by both natural and social sciences in order to include both technical and social processes. As stated by Hilary Bradbury (Bradbury 2001) action research can provide "a common language to many of the cross-sector initiatives that include people from the cultural and economic realms". Even large scale problems like climate change can benefit from an action research approach, as it empowers people to influence policy from a grassroots level (Hall, Taplin, & Goldstein 2010). It has also been noted that action research can aid in sustainability transitions by creating an interactive space between academics and the community (Wittmayer, Schäpke, van Steenbergen, & Omann 2014). In this paper, we define and present dialogue arenas as examples of such interactive spaces. Dialogue arenas can be seminars, workshops, search conferences and other common meeting forums where researchers and participants interact with each other.

Previously search- and dialogue conferences have used this same principle. These use a longer timespan which is more demanding for the researcher and the participants (Ahmad, Gjøtterud, & Krogh 2016; Ekman Philips & Huzzard 2007; Shotter & Gustavsen 1999). Other terms that have been used are study circles, peer-group mentoring and research conferences (Rönnerman et al. 2015). During such dialogue arenas communicative spaces are created (Wicks & Reason,2009). The goal is to create informal situations based on a specific topic of interest both to researchers and practitioners. Well-functioning communicative spaces are inclusive by design (Forester 1999). While the organisers present the topic, the discussion part is important and here the participants should mix with each other to get new input. Dialogue has been an integral part of action research and its importance for the research process has been emphasised in dialogic action research (Maurer & Githens 2010). Such spaces are open to the expression of needs, frustrations, and visions from individual participants.

The empirical context is based on previous research conducted by the main author who has been a member of an environmental science research group for more than five years. While members of the group had their background in natural sciences, the main author had a background in social sciences and was recruited to the group to do research on environmental research collaborations. More specifically, triple helix collaborations (Etzkowitz & Leydesdorff 2000) where university, industry and public sector collaborate. Being a social scientist in a natural scientist environment meant taking part of two different ontological and epistemological worlds. Involving participants in cross-sector collaboration added another level of complexity for the action researcher.

Balancing between the research and practice systems is a recognised challenge in action and interactive research (Ellström 2008; Sandberg & Wallo 2013). In this paper an interactive research model, for studying and facilitating cross-sector collaborations, is developed. Dialogue arenas are at the centre of this model. The first aim of this paper is to identify and discuss two boundaries that were encountered by the interactive researcher in two environmental research projects. The second aim is to describe and evaluate the interactive research model that was developed in order to investigate, and at the same time manage, the challenges that arose from the two boundaries within the cross-sector collaborations. The following subsection describes these two boundaries.

2 Boundaries between disciplines and sectors

The literature on boundaries gives an indication into how an interdisciplinary and cross-sector environment functions. Boundaries are different ways to demarcate between one social arena and community to another. Such boundaries can consist of differences in rules, identity, culture, knowledge that are more or less social and cognitive and have different spatial and physical characteristics related to different occupations (Barley & Kunda 2001; Hsiao, Tsai, & Lee 2012). These characteristics become evident when working in cross-sector collaboration and between disciplines.

It has been noted that solving environmental problems also requires crossing disciplinary, organisational and national boundaries which complicate such collaborative work (Perz et al. 2010). First, we consider the *disciplinary boundary*. Interdisciplinary collaboration has previously been a common way to approach environmental problems (Holm et al. 2013; Lang et al. 2012). Further, there has been a call for increased interdisciplinary collaboration between social science and natural science to tackle complex environmental challenges (Bryant 1998; Pohl 2005). However, there has also been previous criticism that environmental science leaves out large parts of society due to its positivist nature (Cortner 2000). Collaboration between the macro sciences, such as social sciences and natural sciences, leads to additional challenges due to different paradigms and methods (Lowe & Phillipson 2009). Disciplines have their language and terms creating a linguistic divide. Each discipline has unique methods to acquire and validate information. Further, each discipline has different views of the role of stakeholders and the societal context for the research process (Eigenbrode et al. 2007).

The idea of a radical inter-disciplinarity can be used to describe the collaboration between social science and more technical disciplines. As environmental challenges often are framed as physical or technical, it has been noted that social science can help manage social, political and cultural issues during such collaborations (Petts, Owens, & Bulkeley 2008). However, such collaborations bear with them risks as the end-results can fall between traditional paradigms (Evans & Marvin 2006). Natural sciences recognise the law-like nature of, for example, environmental systems. In this, there is also a sort of reluctance from natural scientists to go all the way over to social science which also recognises the subjectivity of the researcher (MacMynowski 2007). At the same time, research collaboration between natural and social sciences can bring a rewarding reflection upon the different epistemological and ontological views.

Second, we consider the *sector boundary*. Cross-sector collaboration has been acknowledged as an integral part of modern day knowledge production (Gibbons 1994). There are however ideas and theories that discuss the constituents of contemporary knowledge production. One such idea is the triple helix model (Etzkowitz & Leydesdorff, 1997; Leydesdorff & Etzkowitz 1998) which recognise the importance of increased interactions between university, industry and public sector in contemporary knowledge production. While the original triple helix model was intended to be used as an analytical tool, it has also been used as a way to rationalise projects that include participants from the different sectors.

These cross-sector boundaries are in a way also boundaries between research and society. Indeed, scientists themselves have an interest in upholding boundaries between science

and non-science (Gieryn 1983; Merton 1973) and between science and policy (Waterton 2005). This can create a distance between academia and other sectors of society which can lead to difficulties in collaboration and in dissemination of knowledge.

One proposed solution has been transdisciplinary research which is characterised by the focus on one problem, targeted by several disciplines on one hand, and by several societal practices on the other hand (Hadorn, Bradley, Pohl, Rist, & Wiesmann 2006). As noted in previous research: "Transgressing boundaries between disciplines and boundaries between research and practice demands attention to the nature, the backgrounds and the implications of such boundaries" (Hollaender, Celine Loibl, & Wilts 2008, p. 395). A transdisciplinary approach can benefit from an action research methodology because of the emphasis on interaction between researchers and the community (Stokols 2006). While this has been recognised before (Hadorn et al. 2008), we identify a need for a further discussion about this methodology.

Overcoming such boundaries means that the researcher cannot be an isolated onlooker (Gustavsen 2003). For researchers as well as practitioners, managing the cross-sector and the natural/social science boundary in cross sector collaboration requires a flexible and inclusive methodology. The inclusive methodology was a part of the research design, and played an important part in validating early research results, and made it possible to provide value for both practice and research systems.

Interestingly the action researcher has previously been noted as an example of a role that can help span such boundaries. The action researcher can act as a form of boundary subject (Huzzard, Ahlberg, & Ekman 2010). Such a person could potentially sit between and intersect different domains bringing a shared understanding between these and facilitates connections and common understandings. These domains can, for example, be the triple helix sectors (Lundberg 2013; Metcalfe 2010). In doing so, the researcher ideally creates room for a reflection among the participants about their role and how they act when encountering other disciplines, sectors or society in general. In other terms, the action or interactive researcher can be a boundary spanner (Kellogg, Orlikowski, & Yates 2006; Levina & Vaaste 2005). Such boundary spanners (Williams 2011) can focus on networks, relationships, diplomacy, brokering, interpretation and organising. Further, different types of boundary-spanning activities can be used (Aldrich & Herker 1977; Ancona & Caldwell 1992). These activities concern different ways of communicating progress and knowledge between the various social worlds or, in our case, disciplines and sectors.

3 Interactive research

Action research is in broad terms a strategy where the participation and interaction between researcher and other participants is encouraged. Thus, it is well suited for any project where facilitation for collaboration and more knowledge about such processes is needed (Huxham 2003). Action research also aims to bridge social sciences and practice (Reason & Bradbury 2006). Knowledge is gained from intervention and inclusion of a diversity of participants, recognising that each of these has valuable knowledge to share.

For this paper, we use the term interactive research to emphasise the importance of finding a balance between research and practice. In a Scandinavian context, the term inter-

active research is a tradition associated with workplace learning (Nielsen & Svensson 2006). This tradition emphasises the need to create common ground between participants through dialogue. Here the researcher role should ideally be equal to the other participants (Svensson, Eklund, Randle, & Aronsson 2007). The involvement of participants in the knowledge production and analysis is another important aspect. Further, keeping a distance between research and problem solving in practice requires a continuous reflection upon the role of the researcher. Previous work on interactive research presents some of its characteristics (Svensson, Ellström, & Brulin 2007): Focus on joint learning process and an equal researcher role with less responsibility for change. Further, the goal is theoretical development that has practical relevance and research with the participants throughout the process. This is achieved by balancing distance and closeness, and the use of several methods.

Ellström illustrates interactive research and joint learning processes, between researchers and practitioners, as the interaction between a research system and a practice system (Ellström 2008). The research system is driven by problems, theories, data collection, and analysis. The practice system is rather motivated by problems in practice, local theories, and action. Both systems are interlocked while still being separated. This means that the systems are integrated which makes it possible to identify common denominators and collaborative understanding of the studied process. Thus, it is also possible to identify problems that originate both in research and practice. Ellström also recognises that feedback to the practice system is performed through the use of seminars that help the researcher to balance practice and research cycles.

Interactive research can also be seen as a balancing act, where the researcher needs to take part of action and change processes, but without becoming a captive of the practice system (Sandberg & Wallo 2013). The main question is to what extent an interactive researcher can and should engage in change processes and organisational action. In our proposed model we have put the dialogue arenas in the centre. This model also takes inspiration from traditional action research cycles and spirals (see for example Coghlan & Brannick 2014). The dialogue arena here is considered to be a key to reaching the practice system and at the same time cross the boundaries between disciplines and sectors. This helps the interactive researcher to reach a collaborative understanding with the participants (Figure 1). This gives input on the research questions, methods and results through involving participants during the whole research process.

Dialogue arenas have been considered as a core aspect of pragmatic action research (Greenwood & Levin 2007). These have the potential to create room for learning processes where the main goal is to create communicative action. In this way these serve an important purpose by “creating new experiences for both the insiders and the professional researchers to reflect on” (Greenwood & Levin 2007, p. 95). Ideally participants’ local knowledge and the researcher's theoretical knowledge contribute to a process of sense making that can benefit both practical and research related results. As the research results are shared and the goals of the research can adjust according to this, the responsibility for change and action are shared between the researcher and the participants. As we see it, this ambition is also what constitutes a dialogue arena, compared to regular workshops and seminars.

Figure 1. The interactive research model

This paper shows how interactive research can be used to span the boundaries between research and practice. We propose that dialogue arenas are practical tools used to create interaction between these two systems in collaborative projects. When used in this way it is also possible to discover and deal with additional challenges that occur due to internal boundaries within these systems, namely: between disciplines and between sectors.

4 Two types of dialogue arenas

In this section, we discuss the experiences from two interactive research processes. This research was conducted during two projects where collaboration between sectors was central in targeting environmental problems. From these two projects we have identified two distinct types of dialogue arenas during which the role of the interactive researcher varied, and had different impacts on the research process. The two types of dialogue arenas are summarised in Table 1 as a seminar type and a workshop type.

During these dialogue arenas the interactive researcher encountered challenges related to a natural/social sciences boundary in the research system, and a cross-sector boundary in the practice system. The dialogue arenas were used to bridge research and practice, and to manage the two internal boundaries in the research and practice systems. This section will focus on the common challenges and advantages for the interactive researcher handling these dialogue arenas. It has been stated that common ground is needed to learn about the different interests and ways of working, as this enables ways to communicate across organisational boundaries (Carlile 2004). In the projects dialogue arenas served as such a common ground where participants could learn about each other's interests. The two dialogue arenas and the interactive research process is described in two subsections below.

Table 1. Two types of dialogue arenas

	SEMINAR TYPE DIALOGUE ARENA	WORKSHOP TYPE DIALOGUE ARENA
Interactions in the research system	Research group members from environmental science	Project team members from university, company and an administrative agency
Interactions in the practice system	Invited representatives from university, industries, companies and public sectors in the region	Open invitation to participants mainly from companies, industries, and municipalities
Project description	Six-year research collaboration with the aim to find wastewater treatment solutions	Two-year research project with the goal of advancing the circular economy in waste management
Intended input to the research system	To identify challenges with triple helix collaboration and find out how participants managed these challenges	To discuss how the circular economy idea is used by the participants and how it can improve waste management
Intended input to the practice system	Reach out with research results to a wider audience and find applications for these by creating a network of triple helix actors	Reach out with research results mainly to industry, companies, and municipalities to improve waste management

4.1 Seminar type dialogue arena

The first research process was a study of the collaboration between environmental scientists and a wood industry on a regional level. The goal of the project was to find solutions for wastewater treatment. A three-year extension of the project aimed to reach out to society with the research results and include additional sectors in the process. Contacts were made with other industries and companies in the region as well as public sector partners, consultants, and business networks. This formed a loose network of collaborators centred on the research group and the interactive researcher. During this process, the interactive researcher was part of the environmental science research group, and could study the challenges of collaboration by following the project process and taking part in activities in the research group. The aim of the research was to explore these cross-sector challenges.

The main type of dialogue arena that was arranged within the project was based on a seminar method and lasted for 1,5 hour each. The interactive researcher began with a short introduction about the triple helix idea and then asked questions to the participants to encourage a dialogue where the challenge of cross-sector collaborations was explored. The first dialogue arena was conducted within the research group. Here the interactive researcher presented a series of challenges within the collaboration, identified throughout the interactive research process. The members of the research group then discussed these challenges with the interactive researcher. This meant that the environmental scientists encountered a different method for inquiry and a forum where the social aspects of cross sector collaboration could be discussed.

As the research system was shared with natural scientists this sometimes led to suspicion and friction. The role duality between organisational and researcher roles can also lead to issues of loyalty and identity (Brannick & Coghlan 2007). Inquiries from social science can be seen as intrusive if participants are not used to this. During the research process, the more natural scientific aligned colleagues in the research group did not always grasp what the research was actually about. There was a joke that the researcher was using the environmental scientists as study objects. This problem was highlighted in the logbook of the main author:

One conflict is between the roles within the research group, between social science and natural science. What prospects does social science actually bring to the research group?

By generating a dialogue arena, the interactive researcher opened a discussion about how collaboration between the environmental scientists and other sectors in society works. While similar discussions had occurred before, for example during coffee breaks and other informal occasions, this dialogue arena was appreciated by the environmental scientists. This led to a sense of curiosity about issues of collaboration. The environmental (natural) scientists experienced the seminar type dialogue arena as an opportunity to discuss collaboration in itself, compared to the usual technical discussions. As such this dialogue seminar created a space that the natural scientists would not have created themselves. Interactive research disrupted the traditional mode of science where representatives of their own disciplines surrounded the scientists. The role of the social scientists and the interactive researcher in particular, became clarified in the dialogue arena.

During a second dialogue arena, a broad range of representatives were invited to discuss the role of triple helix collaboration for the region and the challenge of collaborating outside one's sector. The participants included representatives from the public sector in the region, industries and companies, liaison office representatives from the university, researchers, and consultants working with environmental issues. In this dialogue arena, the interactive researcher led a discussion about the challenges of cross-sector collaboration. This turned out to a discussion about how collaboration between the triple helix sectors works. The different discussions ranged from similarities and differences between the triple helix sectors, the role of students as links between university and society, and the role of open dialogue in collaboration, to how to reach an informal forum for collaboration.

The interactive researcher, as the initiator of this dialogue arena, facilitated the discussion. During this second seminar type dialogue arena, early and preliminary results from the ongoing research process were presented to the participants. These results were based on previous interviews about the triple helix process in the region. This formed a base for the discussion. This was a way to validate the research results and get new perspectives on these. As the interactive researcher presented results from the research system, the participants interpreted this in the light of their experience and role in the practice system. A consultant that took part in the seminar type dialogue arena saw the importance of including a social scientist to focus on the collaborative process in itself:

You are researching how this collaboration works. It does not matter whether you are a sociologist, behavioural scientist, communicator or natural scientist. These collaborative processes need to be strengthened, and more people like you are needed. We need to take advantage of your knowledge. If I have this project for example, what do I have to consider? You need to contribute with knowledge about these processes.

This quote also served as an example where the social scientist stir up discussion about cross-sector collaboration and even socio-ethical questions when engaging with the more technically aligned counterparts (Schuurbiers, 2011). A public sector representative, argued that:

We need social scientists, environmental scientists as well, but also social scientists. It is a problem of co-ordination. How do we co-ordinate environmental projects? If we improved upon this, it would create a win-win situation for the companies as well.

Many of the participants thought that the dialogue seminar was an opportunity to connect with the university. It was appreciated that someone from the university initiated a discus-

sion that acknowledged the people side of collaboration, and doing this onsite at university. In doing so this helped to facilitate the cross-sector boundary between the triple helix sectors. The discussion contributed to knowledge, especially about how the other sectors perceived the university, and what researchers could do to bridge research and practice.

4.2 Workshop type dialogue arena

During the second research process, the interactive researcher collaborated with a project team. This project team included mainly three representatives: from university, a business network, and an administrative agency. The idea of a circular economy was a core driver for the project. The basic ideas behind the circular economy is to reach a sustainable consumption, use waste in a more efficient manner by creating circular flows and repair, design, reuse and recycle products in a more responsible manner. One aim of this project was to disseminate research results within waste management and create a dialogue about the circular economy, thus bridging research and practice.

Figure 2. Discussion during a workshop type dialogue arena

The dialogue arenas in this project took a form similar to workshops. During these, the project team invited participants, mainly from companies, industries, municipalities, and shared knowledge about the circular economy and waste management with them. The workshops were planned in collaboration with the project team and evaluated afterwards in follow-up meetings and during interviews with the participants. The workshop type dialogue arenas were led by the interactive researcher, and were performed as breakfast meetings, lasting for 1,5 hours each. There was a diversity of participants due to the open invitation, and these came from a variety of sectors.

Before conducting the workshop type dialogue arenas, the interactive researcher had to negotiate were to fit into the project. The interactive researcher introduced a social scientific method to the research system. This was new to the project team who were used to natural sciences. The attempts to explain the role of the researcher was not enough to show the potential benefits of including interactive methods in the project design. When the project team was told that they were contributing to the research as co-researchers, one of them

thought, albeit jokingly, that it was "something to put on the CV!". As such it took some effort to show how interactive research could provide added value to the project process. When the interactive researcher led the two workshops the role of the researcher became clearer. As the interactive researcher contributed to the project by a straightforward facilitation during the workshops, this was noted by the project team in follow up discussions afterwards. Further this showed how such research could provide a way to scientifically evaluate the networking and workshop part of the project.

The agenda for the workshop type dialogue arenas was generated as a collaborative effort by the project team and the interactive researcher. Findings from the project, mainly an overview of waste flows and processing in the region, were presented during the dialogue arenas. At the end of the session, the workshop part was conducted with the participants who discussed waste management in their organisations. This created an informal dialogue where participants could discuss issues about waste management first with a partner that they did not know before and then openly to the group. In this way the dialogue arenas made a direct input to the practice system as it brought participants from a variety of sectors together. A participant from the business sector got the chance to reflect upon this afterwards:

I did not know who would come or who had been invited, but the group had the right size. You notice if the right companies are present as it creates a dynamic meeting place. It was the right persons for this type of meeting and they had different knowledge and different angles. It was not just about the presentation of research results as it included a workshop as well.

This quote summarise the importance of gathering different competencies and bringing together a diverse group of actors to get a fruitful discussion. As such it helped to cross the sector boundaries in the practice system. The dialogue arenas were also appreciated as a way to cross the boundary between university and the other sectors as portayed by a participant from public sector:

It is exciting that the university presents this in the way you did. Such information mostly comes from the private sector otherwise. And it is not just the practical examples, but the competence from university can make us work better.

It was important for the project team as well to get recognition that their research contributed to society. At the end of the workshop part of both dialogue arenas the participants were also asked to write down their thoughts on paper which they gave the interactive researcher at the end of the session. This input gave input to the research system, and helped the project team to evaluate the dialogue arena and the impact of the project.

5 Summary and concluding remarks

We have presented empirical examples of how interactive research methods can be applied. Dialogue arenas meant that the researcher could stay within the context of the specific process and at the same time being able to discuss this with the participants. We argue that one important feature of the interactive research approach is that boundaries between researchers and practitioners are bridged. We have illustrated how an interactive method, based on the creation of dialogue arenas, integrated and helped to manage the interaction between the research system and practice system.

Further, we have shown that these systems have internal complexities in the form of boundaries related to differences between disciplines and sectors. The dialogue arenas were important to manage these two internal boundaries. The boundaries were manifested as natural/social sciences in the research system, and cross-sector collaboration in the practice system. Dialogue arenas served as a method for collaborators to manage these boundaries. Further, the dialogue arenas were useful to analyse preliminary research findings and validate these with an extended peer group. We can see that the dialogue arenas contribute to input to both systems as illustrated in the presented research model (Figure 1). By situating dialogue arenas at the centre of this model the benefits of these for the research process is highlighted. These benefits are shown in Table 2.

In the research system there was a need to clarify the role of the researcher and the interactive research, in particular regarding its benefits to the collaborative processes. When the interactive researcher facilitated the dialogue arenas, this meant that the researcher did something practical for the projects, not just collecting data using various methods. When the role of the interactive researcher was clarified, the natural science participants also showed interest in the actual collaborative process. In environmental projects, there is often focus on the technical processes with lab work and field studies. The collaborative processes might have been something that the natural scientists had thought about before, but it was the dialogue arenas that provided a dialogue about collaboration in itself. In this way, the collaboration was problematised from a social scientific perspective rather than a natural science perspective. The different ontological and epistemological views emerged here and the dialogue arenas helped the participants to understand, in particular, the role of social science.

Table 2. Benefits from dialogue arenas

BOUNDARY	**BENEFITS OF DIALOGUE ARENA**
Natural / Social sciences in the research system	Clarifies the role of the social scientist and bridge ontological and epistemological differences
	Sparks curiosity about and facilitates the collaborative process
	Inspires a self-reflection among the scientists and their relation to practice
Cross-sector collaboration in the practice system	Facilitates a democratic dialogue about collaboration
	Making each sector representative reflect upon their role and relation to other sectors
	Making sense of theoretical ideas (triple helix, circular economy) in practice
	Tests the validity of research with non-researchers

In the practice system, the participants developed a bottom-up understanding of triple helix collaboration and the idea of a circular economy during the dialogue arena. This meant that these theoretical ideas were discussed from the participants' viewpoint, which we consider as a democratisation of research. The dialogue arenas helped to relate abstract and theoretical ideas to the concrete experiences of participants. When the interactive researcher presented results during the dialogue arenas, these were validated by a community beyond ac-

ademia. Following the core idea of action research, the dialogue arenas can be used, as a way to democratise research and close the gap between research and society. In other words, this became a place where participants could meet and talk to academics (who contrary to popular belief do not bite) and leave their prestige back home.

There were still differences in status, as the researchers took the leading role in the facilitation of the dialogue arenas. Further, a more critical study could be made, focusing on the effect of the status differences between participants in dialogue arenas and how the process impacted the decision making in the participating organisations. While not the focus of this paper, these differences in status did not emerge as an unsurpassable obstacle during the performed dialogue arenas. Rather, there were participants that valued a space were they could meet representatives from other sectors, which in turn could help to reduce the effect of status differences.

The two internal boundaries were highly visible during the interactive research process and during the dialogue arenas. The main way to manage these boundaries was the two types of dialogue arenas, employed during the two different processes of environmental collaboration. Environmental issues often involve many disciplines and societal sectors. We hope this model will be useful for research in similar contexts even outside environmental science. While we have used the term interactive research, the focus on dialogue arenas can be integrated into other action research processes, especially when similar boundaries are encountered. Such arenas can be rewarding if situated in the centre of any action research process.

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About the authors

Joacim Rosenlund has a PhD in environmental science from Linnaeus University in Sweden. Previous and current research concerns cross-sector collaboration with an interactive research approach. He has a background in sociology from Lund and Gothenburg universities.

Erik Rosell is a senior lecturer at the department of organisation and entrepreneurship at Linnaeus University. His research interests concerns social entrepreneurship and social innovation. He has participated in several research projects based upon interactive methods.

Authors' addresses
Joacim Rosenlund
Department of Biology and Environmental Science
Linnaeus University, Sweden
S-391 82, Kalmar
Email: joacim.rosenlund@lnu.se
Phone: +46 480 44 69 14

Erik Rosell
Department of Organisation and Entrepreneurship
Linnaeus University, Sweden
S-351 95, Växjö
Email: erik.rosell@lnu.se
Phone: +46 470 70 87 62

Teaching in the History of Education: a transdisciplinary perspective

Alboni Marisa Dudeque Pianovski Vieira

Abstract
The study aims to discuss teaching with research in History of Education in a transdisciplinary perspective, using primary sources and new goals. In this way, subjects that were not of interest to traditional history such as educational institutions and the lives of teachers, were studied by the students of a Pedagogy course at a higher education institution. The methodology used was action research, which enabled academics, in addition to the development of skills related to historical research, to analyse data collected from sociological, political, legislative, economic and educational points of view, with links between these different areas. Theoretical support was sought in the work of Nicolescu (1997), Revel (1998), Nóvoa (2002) and Tripp (2005), among others. The results were favorable and showed that differentiated teaching practices enabled the understanding of historical facts in their interrelationships with other sciences.

Key words: History of Education, action research, transdisciplinary.

La enseñanza de la Historia de la Educación: una perspectiva transdisciplinaria

El estudio tiene por objetivo discutir la enseñanza con investigación en Historia de la Educación, en una perspectiva transdisciplinaria, con la utilización de fuentes primarias y nuevos objetos. Así, temas que no interesaban a la historia tradicional, como las instituciones escolares y la vida de profesores, fueron investigados por los alumnos del curso de Pedagogía de una institución de educación superior. La metodología adoptada fue la investigación acción, lo que posibilitó a los académicos, además del desarrollo de cualificaciones relacionadas a la investigación histórica, analizar los datos recolectados bajo el punto de vista sociológico, político, legislativo, económico y educacional, con articulación entre esas diferentes áreas. Se buscó apoyo teórico en los trabajos de Nicolescu (1997), Revel (1998), Nóvoa (2002) y Tripp (2005), entre otros. Los resultados fueron favorables y demostraron que la práctica pedagógica diferenciada posibilitó la comprensión de los hechos históricos em sus interrelaciones con otras ciencias.

Palabras-clave*:* práctica pedagógica; transdisciplinaridad; enseñanza con investigación

Purpose

The rethinking of pedagogical practice in the teaching of the History of Education has been a constant concern of the researcher throughout the many years of teaching in the area. To overcome the positivist conception, the methodologies that make uninteresting and less experiential learning, lack of student awareness as subjects of their own history and, as a consequence, not assuming their role in society, it is necessary to constantly seek differentiated, innovative practices that allow a more committed, effective learning that is at the same time challenging and enjoyable. It is necessary to work, also, so that the student knows that the study of laws and educational policies cannot be taken as a reflection of reality: the practice shows that these documents go through processes of appropriation, assimilation and resistance in their execution. The content worked in the discipline cannot remain foreign and distant from the student world: it is necessary to involve it, seduce it, in the tangle of sources in which history unfolds, turning the school into a place of renewal, of the historicisation of conflict, of awareness of the presence of history in their daily lives and the possibility of interfering in the transformation of the reality in which they live

As Nóvoa (1992) states,

> The History of Education is not only important because it provides us the 'memory of educational pathways' (in some cases it may take a certain exemplary position), but above all because it allows us to understand that there is no determinism in the evolution of educational systems, pedagogical ideas or school practices: it is the product of a social construction (Nóvoa 1992, p. 211).

In a training course for teachers, what is the History of Education for? What would be the result of using primary sources, involving events, actors and places within the reach of the students, to rebuild the local history and then insert it into the regional and national context of education? Would linking the local to the regional and then to the national give meaning to historical events, making it possible to establish a dialectical relationship between the unknown past and the known present? Would the student go from a naive curiosity to a critical analysis of reality, maturing and consolidating their citizenship? How is it possible to stimulate a new understanding of reality, in this context?

After transforming those questions into proposals, I have submitted the action research, in a transdisciplinary perspective, to my students of the 2nd period Pedagogy course at a large private university, who accepted the challenge, committing themselves to develop it.

It is important to highlight that, when working with the early grades, they should offer children the knowledge of their history, their family, their neighbourhood and their city, motivated scholars to pursue a practice that also gave them an understanding of their historical identity and their role in society. It is necessary to add also that by working with history in the early grades, the teacher does not always have the studies available that can help them as much as the content, which very focused on the reality of the student, but, nevertheless, can be unveiled with the help of different sources.

This need for the teacher to know the history of local education, which will be worked in elementary school, raises the reflection on the antagonisms and/or interdependencies between local history and national history. The perspective of micro-history, contextualised through an observation scale (Lepetit 1998), enabled the understanding of adjectives such as national, regional and local, defining social spaces in which historical subjects act. This

delimitation of spaces is within the understanding that the location marks the beginning of the investigation, but can only be fully understood in its relationships with the regional and national levels. Working local history does not mean to oppose national history. This cut-out, delimiting a chosen social space, allows for expanding the networks of interdependence and sociability that are realised between subjects. As Revel (1998) explains:

> [...] there is no gap, much less opposition, between local history and global history. What the experience of an individual, a group or a space allows one to note is a particular modulation of global history. Particular and unique, because what the micro-historical perspective offers to observation is not an attenuated, or partial or mutilated version of macro-social realities: it is [...] a different version (Revel 1998, p. 28).

By prioritising the location, within the historical period, the details acquire their own meaning, which does not occur in a macroscopic analysis. The dichotomy center/periphery is resized; the universal and local values are crossed; the collective identities are redrawn complementarily. If, on one hand, depending on who evaluates it, as Reis (2007) explains, it can be argued that the passage of global history to micro-history brings losses to the study of history, for those who believe in the possibility of a macro observation of history, establishing all the relations between the parties and social spheres, one can also say that there are gains to those who refuse the traditional history and consider the totalitarian global view that threatens individual liberties, believing that the intervention in society should be localised and timely. The historical reality is made of discontinuities and unconsciousness, and the researcher must seek the convergent time and integrator of consciousness. The elements that are joined, that pass between, beyond and across the disciplines involved, enable an understanding of reality that is different, is open to knowledge, in short, is transdisciplinary.

Thus, with focus on such considerations, the theoretical option for local history is made, in this research, added to the study of the relationship between the past and present, between time and space, dialectically and dialogically considered, in order to provide the dimension of the historical context of the time in which they occurred. It took into account that in an approach of this kind, with transdisciplinary bias, maximum interaction between disciplines should be sought, therefore, with respect to their individuality.

Nicolescu (1997 p. 2) explains: “As the prefix ‘trans’ indicates, transdisciplinarity concerns that which is at once between the disciplines, across the different disciplines, and beyond all discipline. Its goal is the understanding of the present world, of which one of the imperatives is the unity of knowledge”.

To facilitate and enhance transdisciplinary teaching for students, I had inspiration in the studies of Frettek and Thorpenberg about transdisciplinary education in health science (2011), which detail the need to provide the students ample studies on sources in historical research, as well as to encourage students to evaluate assignments and to research using both quantitative and qualitative approaches. Contact with studies from different disciplines has proved to be important for a transdisciplinary analysis of the collected materials.

All work together for common knowledge, as complete as possible, seeking “an understanding of the complexity of our universe, the complexity of relations between subjects, of subjects with themselves and the objects that surround them in order to recover the sense of the enigmatic relationship of human beings with Reality [...] and that which is Real [...]” (II Congress..., 2005, p. 1).

According to the Transdisciplinarity Charter produced in the First World Congress of Transdisciplinarity in 1994, in the Arrábida Convent in Lisbon, Portugal, and written by Lima de Freitas, Edgar Morin and Basarab Nicolescu, "transdisciplinarity does not seek domination of several disciplines, but aims to open all disciplines to that it crosses and surpasses" (I Congress..., 1994, p. 1).

On the transdisciplinary perspective, Nicolescu (1997, p. 1) states that "A viable education can only be an integral education of the human being. Transdisciplinary education has its origins in the inexhaustible richness of the scientific spirit, which is based on questioning, as well as on the rejection of all a priori answers and certitude contradictory to the facts".

With these assumptions, the project then required the search for primary sources, directed to the study of subjects that did not interest the traditional history, but that the new history favors, such as the school culture, educational institutions and the lives of teachers, among others.

The second topic studied by the students is with respect to the primary sources, covering notions about files, documents, photos, journals, oral sources, audiovisual sources, such as movies, music or television, and archaeological sources.

An effort was made to sensitise students to work with sources, starting from the assertion that "being a historian of the past or present, in addition to other qualities, has always required erudition and sensitivity in the treatment of sources since they depend on a convincing structure in their discourse" (Janotti 2005, p. 10). The possibility of writing an original history, based on not yet worked sources, motivated the group to collect the data. In order to prepare the students for any frustrating situations in locating sources, the lack of habit of preserving the private types of documentation in Brazil was discussed, as well as the destruction of documents, both practices that prevent the researcher from accessing historical knowledge at all levels. Special care should be taken when handling and reproducing ancient documents were mentioned.

To avoid the collection of documents becoming mechanical, creating a pile of loose, unrelated papers, the researcher guided the students on the importance of evaluating the possibilities of the collected sources, contextualizing each document found in its time, trying to understand the meaning of words and expressions contained therein, as well as the quality of information provided by it in relation to the object of research in progress. It would only thus be possible to link text and context, identifying changes and continuities essential to the production of the historical narrative.

The research in journals available in school libraries or in public or private archives was of great value to the realisation of many works. The Internet also has been a strong ally in the search for a great deal of information.

Further guidance provided by the researcher was with respect to oral history as a research methodology and for the compilation of sources. The interviews recorded with people who experienced events of the past requires us to know what and how to question, and at the same time act with ethical behavior, respect, warmth, resourcefulness and skill by the researchers. The use of oral sources in the research determines that the script of interviews is carefully prepared, observing what is contained in the research project.

It was established that the life story of teachers is a source of special interest for pedagogy students. According to Alberti (2005),

> [...] the stories of life have the individual himself as of central interest in history, including his trajectory from childhood to the moment he speaks, through the various events and situations that he witnessed, experienced or that he learned. It can be said that the life story interview contains in its interior, several thematic interviews since, throughout the narrative of the course of life, relevant topics for research are deepened (Alberti 2005, p. 175).

The possibility of conducting longer interviews with people considered as representatives in the educational sphere enables a deepening in various issues related to local history.

Special care also should be taken from the preparation to the analysis of the content of the interviews. The technology of recording and deleting with the permission of the interviewee to use of the material should always be observed. In the interpretation and analysis of interviews, it is recommended to take into account other sources, comparing what the respondents say with other documents, seeking greater approximation with reality. This establishment of the ties between the individual interviewed and reality demands that we think about the different time frames inserted in the speech, absences and empty spaces in the speech, as well as the social conditions that constituted their daily lives. It allows, on the other hand, the realization of the "substantial description" mentioned by Geertz (2004), consisting of in depth reports, rich in detail that could not be found in another form.

Reflecting on the history of the school culture, the history of institutions and the teaching profession, among others, has as a corollary understanding the history of education as a privileged moment to think about the concrete situation of the classroom, educational spaces and the role of educational agents, teachers, principals and coordinators.

Action research

After these considerations, the report of the action research results follows, chosen as a methodological strategy for enabling a broad and explicit interaction between the researcher and the students involved in the learning situation.

One cycle of action research is composed by planning, acting, observing, and reflecting (Zuber-Skerrit 1991; Kemmis and McTaggart 1998). Next, you plan for the following cycle. According to Dick (2000 p. 1) in "A beginner's guide to action research", "Action research consists of a family of research methodologies which pursue action and research outcomes at the same time". It tends to be cyclic, participative, qualitative and reflective: similar steps tend to recur, in a similar sequence; the clients and informants are involved as partners; it deals more often with language than with numbers; and critical reflection upon the process and outcomes are important parts of each cycle (Dick, 2000).

As a recommendation for good action research, Dick (2000 p. 5) suggests that one uses multiple cycles and, "within each cycle, use multiple data sources; and try to disprove the interpretations arising from earlier cycles". Regardless of this, Tripp (2005) explains that

> What kind of process one uses, and how one uses it, depend on aims and circumstances, and even with 'the same' aims and circumstances, different people may have different skills, intentions, time-lines, levels of support, ways of collaborating, and so on, all of which will affect the processes and outcomes. The important point is that the kind of action inquiry used is appropriate to the aims, practices, participants, situation (and its enablers and constraints) (Tripp 2005, p. 3).

So, in this work, I applied the practices and processes more appropriate to the aims of the research.

Three terms that were in the 2nd semester of the Pedagogy course at a higher education institution were chosen, at the time the program for the course included the study of education in the Brazilian Republic and, as the last state, of education in the state of Paraná. The teacher presented the proposal to work with primary sources related to the History of Education to the students, explaining in detail its procedures and asking for their compliance. With the agreement of the students, the historical approach to be researched was defined, covering the period between 1970 and 1990.

Then, the questions of co-responsibility and the significance of everyone being present at all stages, as well as the possibility of adjustments made during the development work were discussed. In action research, Thiollent (1996) clarifies:

> It is necessary to precisely define, on one side, which is the action, which are their agents, their goals and obstacles and, on the other hand, what is the requirement of knowledge to be produced due to the problems encountered in the action or between actors in the situation (Thiollent 1996, p. 16).

At first, the researcher provided the students ample studies on sources in historical research. For this, the texts by Pinsky *et al*. (2005), contained in his work "Historical Sources", and by Alberti (2005), on oral history served as support. Students were asked to reflect on other objects of study beyond the traditional, turning to the history of the cultures of schools, the history of institutions and school practices, the history of the teaching profession and education policies, among others. It was suggested that they seek materials in their homes, in the archives of the schools they went to or in which they worked, in the sectors dedicated to education in Paraná found in the Public Library of Paraná, in the House of Memory in the Public Archives. A viable alternative would be to conduct interviews with faculty, staff and students, drawing on the use of oral history.

To support this reflection, texts by Wachowicz (1972), Miguel (2007), Nascimento (2007) and Saviani (2007) were suggested, and lectures were given on the history of education in Brazil and in Paraná. It also dealt with different conceptions that underlie the historiography, in order to allow the students to choose paths that promote a learning of history more in line with the complexity of reality in which they are a part.

Very enthusiastic, the students then carried out the collection of documents, pictures, newspapers, magazines, newsletters, report cards, books of minutes, diplomas, uniforms, textbooks and other objects, going around libraries, museums, archives and schools, and talking to people who could provide them with information on the source under study. This material, in turn, was identified and interpreted under the guidance of the teacher, who concurrently provided students with historical, sociological, political, legislative and economic assistance needed to interrogate materials and discover the dialectic between the past and present, at the same time in which they inserted local history into the regional and national context. It would only thus be possible to make sense of the historical events contained in the respondents' discourse and the selected sources.

At the end, when everyone had managed to collect enough data to identify the research problem, and then study it, analyse it and deepen it through the available theoretical foundation, it moved on to the preparation of research reports with the results that were subsequently communicated to other colleagues in each of the participating classes. Of these

communications, we can highlight the study of the history of life and teacher training among the preferences of the students. Next came the histories of educational institutions, also with a large number of reports. Last were very specific issues such as the study of textbooks, the graduation ceremony in schools and certain kinds of parties usually held in schools were also chosen.

Research results, from the students' perspective

In each of the steps in which the proposal developed, contributions from students and teacher interventions were relevant elements, both in reorganizing the work as well as the supply of needs shown in the process.

At the end of the work, a questionnaire was distributed to students of classes involved, containing three open-answer questions, which were answered in class by 81 of the participants. The questions concerned the specific aspects of the studies, seen from the perspective of the students: the importance of researching primary sources for the study of the history of local education; the aid that research brought to the understanding of the History of Education of Paraná; and the contribution of this type of activity to the training of teachers. The results obtained for each of the items are shown below.

The importance of researching primary sources for the study of the history of the local Education

First, it was stipulated that the participants would be indicated by their initials between parentheses. From the analysis of the replies, it was found that all respondents highly assessed the importance of conducting research in primary sources for the knowledge of the local history of education, an example of which are some expressions:

"I loved it; it is a unique opportunity to get to know the past and value the memory of the people" (M).

"We did not know that the library [refers to the Public Library of Paraná] had such a rich collection. When we got there, we became interested in so many issues that we wanted to do more" (LP).

"Working with the use of sources helped me to understand, to more deeply learn the origin of many customs and traditions, and at the same time the major changes in education" (IR).

"Working with primary sources helped discover things in education that were simply lost or saved, without any value" (DT).

"It allowed us to come across various themes that are part of our routine and which we often don't develop to discover their history and importance" (KT).

"This work came only to revive the pleasure I get in seeking history, hearing it and feeling it, interacting and relating with what we have today" (KD).

Other aspects are highlighted in the responses collected. The first concerned the originality of the work carried out in this way. Students realised that by working with primary sources, not yet used by other researchers, their study would gain in terms of originality. Note the following:

> The contact with information, researching sources, is direct and immediate. The use of sources is essential for good research. The results obtained have their value in originality, being unprecedented in terms, thus making the presentation of data much more interesting (MF).

It became clear to the participants, the need to study the history of the city and the state and their interrelations with national history. "Scouring history allows us to have the full conviction and awareness that we are part of a larger story, that is, the experiences mix and combine. It is impossible to separate one from the other" (MA). The work made it possible to "insert the history of the people in world history" (GT).

In addition, the critical and interested view that the methodology of the work with primary sources for the study of the history of education provokes was perceived by students, by referring that, in this way, "you learn a lot more, because you are the one who collects the data, the peculiarities of how and when it happened, turning the acquired learning into a text" (MS). Or: "sources who were at first seen as futile, that only gathered dust, made me and also all those who worked together take interest in the subject" (ZD).

Knowledge of the past and the appreciation of local cultural wealth were present in expressions such as, "it was a unique opportunity to know the past and value the memory of the people" (OM), or "we found the relics very interesting, some things could even be lost over time and that people are very proud to tell" (JP).

In this item of the questionnaire, the importance of knowledge of the number of sources available for the future pedagogue's research was highlighted. One student stated, "The work contributed to learning about education at different times and the presentations brought documents and rich talks about the history of education in Paraná" (CT).

Some students said that research "was very labour intensive, but also very satisfactory" (LA), or even that "they felt a little difficulty in collecting data due to a lack of time" (MS), while others were thankful for the opportunity that they were given: "I appreciate the opportunity to have access to so many beautiful things from our sources" (IR), concluding that "it was a unique experience that will be forever marked in our lives" (JP).

In short, it is possible to mention that, under the student perspective, researching primary sources for the study of the history of local education, in addition to the knowledge that sources offer, adds originality to the work, develops critical and interested view of the story and its sources, constituting a significant element for understanding the local cultural richness. The future pedagogue, in particular, gains particular interest in knowing the amount of existing sources for historical research.

From the aid that research brought to the understanding of the History of Education of Paraná

From the activities carried out, the main goal shown was assisting students in understanding the History of Education of Paraná. In this sense, the second question sought to know if the work had corresponded to this expectation, in which compliance was unanimous, as transcribed in the depositions below.

"In my opinion, the work performed contributed a great deal for me to know the history of Paraná education at various times" (CA).

Another student added (RM): "if we took the books from Paraná, we would just be memorising. So, I listened, I researched, I experienced and took it for life. I proved that history is life and everything is history because everything is life. I loved the work."

"Only through knowledge can we contribute in some way to our country. With this work, we managed to rescue the history of our state. I learned a lot. My knowledge only broadened" (SA).

In addition to the knowledge of "curriculum, form of entry into school, entrance examinations, subjects found in the entrance examination and many other things" (AN), other advantages of the proposal were added by the students.

The work "helped to see the evolution of education, to reflect on the strictness in schools and disciplines," mentioned one student (PV). Another added: "In my opinion, the work with sources helped a lot to understand what happened in the times of our parents and grandparents, and what is happening in our time. We can see similarities and differences" (KL).

The need to preserve the sources did not go unnoticed:

> Working with sources aroused our curiosity and the need to preserve our history. Seeking and working with sources about graduations, we find that today there is a concern to save 'real' files, such as printed articles, photographs – not digital, and their traditions, often stored and reported in newspapers (DR).

Studies that were done on specific topics equally received their collaboration. The study of report cards enabled us to establish that, over the period studied, "they changed a lot. Formerly, they were completed by hand and today they are all typed. Also, the signature of two parents was needed, which was mandatory, since it was the parent's obligation to see their children's grades" (AC).

When looking through the textbooks of the past, the student mentioned that the work "besides being very interesting, helped me understand about textbooks, how literacy took place before in comparison to today" (AS).

Another student, who also drew upon oral history, said: "with this work with sources, we were able to rescue the history of education in Paraná, benchmarks before we were born. And when we did the interviews, it was interesting to see the enthusiasm with which people spoke about their experiences" (AN). Regarding the life story of teachers,

> [...] talking, learning and listening about the lives of people who studied teaching contributed to my knowledge and brought pride to me, since I was also a normalist. The research, worked in this way – creative and enjoyable – is an important learning strategy and can become the basis of knowledge in the university. (GP)

Finally, the view of this student about the semester's work is added: "I thought that we would not have time to study so much content in one year. This work helped to learn more about education and, more importantly, the lives of known people" (PR).

In summary, it can be concluded that the research with sources on the History of Education in Paraná helped to increase knowledge about local history, enabling students to experience in practice that which, until then, had been communicated to them only theoretically. The teaching combined with research resulted in deepening and extension of relevant

content on the theme and it kept the knowledge as an open system, contributing to the improvement of teaching quality in the course.

The contribution of the research with the use of primary sources on education in Paraná for teacher training

Of the answers obtained, it can be deduced that the activity carried out, from the students' perspective, contributed to their training as future teachers.

Let's see what the students expressed:

"Yes, the work approached the history of reality. Sometimes, history seems something distant that does not interconnect clearly to our present to our context. In this work, however, it became clear that history is the basis for our current reality" (TP).

"It is necessary for a teacher to know their history, and even to avoid making the same mistakes that others have made. It was possible to observe the difficulties that teachers faced previously or what they face today" (KS).

"Yes, because I attended all the presentations and, to perform my work, I researched on the subject and as a source, I used people who are part of my day to day life and who told me true histories [...]" (SM).

"This work helped our training because data and old experiences are stored in the memory and we can use them in our classes, telling real facts to our students" (KV).

"As a future educator, it is important for me to see how education was before and how it is today, with the help of primary sources" (LS).

Learning from the experience of teachers reported in their statements, identifying the changes that took place in school during the period, emphasising the need for the teacher to keep up to date and comparing educational paradigms through reality were also findings made by the students for carrying out the work. It was possible to understand that "action research both changes what is being researched, and it is constrained by the context and ethics of practice" (Tripp 2005, p. 3).

Final considerations

The activities developed during the action research provided students with experience through contact with primary sources of the History of Education of Paraná, its selection, cataloging, analysis and interpretation. Questioning the sources, students found the gap between the official discourse on education and educational practice. Such reflections led us to a critical knowledge of reality, distancing them from the naive curiosity.

A broader view of the history of education, more comprehensive and more critical than that presented by the subject manuals was provided to the participants, who, in turn, identified new possibilities for work and took on different challenges. New authors, new objects and problems were experienced and assimilated by them. Transdisciplinarity is radically distinct from multidisciplinarity and interdisciplinarity, "because the understanding of the

present world, […] cannot be accomplished in the framework of disciplinary research" (Nicolescu 1997).

It was observed that there was student awareness with respect to the preservation of the school memories, in particular with regard to school files.

This academic production allowed future pedagogues to interact with society and dialogue with the knowledge of the unknown individuals, which brought them qualitative development expressed in their training, expanding their awareness as subjects of their own history.

History, without losing its specificity, enabled the interaction between many disciplines, contributing to a transdisciplinary perspective that was present. The studies conducted raised ethical, social, political, economic, psychological questions in their relations with the complexity of contemporary life.

Finally, the work with primary sources gave new light to local events, which, inserted into the national and regional context, began to make sense to the scholars. The organization of new action research cycles will allow the further expansion of these studies.

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About the author

Alboni Marisa Dudeque Pianovski Vieira, PhD in Education, teaches at the Faculty of Education and Humanities and at the Program of Post-Graduate Studies in Education of the Pontifical Catholic University of Paraná. Her research interests are teacher training, history and politics of education, and action research. She is Editor of the academic journal "Revista Diálogo Educacional". *Curriculum Vitae* at Plataforma Lattes: http://lattes.cnpq.br/0198429449537597

Author's address
Alboni Marisa Dudeque Pianovski Vieira
Faculty of Education and Humanities
Program of Post-Graduate Studies in Education of the Pontifical Catholic University of Paraná
1409 Des. José Carlos Ribeiro Ribas Street
Abranches – Curitiba – Paraná – Brazil
82130-300
E-mail: alboni@alboni.com
Cell phone: +55 41 991022090

The Action Research story of a student–teacher: Change is not easy and it takes time, effort, and critical reflection

Nicolina Eriksson, Jan-Erik Romar, Ben Dyson

Abstract
The purpose of this paper is to report on the pedagogical and research learning I experienced as a physical education student–teacher engaged in an action research project, for which I designed and implemented an innovative teaching model. In my roles as student–teacher and researcher, I wanted to examine the impact of using Sport Education in a Finnish school context by analysing and understanding my teaching as well as my students' experiences. Data collection included my personal reflective journal, video observations, student group interviews, and student diaries. The results of this study reinforced previously reported benefits of Sport Education, although there are contextual and pragmatic issues that need to be acknowledged. Even though implementing a new pedagogical approach was time-consuming, stressful, and full of real-world challenges as well as the additional demands of the action research project, I still learned a great deal about teaching and research.

Key Words: action research, physical education, student–teacher, curricular change, teacher education

La historia de la Investigación Acción de un estudiante-profesor: El cambio no es fácil y lleva tiempo, esfuerzo, y reflexión crítica.

El propósito de este trabajo es informar sobre el aprendizaje pedagógico y de investigación que he experimentado como estudiante-profesor de educación física involucrado en un proyecto de investigación acción para el que diseñé e implementé un modelo de enseñanza innovador. En mis roles como estudiante-profesor e investigador, quise examinar el impacto del uso de la Educación Deportiva en un contexto escolar Finlandés, analizando y comprendiendo mi enseñanza así como las experiencias de mis estudiantes. La recopilación de datos incluyó mi diario de reflexiones personales, observaciones en video, entrevistas a grupos de estudiantes y diarios de estudiantes. Los resultados de este estudio reforzaron los beneficios previamente reportados de la Educación Deportiva, aunque hay cuestiones contextuales y pragmáticas que deben ser reconocidas. A pesar de que la implementación de un nuevo enfoque pedagógico consumía mucho tiempo, fue estresante y lleno de retos del mundo real, así como las demandas adicionales del proyecto de investigación acción, aprendí mucho acerca de la enseñanza y la investigación.

Palabras Clave: investigación acción, educación física, estudiante-profesor, cambio curricular, formación de profesores

Introduction

A new national curriculum will be implemented in Finland at the beginning of the 2016-2017 school year. Although the Finnish education system is already child-centered and liberal (Sahlberg 2011), the overall goal of the new curriculum is to give students more independence by giving them responsibility for their own learning through an emphasis on the joy of learning and students' active role (Finnish National Board of Education 2015). More specifically, in physical education (PE), students should become active participants who are able to cooperate and help each other (Finnish National Core Curriculum for Basic Education 2014). This significant change is one reason teachers should find new methods of teaching physical education. For the first time ever, model-based practice and Sport Education (SE) in particular have been included in the teacher guidelines of the Finnish National Core Curriculum for Basic Education (Utbildningsstyrelsen 2014) as a method of enriching PE.

The SE model is an internationally used and researched model that has had several positive outcomes (Layne & Hastie 2015), and it will be further developed in later sections. It is also gaining more traction in countries that do not primarily speak English, though studies in these countries are still limited, as well as textbooks in languages other than English (Glotova 2011). There is a gap in the literature base about model-based practice in Scandinavia (Romar 2013; Romar, Ahlroos, Flykt, & Penttinen 2015). Although there has been an initial effort in Finland (Romar, Henriksson, Ketomäki, & Hastie 2016), there is still a need for more research on the implementation of SE in Finnish schools.

In addition, Araújo, Mesquita, and Hastie (2014) pointed out that there are still several gaps in international SE research, which they suggested could be filled through action research in SE. This was one of the main reasons I wanted to study SE through action research. I chose to do so during my final student–teacher experience as a way of increasing my knowledge of innovative model-based practices, which are also expected in research-based teacher education programmes in Finland (Niemi & Nevgi 2014). Research-oriented teacher education has received credit as well as criticism due to the relation between research and practice. By situating action research in teacher education, educators assume that authentic researcher experiences will help preservice teachers translate theory into practice, particularly when dealing with innovative instructional strategies (Kemmis 2010). Furthermore, Eklund (2014) proposed that action research could be a solution to preservice teachers' dilemma. Though teachers understand and see the logic of the research orientation, they feel that research-based teacher education does not give them enough practical tools.

All first-person references in this article refer to Nicolina, as I was the practitioner in this study. When drawing conclusions and implications, all three authors' voices will be heard. Jan-Erik and Ben, the silent coauthors in this paper, were experienced university faculty members who have expertise in the use of SE and action research, respectively. Jan-Erik was the master's thesis supervisor, and we constructed the SE unit, discussed data collection, analysed the data, and discussed the findings together. He also challenged my understanding of the whole process. Ben provided an outside audit, giving peer debriefings and acting as a critical friend in order to challenge my interpretations of the student–teacher experience.

Action Research

By definition, action research is when practitioners systematically investigate their own practice, to understand and improve it (Huang 2010; McNiff & Whitehead 2006). Besides developing and changing the practice, practitioners use action research to understand the change process (Newby 2010). Action research has been implemented in several ways, and one general feature is an approach where new knowledge is generated through change-oriented activities (Kalliola 2009). Teacher action research is about teachers and the improvement of teaching and student learning, where no outside experts conduct inquiry on them (Eikeland 2007; Schaenen, Kohnen, Flinn, Saul, & Zeni,2012). Therefore, the production of knowledge in action research is not a straightforward process (Olesen & Nordentoft,2013) and the action researcher needs to become aware of being a co-producer of knowledge (Pedersen & Olesen 2008). Teacher action research challenges traditional social research and teachers' practically acquired experience has the potential to bridge the traditional dualism between theory and practice (Coghlan 2010; Eikeland 2012). While educational AR projects often are small scale, the research need to be analysed and understood within the larger context, and consequently the generated knowledge has specific features (Pålshaugen 2014). The knowledge has a fundamentally tacit knowledge and action-oriented perspective, while grounded in teachers' everyday work in classrooms (Dohn 2014). Additionally, this knowledge describes phenomena as they appear to teachers, in a descriptive and subject-centered context, and not with a focus on general solutions (Coghlan 2010). An action research approach facilitates analysis of practice-based knowledge development that arises (Hynes, Coghlan, & McCarron 2012) from involving the researcher practically in the *messy* classroom work (Dohn 2014). These features support the notion that action research was originally a strategy for reforming social science (Lewin 1946; Pålshaugen 2014).

Like any change process in schools, action research takes a lot of time (Reason & Bradbury 2008), and it might take a while before positive outcomes can be seen (Denscombe 2009). Action research consists of a spiral of steps, including planning, acting, observing, and reflecting (Denscombe, 2009; Newby 2010). Action research can enable reflection as part of the research process (Cohen, Manion, & Morrison 2011). The sharing of research findings of the action researcher with others, both practitioners and researchers, will strengthen this research approach (Pedersen & Olesen 2008). According to Casey and Dyson (2009), action research is a way for practitioners to problematise their teaching, and understand how to improve it. Action research also plays a role in fostering the relationships between teacher education and schools to the benefit of all learners (Vaughan & Burnaford 2016).

Lattimer (2012) pointed out that action research can help teachers develop the skills needed to be reflective in the classroom. Gore and Zeichner (1991) proposed that action research should be included in preservice teacher education programmes (Liston & Zeichner 1990). Research has shown that effective use of action research in teacher education programmes will improve preservice teachers' ability to reflect, which is important for their future work as teachers (Barbre & Buckner 2013; Crawford-Garrett, O'Reilly, & Luttrell 2015). Action research also helped preservice teachers facilitate the process of integrating reform-based teaching (Capobianco & Ní Ríordáin 2015), promoted a shift towards child-

centered teaching (Kosnik & Beck 2000), and improved their self-efficacy and teaching confidence (Mostofo & Zambo 2015). However, Ulvik (2014) found that performing action research during student–teacher experiences has been challenging due to preservice teachers' lack of experience, as well as their need to simultaneously perform the roles of a student, a teacher, and a researcher in another teacher's classroom. Also, time has been a key challenge to implementing action research during student–teacher experiences (Ginns, Heirdsfield, Atweh, & Watters 2001; Ponte, Beijard, & Ax 2004; Smith & Sela 2005). Still, Crawford-Garrett et al. (2015) suggested that student teaching should be considered a professional development avenue that allows for the time and space needed to carry out research.

Action Research in Physical Education

Though existing research proposes and shows the results of a pedagogical use of reflective practices in PE teacher education (Crawford, O'Reilly, & Luttrell 2012; O'Connell & Dyment 2011; Standal & Moe 2013; Tsangaridou & O'Sullivan 1997), there is a gap in the literature when it comes to describing the use and effects of action research (Rossi & Tan 2012). The majority of action research in PE has implemented model-based practice teaching with school students or preservice teachers, in which the teacher–researcher is a university faculty member or school teacher. These studies have focused on learning about teaching and ways to improve practice (Casey & Dyson 2009; Casey, Dyson, & Campbell 2009; Gubacs-Collins 2007; Webb & Scoular 2011). Other studies have focused on how preservice teachers learned the model (Glotova, 2011) or how much they remembered it when performing a second round of action research with the same group (Casey 2013). However, recently, O'Leary, Wattison, Edwards, and Bryan (2014) reported on an action research project where preservice teachers implemented one Cooperative Learning strategy while teaching gymnastics in a secondary school.

Studies in PE have also shown that action research is time consuming, and the process of change is not always straightforward (Casey et al, 2009). As the progress was not always linear, and sometimes occurred in overlapping ways, it was difficult to describe both the progressive steps and the reflection phase (Webb & Scoular 2011). Casey and Dyson (2009) stated that there was a fine line between success and failure, and it took a lot of work to change what had to be changed. The setbacks of trying to implement an innovative teaching model and inexperience using action research made the teacher–researcher consider restarting the unit (Casey et al. 2009).

However, Gubacs-Collins (2007) felt that the dual role of a teacher–researcher had a motivating advantage over other research methods. She also reported that she became closer to her students and learned to listen to them, as a result of the continuous action and reflection process. Webb and Scoular (2011) also reported that action research helped them to get to know their students better and increase their knowledge of themselves as teachers. However, using action research made the teachers feel like novices despite their many years of teaching experience (Casey & Dyson 2009; Gubacs-Collins 2007). Even when the role of teacher–researcher was familiar to Casey (2013), he continued to learn about his own teaching.

Sport Education

While most action research studies in PE have focused on cooperative learning, SE may provide a solution to the new national curriculum in Finland. SE is a model-based practice in PE that has six key features, which are (a) the seasons are longer than a normal unit in PE, (b) the students stay on the same team throughout the season and have different responsibilities within the teams, (c) formal competitions are organised for the teams to compete against each other, (d) records are kept, (e) the whole season takes place in an atmosphere of festivity, and (f) the season ends with a culminating event (Siedentop 1998). The primary goals of SE are to create competent, literate, and enthusiastic sports persons (Dyson, Griffin, & Hastie 2004; Siedentop, Hastie, & Van der Mars 2011).

Comprehensive reviews of literature (Araújo et al. 2014; Hastie 2012; Hastie, Martínez, & Calderón 2011; Kinchin 2006; Wallhead & O'Sullivan 2005) present empirical evidence that SE effectively promotes students' participation in student-centered learning tasks. Though students have been enthusiastic about the SE model, similar positive reactions have been noted among teachers who are implementing the model in countries all over the world (Alexander & Luckman 2001; Clarke & Quill 2003; Kim, Penney, Cho, & Choi 2006; Kinchin, MacPhail, & Ní Chróinín 2012; Romar et al. 2016; Sinelnikov 2009; Smither & Zhu 2011). Teachers have noticed that they have become more like facilitators than traditional teachers. Nevertheless, it has not always been easy to let go of control, step off the centre court, and give students additional responsibility (Casey 2013). Both in-service teachers and preservice teachers (McCaughtry, Sofo, Rovegno, & Curtner-Smith 2004; McMahon & MacPhail 2007; Romar 2013) have indicated that working with the SE model is initially more demanding and time consuming than traditional teaching.

Preservice Teachers and Sport Education

Early field experiences and student–teacher experiences are important for preservice teachers' professional learning (Richards, Templin, & Graber 2014). Preservice teachers' experiences using instructional models have generally been positive (Romar 2013), and they found SE attractive, because it was congruent with their subjective warrants and work orientations and the space they could create for themselves, by providing students more responsibility and ownership during the SE unit (Curtner-Smith & Sofo 2004). In addition, Glotova and Hastie (2014) found that positive attitudes toward SE were due to successful experiences and the chosen sport. Preservice teachers who used the SE model felt that they got to know their students better and that the students behaved well and paid more attention (Curtner-Smith & Sofo 2004).

However, studies also show that preservice teachers felt insecure using the SE model (Romar et al. 2015) and had difficulties teaching students their duty roles (McCaughtry et al. 2004; McMahon & MacPhail 2007). Furthermore, preservice teachers had problems with their own roles as teachers (Romar 2013) and felt like they were not teaching when they did not use the traditional teacher-centered approach (Curtner-Smith & Sofo 2004). Preservice teachers also struggled with tactical instruction and misunderstood the role of skill development in SE (McCaughtry et al., 2004). With these problems in mind, McMahon and MacPhail (2007) suggested that preservice teachers should get the chance

to explicitly learn the philosophical theory underpinning the SE model and implement it in practice.

Although Ulvik (2014) noted that action research gives student–teachers the opportunity for professional development, other studies (e.g., McCaughtry et al. 2004; McMahon & MacPhail 2007; Romar et al. 2015) report on challenges with implementing innovative models in PE. Groundwater-Smith and Nicole Mockler (2015) point to the value of students' voices in research projects, which could be seen as giving student–teachers a participatory role in action research. In addition, most action research that is reported in PE (Casey & Dyson 2009; Gubacs-Collins 2007; Webb & Scoular 2011) and teacher education (Capobianco & Ní Ríordáin 2015; Ponte et al. 2004; Smith & Sela 2005) is reported by university faculty members rather than student–teachers. As my teacher education programme also included a master's thesis, I was challenged by my supervisor to develop a practical way to combine student teaching with collecting and analysing data for my thesis and thereby learn to do research (e.g., Kosnik & Beck 2000). Thus, my goal for this action research project was to examine the impact of using SE in my PE lessons, and see how the model worked in a Finnish school in response to the new national curriculum. In addition, I wanted to improve as a practitioner and researcher.

Methods

Context

In Finland, teachers are required to have a master's degree, and teaching and research are both emphasised in teacher education (Westbury, Hansén, Kansanen, & Björkqvist 2005). The main objective is to prepare teachers with a research orientation who are also capable of independent problem-solving and have the capacity to utilise the most recent educational and subject-specific research (Finnish National Board of Education 2014). Education is the major subject in classroom teachers' master's degree programmes, which are typically completed in five years. Preservice teachers at Åbo Akademi University have courses in language and communication studies, method classes in various school subjects, and pedagogical studies. In this study, the teacher education programme has a strongly research-oriented component in pedagogical studies, and all students have to write both bachelor's and master's theses. The teacher education programme includes supervised teaching practice, starting in the first year and continuing with a student–teacher experience in the final year. This teacher practice is mainly organised in the university training school.

This study was conducted in the elementary training school at my university during a four-week student–teacher experience, and I implemented a SE soccer unit in PE. Researchers of model-based instruction have been concerned about short units (Casey & Goodyear 2015; Harvey & Jarrett 2014), particularly in SE research (Araújo et al. 2014). However, in Finland, traditional physical education is implemented using a multiactivity approach with short units of two to three weeks with one 90-minute lesson a week (Yli-Piipari 2014). It would have been difficult to change this physical education culture and the structure for student–teacher experiences, which is also supported by Layne and Hastie (2015). Therefore, to achieve the goals of contextualisation and realism in this study, I used

a four-week unit with 90-minute, once-a-week PE lessons to make the study ecologically valid (e.g., Davids 1988). Given that I was a classroom teacher, I could also use two 45-minute classroom lessons to introduce and implement the SE unit. In relation to each lesson, I went through the action research cycle: I first set an intention for the lesson (plan), accomplished this plan with my class (act), collected data about what happened as a result of the intentions (observe), and analysed the efficacy of my instructional choices (reflect).

Participants

At the time of the study, I was a preservice teacher engaging in my last student–teacher practice in a generalist teacher's classroom. I had the dual role of teacher and researcher. I taught PE and all the other classroom subjects for four weeks. The class consisted of eight girls and 10 boys, but one girl and one boy did not have parent permission to participate in this study. Data from these two students are not reported here, though they participated in all PE activities. Therefore, the students in this study were 16 fifth grade students (aged 10–11 years). The names of all students in this article are fictional. This class had PE as one group during my student–teacher experience, but they were otherwise collapsed with another fifth grade class and divided into one girls' and one boys' group. Both girls and boys had engaged in one season of SE before this study. Boys played floorball and girls engaged in a combination of handball and dance with preservice teachers during early field experiences.

The Sport Education Unit

At the start of the unit, I used one classroom lesson to introduce the SE-model and divide the students into teams. The students chose their roles, team names, and team colours. Another classroom lesson was used in the second week to discuss the problems that occurred during the first PE lesson, clarify the rules, and introduce the scoreboard. During the first three PE lessons, all teams practiced soccer skills and played games against other teams. Team practices were led by students, while I supervised and encouraged them. These lessons involved initial warm-up fitness routines led by the fitness coach, followed by a skill practice phase led by the skill coach. At the end of the lesson, two teams competed in unofficial matches, with referees from one team officiating in a rotating schedule while the fourth team continued to practice. The SE unit ended with a culminating tournament during the last lesson, in which all teams were supposed to played against each other. Before the unit, I decided to meet team coaches every week on the day before PE, so that we could go through their lesson plans together. The guidelines for SE recommend having an uneven number of teams so that one team can be a duty team (Siedentop 1998). Despite this, I chose to have four teams so that they would not be too large and I could use them in the classroom. The student responsibility roles were captain, skill coach, fitness coach, referee, statistician, and equipment manager. Each team had four to five players. Therefore, some students had multiple roles.

Model Fidelity

The lack of reports on researchers' attempts to maintain fidelity has been a concern in the analysis of research on model-based teaching in physical education (Hastie & Casey 2014). Therefore, the SE benchmark instrument (Browne, Carlson, & Hastie 2004; Sinelnikov 2009) was used to validate the model. Benchmarks included in this study were season, team affiliation, student roles and responsibility, gameplay, formal competition, and the culminating event. I planned my SE unit with the second author (Jan-Erik) and implemented it using action research cycles, which confirmed the existence of SE benchmarks in the study. This was my first time teaching SE, although I had read, practiced, and discussed the characteristics of SE during PE courses at the classroom teacher education programme, where I trained and specialized in PE. One ice games content class was also structured according to the SE model. In addition, I had observed a SE season taught by another preservice teacher during a previous field experience. During that experience, I also taught PE using the Hellison (2011) Teaching Personal and Social Responsibility model. The second author was a faculty member at the university, who had several years of experience teaching SE to preservice and in-service teachers. He also conducted studies with SE in a local high school. I met with the second author weekly with the intention of dealing with any queries and discussing solutions to various problems.

Data Collection and Analysis

Multiple methods were used to collect data, including video observations, group interviews, student diaries, and my field journal (e.g., Miles, Huberman, & Saldana 2014). All lessons were video recorded, and I observed and analysed them after the unit. At the end of the unit, I conducted two semi-structured group interviews, one with three boys and one with three girls. The interviews lasted 25–30 minutes. As a homework task, the students wrote in their diaries after every PE lesson. Students were asked to write their opinion of what went well and what they and their team could improve on next time. In my field journal, I wrote what I felt I could have done better and what worked well. I also made notes after my meetings with my university and school-based supervisors (cooperating teachers) regarding post teaching discussions.

Data analysis had a cyclical structure that originated with the action research process and centered on planning, action, observation, and reflection. The analysis occurred in two layers. The first part of the data analysis was immediate and ongoing, and it allowed me to react to the learning needs of my students, through their written assignments and my reflective journal. Consequently, changes and adaptations were made after each lesson. On the other layer, I systematically collected and organised data throughout the unit. Here, the data analysis was an inductive process that integrated multiple data sources, and was done with and challenged by my supervisor Jan-Erik. The analysis was characterised by constant comparison between the different sources to draw out and identify themes from the evidence collected (Lincoln & Guba1985; Miles et al, 2014). During this phase, emphasis was given to the identifying indicators of themes and sub-themes that fit the data. Peer debriefing enhanced the credibility of this action research. In this process, these themes and subthemes were critically examined and interpretations were challenged by Jan-Erik (second

author) and Ben (third author) throughout an on-going reflective discussion regarding the multiple data sources, action research, and SE. However, the discussion of findings is written in first person to emphasize an action-oriented perspective (Dohn 2014). Finally, all three authors are heard in the section about conclusion and limitations.

Results

The main themes drawn from the evidence collected: issues with SE and a student–teacher's use of SE, emerged from a number of smaller categories. The first set of subthemes: students' perspectives of SE, gender and status, acting as referee, and the evenness of teams, were related to learning from the implementation of the model in this fifth grade class. The second set of subthemes: being on thin ice, making adjustments and coming up with solutions, and having many balls in the air, explored my action research experiences as a student–teacher combining practice and research.

Issues with Sport Education

Students' perspectives of Sport Education. Before the SE unit, students wrote in their diaries that they were looking forward to having SE and soccer. In the interviews after the unit, boys said that they liked SE because it was different, and that the best part of SE was playing games. Girls also reported enjoying SE because they learned a lot during the unit, and could select the practice tasks themselves. They also indicated that they would like to have SE again with a sport they knew well, and they wished that the unit had been even longer. In addition, there were negative comments related to team members not getting along with each other.

During the unit, students wrote that warmups and skill practice had been fun, interesting, diverse, and well planned and that it had improved during each lesson. They wrote, "It went 100 times better than last time!" and "It went better this time because everyone focused on what we were doing". The video showed that teams were active and followed the coaches' instructions. However, a few students wrote that it was boring and that practice tasks were similar each lesson. Lisa wrote that "warm-up was boring; we ran just one time around the playing area." Also, Emily said in the interview:

> We did the same things every time. I don't know if Tommy had planned anything or if he just made it up during the lesson. If he had planned something it was for the first lesson and then he used the same lesson plan for the whole unit.

Students also wrote that they improved during the unit. In the interview, Peter said, "We were trying harder in SE because there was something to win and that's why we got better." Girls noted that those who had not played soccer before improved their skills the most. Students also wrote in their diaries about the games, how many goals they had scored, and that they played well, did their best, and did not give up.

Gender and status. As this SE unit was the first time the girls and boys had a PE class together, girls noted that it was strange to have PE with boys at first, but they enjoyed it and learned a lot because student coaches were boys. Mary said that "boys took everything

more seriously. Winning was more important to them, I don't care if I win or lose because there will be more games." Girls also claimed that boys were harassing them. Nevertheless, boys also enjoyed having PE with girls, and Henry said that "PE lessons were not as 'wild' as they were with only boys."

Some girls pointed out inequities during the PE lessons and blamed boys for it. For example, only boys were forwards and girls had to play as defenders. However, video analysis showed that Emma said to Peter, "Me and Jessica should also get to play as forwards even though we are not that good." Peter replied, "You are good at soccer! If you want, you can come and play as forwards." Despite this comment, no girl moved to a forward position, and all remained defenders.

There were also disagreements as to how the roles were chosen. In their diaries, all students wrote that they received the role they wanted and that team roles were assigned according to preference and previous soccer experience. However, in the interview after the unit, some girls stated that boys had decided the roles for everyone and that they had not received the roles they wanted. However, some boys said that they had all chosen the roles together and that they could not give the coach role to someone who did not have any experience in soccer. Most boys were "happy with their roles." Students wrote in their diaries that everyone was responsible and took their roles seriously, even though the captain of one team said in the interview that he had to "remind some of his team members of their duties." Though the different data gave me a mixed message, no one complained to me about their roles during the unit, aside from two students who did not want to referee even though they had chosen that role.

Being a referee. Problems with the referee during gameplay were mentioned several times in student diaries. During the first lesson, one student complained about how the referee acted. The student referee was intimidated, walked away from the game, and refused to come back. I wrote in my dairy, "I tried without success to convince him to come back, but I ran out of time and had to give up and end the lesson." Solving this problem and making the students understand that it was not easy to be a referee was one reason I chose to have an additional classroom lesson. I further wrote, "Here, I tried to make students understand that the referees are doing their best and that everyone should respect their decisions, even though they might make a wrong call." Despite my efforts, only a few students felt comfortable refereeing during the next PE lesson, and one team did not want to referee at all. I came up with a solution in my dairy: "I had to encourage them, and I managed to convince one student to referee together with me. During this game, I encouraged him to make the decisions himself and defended him when some players were unhappy with his calls." As a result, he felt comfortable enough to referee alone for the rest of the unit. Nevertheless, the situation improved. By the end of the unit, the referees gathered teams and started gameplay without me telling them what to do. Although I only noticed problems with the referees during the first and second lesson, Henry said in the group interview that he was unhappy with the referees:

> They did not know the rules and they listened to the players too much. If someone said "It is out, it is ours," the referee would listen to them instead of saying, "No, you're wrong, it's the other teams." The teacher should have helped them more.

Uneven teams. Another problem encountered during the unit was that the teams were uneven. I noticed this after the first lesson, when teams gathered to choose their team names and colors. Alex had a negative attitude, which affected the cohesion and attitude of the rest of the team. Alex was sure that they were going to lose because "all the other teams have at least one boy who plays soccer during their leisure time and we don't have anyone". He suggested a bad team name and brown as their team color, as it was the most boring colour he knew. The other team members were too shy to say anything and did not have any other suggestions. I wrote in my dairy, "Alex took the role as a coach and had not planned anything for our meeting that was scheduled for the day before the first PE lesson because he felt that it was not worth it." He kept saying, "What's the point? We are going to lose anyway!" (Alex) during our meeting. I helped him plan practice tasks for the first lesson, and motivated him during the lesson in order to keep him focused on what he was supposed to do. However, I wrote, "During the first lesson I noticed that the captain on this team tried to motivate the other players and cheer them up when it seemed like they had given up already before the game." After most of the games, Alex still complained that the teams were unfair and that they were losing all the time.

I did consider making new teams but I decided to follow SE guidelines and keep the same teams for the whole unit. After all, I only had a four-week PE unit, although with 90 minutes lessons. This team required a lot of my energy to keep them active and positive during the unit. The problem with uneven teams was also noted in the interviews. Students stated that it was unfair that from one team no one played soccer during their leisure time, while in another team three out of four students practiced soccer. Students also mentioned in the interview that I, as a teacher, could not know that the teams were uneven as I did not know the class.

As a result of maintaining the same teams, the negative attitudes from this team changed throughout the unit, and so did their success in game play. I felt that it was an improvement in Alex's attitude when he started to tie his shoelaces tighter and took off his cap, as he made it clear from the beginning that running shoes are ugly and he wanted to be cool. The team scored its first goal during the third lesson and they started to believe in winning a game. At the end of the lesson they were happy that both of their games ended with a tie. During the last lesson of the unit, the team won its first game and they were extremely happy. So was I; something had changed. The captain wrote that "everyone was like 'we're going to lose' and I tried to cheer them up. There was no point in being sad because we then won against probably the best team."

A Student–Teacher and Sport Education

Being on thin ice. Before the unit, I felt insecure about whether the SE model would work, and whether the students were going to like SE and perform their roles dutifully. I was also afraid of having students take over the responsibility for practice. After my first meeting with the coaches, I was positively surprised that the students had planned their practice and I felt more calm and relaxed before the first PE lesson. In my field notes, I reflected the following:

Despite this, it took a lot of my energy to make sure that everyone was active and knew what to do. Even though I was not teaching normally, there were a lot of things to keep in mind and to take care of (e.g., checking the time, bringing the equipment and collecting it after the lesson, helping the teams, and giving them feedback).

However, I realised that all teams were responsible and students were actively engaged.

My main concern was the team that had a negative attitude from the beginning, and I spent a lot of time and energy supporting them. After the first two PE lessons, I was not really satisfied with my teaching and I was not sure what students thought about the model. They wrote in their diaries that "everything was fine" and they "had fun" but during the lesson they were complaining about their teammates and the other teams. These mixed signals made me doubt my teaching and the positive aspects of the model. However, when I later observed the lessons on video and looked at my teaching as an outsider, I then realised that the situation was not as bad as I had described in my journal.

Making adjustments and coming up with solutions. Students were complaining a lot during the first lesson and many students wrote about it in their diaries. Kevin said at the end of the lesson "SE is boring! Why do we have to have it again?" I tried to make them see the difference between complaining and encouraging, as some of them thought that complaining was a way to teach and help each other. To deal with this negative atmosphere, I chose to have one extra lesson in the classroom to introduce a scoreboard and a point system for good behavior. The team would get five points if they did not complain, had proper clothes for PE, worked together as a team, and accomplished their roles. In my notes I wrote the following:

I noticed that the student complaints decreased already the following lesson and students also wrote that there were fewer complaints. The last two lessons no one had even mentioned complaining in their diaries, and instead they had written about that they were encouraging each other.

Video observation from the third lesson showed students encouraging each other by saying, "Next time you will score a goal." In an interview, Fanny said, "There was a lot of complaining in the beginning of the unit but when we learned to cooperate with each other we did not complain anymore." Girls also said that the point system made everyone friendlier and they stopped blaming each other. They noted that knowing good behaviour would give their teams five points was encouraging and made them stop complaining. Some boys, on the other hand, were unhappy with the fact that good behaviour was worth five points when winning a game only gave them three points, and they would have wanted more points for winning a game.

Another concern I had to deal with was when I chose to have four teams in order to keep the teams small. As a result of this, I had to come up with activities for the fourth team while two teams played and one acted as referees. During the first lesson, I told the fourth team to "work on something they needed to improve," which led to them sitting at the side line watching two teams playing. During the second lesson, I instructed the fourth team to play a two-on-two game as I knew their favourite part of the lesson was to play games. I noticed that they were more active but they wanted to save energy for the games and were taking breaks. Again, for the third lesson, I came up with a new strategy. I brought two iPads and told them to record when they were practicing the same exercises as earlier, and to interview each other. Finally, this kept them active the whole time while they were waiting for their turn to play.

Many balls in the air. In my journal I wrote, "I did not have enough time for what I had planned and I was always busy. I made the games shorter each lesson so that they would have time to play all the games that I had planned, but I still had to skip some games." For the last lesson, I had made a schedule for a tournament but we had to finish the lesson without playing the bronze medal game and the final game. Actual teaching time was shorter than I realised and I noted "instead of making the games shorter, I could have given them less time for skill practice and longer time to play, because one team had some time for training while the others were playing." This created frustration among students, and Henry said: "I was disappointed that we had to skip some of the games even though we had been promised that we would play a lot."

In the beginning, I had decided to meet the coaches one day before PE on a weekly basis, so that we could go through their lesson plans together. In reality, I only met coaches the first week and I was pleased with their work. One reason why I did not meet them every week was because "it took me a lot of time to prepare my other lessons I was teaching during my student teaching." Now, after the unit, I realised "it would have been good to see the coaches every week to make sure that they had proper preparation and were not using the same plan every week." Another option would have been to make them give me the practice plan in advance.

I was stressed with having many things to consider and to keep in mind while at the same time I was "learning to teach." As a PE teacher, I needed to organise and teach the lesson but also to make sure that all students would be able to the following classroom lesson. My student role, which meant being supervised and evaluated by my supervisors, was another challenge as well as "finding time for meetings with my cooperating teacher." In addition, as a researcher I had to make sure that I was actually implementing SE. I had also to organize and take care of video equipment, to write my experiences in my dairy, and to analyse and reflect on my action research cycle.

Discussion

Based on the above findings, the discussion focuses on two different aspects of my action research project during a student–teacher experience: (a) the implementation of a SE season in the Finnish context, and (b) my professional learning process as a student, a teacher, and a researcher. While educational change is often overwhelmed by ambiguity, conflict, and uncertainty (Capobianco & Ní Ríordáin 2015), action research served as a dynamic tool to help me enable the process of implementing a novice instructional PE model in my student–teacher experience through the action research cycle of planning, acting, observing, and reflecting. Although I perceived some final success in my teaching, it was not a simple process, but rather one with both pitfalls and mistakes.

Sport Education through a Student–Teacher's Eyes

The international literature (e.g., Layne & Hastie 2015; Wallhead & O'Sullivan 2005) related to the use of SE in physical education has shown that students can make a significant contribution to the instructional environment when they are organised as team members

with increased accountability, cooperation, and trust. However, when I implemented my SE unit, I noticed problems with student gender and status, creating even teams, and being a referee. In Finland, traditional PE is implemented through a multi-activity approach with short units (Yli-Piipari, 2014). Therefore, SE with longer units is something totally different for teachers and students. Therefore, I had a four-week unit, but in the beginning students needed time to learn their roles and responsibilities. The novel teaching situation resulted in disagreements and arguments at the onset of the unit. Another possible reason for the arguments was that boys and girls were not used to coeducational PE, and therefore they had to learn how to cooperate and to seek power and status within the group. Previous studies in SE have shown that students become active learners when they learn to cooperate and solve problems (Smither & Zhu 2011), and by learning to cooperate they also learn to take responsibility (Casey 2011). Brock, Rovegno, and Oliver (2009) also noticed that a student's status (skill level and gender) influences their social interactions during group work and game playing time. In addition, research on student-centered teaching in PE also suggests that teachers need to plan for developing students' social skills and to prepare students to work together (Casey & Dyson 2009; O'Leary et al. 2015).

One challenge for preservice teachers has been that they are not familiar with and have no history with their students, as they typically come in and stay for some weeks (Romar et al. 2015). This was also my case, and I was not successful in forming even teams. My students mentioned several times that the teams were uneven and it affected both my teaching and team cohesion in one particular team. This team felt that they did not have a chance to win against other teams, a fact that also has been reported previously (Gutierrez et al, 2013). Previous studies have shown that students want teams that are even and they appreciate that teachers formed the teams (e.g., MacPhail, Kirk, & Kinchin 2004; MacPhail, Gorely, Kirk, & Kinchin 2008).

Students in this class were responsible for their roles, and indicated that it made them feel like being on a professional team. However, some students did not receive the role they wanted, which can be a problem when several students want the same role (Clarke & Quill 2003; Romar et al. 2015). As part of a student-centered approach, students were referees, which was a challenge and many students did not like to referee their games. Similarly, other studies have shown that students felt it was difficult to be a referee, while the other players did not respect them and they were unsure of the rules (Gutierrez et al. 2013; Hastie & Sinelnikov 2006).

Although through action research I have identified problems I faced during my student–teacher experience, I have also realised the benefits of SE as a student-centred approach where they have roles and responsibilities, as described in the new Finnish national curriculum. I really realised that SE changed my way of teaching, from the teacher having a central role to me acting more as a facilitator. Despite the disagreements in the beginning, students also liked SE and would have preferred to have another SE season. Students' positive attitudes towards SE have been reported in other studies as well (Gutierrez et al. 2013; Kinchin et al. 2012; MacPhail et al. 2004; MacPhail et al. 2008; Sinelnikov & Hastie 2010). Based on my and the students' experiences, this study showed, as also Romar (2013) suggested, that SE is appropriate for the Finnish physical education curriculum. This supports the new teacher guidelines of the Finnish National Core Curriculum for Basic Education

(Utbildningsstyrelsen, 2014), where SE is mentioned as a method to enrich PE. In order to successfully implement SE in Finland, PE teacher education programmes must also include early exposure to, and a teaching experience with, SE. Several researchers (e.g., Glotova & Hastie 2012; McMahon & MacPhail 2007; Tsangaridou 2012) have supported the importance of preservice teacher education in order to facilitate the process of learning and implementing the SE model.

A Student–Teacher and Action Researcher

Although I was aware of the significant amount of time required for preservice teachers to plan and implement a SE season (Glotova & Hastie,2012; McMahons & MacPhail 2007; Romar 2013; Romar et al.2015) and to do action research studies in PE (Casey & Dyson 2009; Casey et al. 2009; Webb & Scoular 2011) and in general education (Capobianco & Ní Ríordáin,2015; Smith & Sela 2005; Ulvik 2014), I still was surprised by how much preparation time I needed. In the beginning of this study, this fact made me uncertain and doubtful of the model and how everything would turn out. In addition, I was afraid that students would not plan their lessons, and that I would not be able to handle that as I did not know the class. However, much like the teachers in Clarkes and Quills' (2003) study, I realised that my students were responsible in their roles, and coaches mostly planned their practice. My interpretation is similar to Casey (2013), which is that change is not easy nor always successful and it takes time. Therefore, it is important to know and understand the action research process and to not give up too early (Denscombe 2009).

Another challenge for me was that I had many things to consider and keep in mind as well as handing my different roles, which Ulvik (2014) confirmed is consistent with other student–teachers' experiences. My first role was that of a teacher keeping the students active and helping them during problems with SE, while still keeping track of scheduled lesson time, which is the first role that a teacher often takes (see Siedentop 1998). My second role was that of a student–teacher, who was continuously learning about my own teaching and reflecting upon my actions, which is a common experience among student–teachers (see Richards et al. 2014). My third role was as a researcher making constant observations, and critically reflecting on what happened in the class and how to collect all relevant evidence, which is a role typical of teachers who are also conducting research (Crawford-Garrett et al. 2015). Dealing with all three roles, I had a constant feeling of not being "good enough" nor succeeding in what I had planned. I wanted everything to be perfect from the beginning and I did not realise that I was still learning how to teach, nor that reflection and failure are parts of the action research cycle (Cohen et al. 2011). I realised that I had reflections in action and reflections on action, which has been recognised in other teachers by Argyris and Schön (1978), where the shortening of the length of the games occurred both during the lesson, as well in planning before the lesson. Capobianco and Ní Ríordáin (2015) recognized that uncertainty is a natural part of a preservice teacher's role as an action researcher, which also can have a positive effect. Action research is about seeing and feeling a challenge in order to decide to do something about it, and the frustration and uncertainty during the process can then, up to a certain point, be rewarding (Ulvik, 2014).

Despite the complexities of this action research project, I learned that my reflective experience provided an opportunity to connect practice and theory in the real world (Coghlan

2010; Eikeland 2012). Even when I was writing and finalising my thesis, I realised new things that I had not thought about before. I also found that action research results and findings are really about me as a teacher (Pedersen & Olesen 2008). I learned a lot both about myself as a teacher and as a person, which often occurs as a result of action research (Capobianco & Ní Ríordáin 2015). I felt in several situations that I completely failed in my teaching, and that I did not know how to change it, similar to what Casey (2012) described in his action research project. However, through my data I realised that my teaching was not as poor as my initial impressions led me to believe. My self-reflective diary was a way for me to follow my own thoughts and experiences. Watching myself teach on video also made me aware that I handled many situations much better than I thought I had done. In addition, student diaries and interviews provided a different view of the students compared to what I saw and experienced during my lessons. I am not sure if they were afraid of showing their opinions in front of their class and just agreed with other students, but I felt that I could hear their real voice in their diaries and interviews. These mixed signals were confusing for me, as I was constantly wondering if students liked the lessons or not.

Nevertheless, I was able to change something, have an impact on a situation (even with small steps), and to focus on my actions. My role as a teacher has also evolved from such insights. This is in line with what Kemmis (2010) suggested: "Action research aims to explore new ways of doing things, new ways of thinking, and new ways of relating to one another and to the world" (p. 425). According to Ulvik (2014), action research can offer an insight into one's practice and provide professional learning, and I felt that action research was an opportunity to learn more from my student–teacher role (Lattimer 2012). Ulvik (2014) noted the demanding nature of action research with lack of support and cooperation and highlighted that mentors should be a part of the process, and that universities and schools should have a joint understanding of the research process. In my case, I had support from my academic programme supervisor, and he organised my action research project during my student practice and helped me with my problems with the SE model and data collection. In addition, my co-authors challenged my research interpretations in a way that took them to a new level. Therefore, this study showed that action research during a student–teacher experience allowed me to learn from actual teaching rather than from theory, which is an ideal result (Mostofo & Zambo 2015).

What I appreciated and learned from SE was to give students responsibility, which I will implement with my students this year as I am working as a full-time teacher. Fifth graders are already old enough to learn to take more responsibility over their own learning. Once I have my students for the whole school year, I can gradually give them responsibility, but not as much nor as fast as I had to do during my student–teacher experience. This could also be one reason to why I had difficulties in the beginning, when I expected too much and they were not used to take have responsibility both for their own and their team mates' learning. I will also have the same teams for an extended time, as it is timesaving and students learn to cooperate. Although I learned and improved my own practice, another purpose of action research is to make my knowledge accessible to colleagues and other teachers (Crawford-Garrett et al. 2015). At this moment, I am not sure if I, as a novice teacher, can convince my older colleagues to implement SE, but I will try.

Conclusion and Implications

Recognising the challenging relationship between university-taught PE theory and its application in school-based practices, this study used an action research approach to examine the impact of using SE in PE in a Finnish school. Given students' reactions and our experiences, SE seems to have a real future in the Finnish PE curriculum, as pupils can have a substantial impact on the teaching and learning environment. In addition, our findings showed that the implementation of SE is complex and time consuming, and that the process of change in adapting theory into practice is not an easy one. Eikeland (2007) suggested that teacher action research should focus on teachers and the improvement of teachers and student learning. We found, similar to others (Olesen & Nordentoft 2013), that the production of knowledge in action research is a complex and messy process.

The additional challenge working through an action research approach can make a research-based education journey both frustrating and uncertain, due to multiple roles of being a student, a teacher, and a researcher. Based on our evidence in this paper, we argue that action research is a powerful framework for allowing students in teacher education programmes an active role with the opportunity to connect practice and theory (Coghlan 2010; Eikeland 2012). Our concern is not the question that action research should be a part of teacher education programs, which Eklund (2014) confirmed it should be, but rather how it is introduced and supported. Therefore, preservice teacher education needs to provide student–teachers with feasible preparation, understanding, and support to examine their work as teachers and to become researchers of their own teaching. They, in the role of action researcher, need to become aware of and learn to embrace the position of being a co-producer of knowledge (Pedersen & Olesen 2008).

Consequently, based on our experience and the results from this study, we conclude that the action research component in a teacher education programme needs to be extended over several (five years) action research cycles or structure. This structure has the potential to provide an on-going and multifaceted engagement with linking theory and practice from first semester through the final student–teaching experiences (Mostofo & Zambo 2015; Ponte et al. 2004). This structure will provide a powerful framework to think scientifically about education, compared to an action research component as a single project completed at the very end of the programme. Secondly, time is a central issue (Capobianco & Ní Ríordáin 2015, Kosnik & Beck 2000; Schaenen et al. 2012). This is partly related to the previous implication, where action research work is integrated throughout the coursework, thus enabling preservice teachers to spend sufficient time on the professional development as a teacher and as a researcher. Additionally, time is needed to learn the school context and gain more understanding of the students. Our experience with a four-week student teaching period could be extended by in-school assignments by placing preservice teachers in their practice classes for 1 or 2 days a week throughout the semester. Moreover, the whole project takes time, from initial preparation, planning, through several cycles of inquiry to examination, and reflection on the data. Thirdly, teacher educators need to have research competence and similarly display a genuine reflective, critical approach to educational questions as well as creating a caring and supportive climate in mentoring sessions and school visits. Fourthly, our conception is that the schools and the institute need to have a

shared and balanced understanding of the action research process during school practice (O'Leary et al. 2014; Ulvik 2014). Particularly the school-based supervisor needs to be involved in what happens, and be prepared to support preservice teachers' implementation of their action research projects. Finally, Master Thesis projects are often seen as a compulsory task, with few possibilities for real interactions with other preservice teachers, future colleagues or teacher educators. Therefore, we suggest, that a final action research forum where "new" knowledge that preservice teacher learn from their experience, will be publicly presented and discussed.

Due to time constraints and challenges in teaching, this action research project has been demanding. From a pragmatic view, our suggestion might be for a student–teacher to not work alone, but rather to collaborate with another student–teacher. In doing so, two action researchers could have responsibility for planning and teaching together, collecting data, reflecting and understanding the data, and sharing experiences about what it means to be a teacher in the 21st Century.

We are fully aware that the context of this study is unique and the findings are based on the teaching experiences of one student–teacher. The study was conducted on a small scale and during a relatively short time. These limiting factors indicate a need for caution in making generalisations from the study. Nevertheless, we hope that by presenting our experiences and results, it will help educators of teachers and student–teachers with the demanding task of attempting to learn how to use SE in different contexts. Still, we believe that action research by student–teachers can become a platform for the learning of academics, field-based practitioners, and the community at large as long as research is a systematic inquiry into one's own practice, is connected to theory, and is accessible for and exposed to critics. The caveat is that for the action research process to be successful, it requires a huge amount of time and commitment but the rewards can be educative for the teacher–student conducting action research and for his or her students.

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About the authors

Nicolina Eriksson is a fifth grade teacher at Sirkkala skola in Åbo. She earned her Master's Degree in Education from Åbo Akademi University in Vasa, Finland. She is a certified elementary school teacher with major studies in physical education.

Jan-Erik Romar, PhD, is currently Associate Professor at the Department of Education, Umeå University, Sweden. He was previously associate professor at the Faculty of Education and Welfare studies at Åbo Akademi, Finland. He has been involved in action research projects with implementing model based instruction in the physical education context. His main research interests are related to teacher knowledge development, physical activity promotion and coach education.

Ben Dyson, PhD, is an Associate Professor in Health and Physical Education at the University of Auckland, New Zealand. He has carried out research and taught at McGill University, Montreal, Canada, the University of New Hampshire, and the University of Memphis. His research in physical education is related to innovative curriculum and pedagogy and Cooperative Learning as a pedagogical practice. His scholarship has often involved action research or participant action research that is school-based research with teachers. He has recently been the Co-Editor of the Journal of Teaching in Physical Education (2012-2016).

Authors' addresses

Nicolina Eriksson
Sirkkala skolan, Åbo
Sirkkalagatan 20
20700 Åbo, Finland
Mail: nicolina.eriksson@turku.fi
Cell phone: +358408304685

Jan-Erik Romar
Department of Education, Umeå University/Umeå
Mediagränd 14, Beteendevetarhuset,
901 87 Umeå, Sweden
Mail: jan-erik.romar@umu.se; jromar@abo.fi
Cell phone: +358505259922

Ben Dyson
School of Curriculum and Pedagogy
The University of Auckland
Private Bag 92601, Symonds Street
Auckland 1150, New Zealand
Mail: b.dyson@auckland.ac.nz
Phone: 64-9-623-8899 Ext 48337

A Mixed Methods Research on Teachers' Beliefs about Action Research in Second Language Education

Vahid Rahmani Doqaruni, Behzad Ghonsooly, Reza Pishghadam

Abstract
Despite the fact that the beliefs about action research (AR) are considered essential for teachers' professional development, teachers' beliefs about AR have not been studied in any systematic way in second language education. This study is thus an attempt to fill the gap through examining Iranian teachers' beliefs about AR. The present study used a mixed methods design, i.e. questionnaire and interview, to gain a richer understanding of the participants' beliefs about AR. The participants were 65 English teachers from 5 private English language teaching institutions. The findings revealed that most of the teachers equated AR with observation, had the ability to distinguish between AR and standard research, preferred collaborative AR, and, in contrast to the mainstream research, did not believe AR to be a way to professional development. The results also showed that while AR is not unknown among these teachers, its use is not widespread, which highlights the need for organizational, practical and intellectual support from responsible agencies.

Key Words: teachers' beliefs, action research, mixed methods design, questionnaire, interview

Una Investigación de Métodos Mixtos sobre las Creencias de los Profesores sobre la Investigación Acción en la Educación de una Segunda Lengua

A pesar del hecho de que las creencias sobre la investigación acción (IA) son consideradas esenciales para el desarrollo profesional de los profesores, las creencias de los profesores sobre la IA no han sido estudiadas de manera sistemática en la educación de una segunda lengua. Así, este estudio es un intento de llenar ese vacío, examinando las creencias de los profesores iraníes acerca de la IA. El presente estudio utilizó un diseño de métodos mixtos, es decir, cuestionario y entrevista, para obtener una comprensión más rica de las creencias de los participantes acerca de la IA. Los participantes fueron 65 profesores de Inglés de 5 instituciones privadas de enseñanza del idioma Inglés. Los hallazgos revelaron que la mayoría de los profesores equipararon la IA con la observación, tuvieron la habilidad de distinguir entre la IA y la investigación estándar, IA colaborativa preferida, y, en contraste con la corriente principal de investigación, no creyeron en la IA como una forma de desarrollo profesional. Los resultados también mostraron que, si bien la IA no es desconocida entre estos profesores, su uso no está muy extendido, lo que pone de relieve la necesidad de apoyo organizativo, práctico e intelectual de las agencias responsables.

Palabras Clave: creencias de profesores, investigación acción, diseño de métodos mixtos, cuestionario, entrevista

Introduction

In the field of second/foreign language (L2) teacher education, beliefs are viewed as an essential ingredient in teacher development, and have attracted the attention of many researchers. This is due to the fact that beliefs "are involved in helping individuals make sense of the world, influencing how new information is perceived, and whether it is accepted or rejected… [beliefs] serve to frame our understanding of events" (Borg 2001, pp. 186-187). Numerous past studies on L2 teachers' beliefs have provided us with invaluable insights on comprehending plans teachers use when implement their teaching, and the important role beliefs play in teachers' classroom practices in the last two decades. This strand of research in the fields of applied linguistics and second language acquisition has looked into teacher beliefs in diverse L2 teaching contexts and from different perspectives (e.g., Basturkmen et al. 2004; Borg 2011; Farrell & Lim 2005; Kern 2008; Levine 2003; Phipps & Borg 2009; Underwood 2012; Zheng & Borg 2014). In line with this general disposition toward exploring teachers' beliefs in L2 education, researchers have recently paid a special attention to teachers' beliefs about research generally (e.g., Allison & Carey 2007; Barkhuizen 2009; Borg 2007, 2008, 2009; Gao et al. 2011; and Hiep 2006), and action research (AR) specifically (e.g., Atay 2006, 2008; Bashir 2011; and Rainey 2000).

The primary reason underlying this drive has been that such beliefs are considered essential for teachers' professional development (Borg 2010; McDonough 2006). In other words, reading and doing research can empower teachers to better comprehend their work, encourage them to reflect on what they do, lead them to explore different avenues regarding new thoughts, and become more autonomous (e.g., Kirkwood & Christie 2006; Tinker Sachs 2000). AR is specifically noteworthy, as teachers are increasingly being encouraged to carry out small-scale research studies in their own classrooms, and to assume the role of a teacher-researcher (Atay 2006, 2008; Burns 2010; Edwards & Burns 2016; Wyatt 2011). It is now an established belief in the field of L2 education that the process of AR, if conducted systematically and extensively, enables the construction of teacher-generated knowledge, thus empowering teachers as the creators and not just the holders of such knowledge (Avgitidou 2010). Moreover, AR has been regarded favorably because it can help teachers develop in-depth perspectives about the process of teaching and learning (Lacorte & Krastel,2002). In addition, AR can help L2 teachers recognise the importance of learning how to seek answers to their questions (Tedick & Walker 1995), address and find solutions to particular problems in a specific teaching or learning situation (Hadley 2003), develop personal theories about L2 learning (Crooke, 1997), reduce gaps between academic research findings and practical classroom applications (Sayer, 2005), and become familiar with research skills and enhance their knowledge of conducting research (Crookes & Chandler 2001).

Despite such benefits, however, it seems that teachers beliefs about research and AR have not been studied in any systematic way in English Language Teaching (ELT) and while there is a large amount of research about the benefits of teacher research engagement, we do not have as much knowledge about teachers' beliefs about research (Borg 2008). As Borg (2007, p. 733) emphasises, "this gap in our understanding means we are unable to

make informed decisions about the development of policy and initiatives whose aim is to enable teachers to engage more fully both with and in research". This study is thus an attempt to fill the gap through examining teachers' beliefs about research, especially action research, primarily motivated by the following facts. Firstly, while numerous past studies have dealt with teachers' engagement in research, they have for the most part looked at teachers working in the inner circle countries such as Australia, the UK, and the USA (Hiep 2006). This implies that very little is known about teachers conducting research in the outer and expanding circle countries such as Iran. Secondly, and in relation to the first statement, this research is inspired by Borg's (2009, p. 377) claim that more "localised studies of research engagement can deepen understandings of how research is perceived in particular contexts, and help promote more informed consideration of feasible forms of teacher research engagement in those contexts". Since few, if any, studies have previously dealt with teachers' beliefs about research in an Iranian context, this paper is thus a response to this plea.

Research questions

This study aimed to collect data relevant to the following questions to understand the beliefs about AR held by ELT teachers working in Iran:

1) What are the beliefs of Iranian ELT teachers about AR?
2) What might be the possible reasons behind such beliefs?

Literature review

In contrast to a much more extensive collection of work on teachers' beliefs about research (e.g., Allison & Carey 2007; Bai & Hudson 2011; Barkhuizen 2009; Borg 2007, 2008, 2009; Gao et al. 2011; Reis-Jorg, 2007), teachers' beliefs about AR are surprisingly scarce in the field of applied linguistics. Rainey's (2000) study was one of the first in its own type which reported the findings of an international study using questionnaire into the knowledge, practices and opinions of English as a Foreign Language (EFL) teachers from ten countries with respect to AR. Her study was based on several hypotheses which one of them, which is of particular relevance to the present study, was that the majority of the teachers surveyed in her study would have some knowledge of AR. This hypothesis was not confirmed since three-quarters (75.5%) of the teachers surveyed had not heard of AR. In addition, she found that the teachers who knew about AR, their beliefs were more in accordance with the primary type of AR, i.e. AR for professional self-development, as they believed that AR could just tackle an issue in their classrooms or enhance their teaching practices. In other words, it seemed that the teachers were not well informed of alternate potentialities of AR such as change.

Dissatisfied with this fact that neither pre- nor in-service teachers of English could do much research in Turkey, Atay (2006) used a collaborative AR model to help both in-service teachers fill the gap between research and teaching and pre-service teachers become familiar with research in real classroom contexts. After gaining relevant theoretical

knowledge on this type of AR, the teachers worked with each other and carried out their research in in-service teachers' classes. The results showed that both groups benefited from conducting the collaborative AR as it provided them with a framework to systematically observe, evaluate, and reflect on their teaching practices in the classroom. In addition, the results also revealed some major themes regarding the effects of AR which changes in beliefs about AR were of considerable importance. In another study, Atay (2008) also directed an in-service education and training programme with the aim of helping 62 Turkish EFL teachers to conceive AR as an opportunity to challenge their underlying belief systems. Her programme consisted of three sections: theoretical knowledge on ELT, issues for investigation, and investigating the classroom and doing research. She then analysed the data from the teachers' narratives and journals. The analysis of teachers' narratives on their understandings of AR showed that they were generally aware of the usefulness of AR. The further analysis of the teachers' journals revealed some major themes, such as that the AR process had positive effects on their beliefs toward AR.

Carrying out a study on Sudanese teachers' professionalisation, Bashir (2011) tried to deal with the complexities of engaging in AR by providing explanations in different areas, one of them was teachers' beliefs about AR. In order to explore the principles and practices of AR, a workshop consisting of 25 teachers and 7 representatives from universities was held. The data obtained from the workshop discussions were analysed and the results revealed that since AR was not part of the Sudanese teachers' institutional culture, they did not have any idea about AR. In addition, it was found that the teachers were chiefly unwilling to do AR due to the absence of knowledge which was viewed as a critical element. Some other factors for the scarcity of AR were also recognised such as lack of time, overload, and uncertainty about the adequacy of doing AR. It was also found that the teachers' beliefs about AR were adjusted to conventional notions of research such as statistics, objectivity, hypotheses, large samples, and variables. She then concludes that teachers do not have the ability to engage in AR feasibly and productively as their beliefs of what AR is are not in line with the forms of systematic inquiry.

Methodology

Design and data types

The present study used a mixed methods design, i.e. questionnaire and interview, to gain a richer understanding of the participants' beliefs about AR. This particular design is called "sequential explanatory strategy" by Creswell (2009). In his words, this is a design which "is characterised by the collection and analysis of quantitative data in a first phase of research followed by the collection and analysis of qualitative data in a second phase that builds on the results of the initial quantitative results" (p. 211). The questionnaire survey is the first part of this strategy which allows an extensive analysis of data but also acts as a kind of filter through which a smaller sample of participants will be identified for the subsequent interview phase of the study. The rationale behind this type of mixed methods research is that although the questionnaire survey is a versatile technique that helps to gather a large amount of data efficiently and quickly, it also suffers from the shallow respondents'

engagement. In other words, it is difficult for the researcher to investigate complex meanings directly by using this technique alone (Dornyei 2007). It is believed that adding a subsequent interview component to the study can help the researcher to deal with this weakness. Each data type is described in detail in the following sections.

Questionnaire

An original questionnaire, consisting of two sections (i.e., scenarios and characteristics of good quality action research), was developed based on the research questions (see Appendix). In section 1, the use of AR scenarios was inspired by the work of Borg (2009), who used a similar strategy as part of a study of ELT teachers' views of research. This section aimed to gain insights into the beliefs of teachers by finding out about the concept of AR in their minds. Ten scenarios were given and teachers were asked to evaluate the instances "definitely not AR", "probably not AR", "probably AR", and "definitely AR". All of the ten scenarios in section 1 were inspired by *classroom voices* from the Burns' (2010) book. The scenarios were devised with this aim in mind to make picture of a range of activities with different characteristics of AR (e.g., methods, data collection, and analysis). To make the length of the scenarios reasonable, it was decided to limit the number of scenarios to ten. In addition, the exploration of reasons for answers was left to the follow-up interviews to eliminate the burden of writing required by respondents. In section 2, AR characteristics were also developed to have a deeper understanding of the teachers' beliefs about AR. Twelve possible characteristics of AR were given and teachers were asked to identify their importance levels. All of the characteristics were based on the relevant literature about AR and referred to issues such as AR design, data collection, analysis, and application. On the whole, the items covered in the survey (sections 1 and 2) were created according to the range of research questions listed above. In order to improve the quality of the questionnaire, its design: question types, wording, layout, length, was checked and revised based on the relevant methodological literature (Brown 2001; Dornyei 2003).

Interview

A subgroup of teachers (n=22) were randomly chosen and invited to a semi-structured interview to elaborate on their responses to the quantitative data. In total 17 teachers were actually interviewed. The aim of the interview was to clarify some concepts in the questionnaire. In this way, during the face-to-face interviews, teachers were requested to elaborate on their questionnaire responses; in particular they were asked to explain why they rated/did not rate certain scenarios AR and to express their understandings of the criteria they had rated in the questionnaire as good AR. Although there was a set of pre-prepared guiding questions and prompts, the format was open-ended and the interviewees were encouraged to elaborate on their views and experiences of AR in an exploratory manner. Interviews lasted on average between 25 to 30 minutes and were audio recorded. Farsi (the teachers' native language) was used as the teachers felt they could express themselves better in their native tongue. All of the interviews were then translated from Farsi into English and fully transcribed.

Participants

The participants were 83 Iranian teachers from 5 private ELT institutions. English teaching staff members in these institutions were recruited with the mission of teaching general English skills (i.e., listening, speaking, reading and writing). The institutions were located in Mashhad, northeastern Iran. The questionnaires in hard copy were given personally to the teachers in each institute from which 65 completed questionnaires (38 female and 27 male) were returned, representing a response rate of 78.3%. Before administering the survey, consent was sought from the chair of each of the five institutions and all participants received information about the voluntary nature of the study with anonymity assured.

Tables 1 and 2 present the sample according to experience in ELT and qualifications relevant to ELT, respectively. As Table 1 shows, the majority of this sample of teachers (83.1%, N=54) had less than 15 years of ELT experience. Table 2 indicates that just over 18 per cent had postgraduate qualifications.

Table 1: Respondents by years of ELT experience

Years	**N (%)**
0-4	11 (16.9)
5-9	25 (38.5)
10-14	18 (27.7)
15-19	8 (12.3)
20+	3 (4.6)
Total	65 (100)

Table 2: Respondents by highest ELT qualification

Qualification	**N (%)**
Certificate	7 (10.8)
Bachelor's	46 (70.8)
Master's	12 (18.4)
Total	65 (100)

Findings

Beliefs about AR

Respondents' beliefs about AR were examined in two ways: First, they were asked to assess a series of scenarios about AR. Second, they were asked to comment on the characteristics of good-quality AR.

Evaluating AR scenarios

In section 1, the teachers were asked to indicate to what extent they felt the activities described in ten scenarios were or were not AR. All of the scenarios in this section were created with the aim of presenting some form of inquiry. There were no right or wrong answers here and the purpose of the items was to gain insight into respondents' views of what

counted as AR. The findings for this section are summarised in Table 3, which gives the number and percentage of teachers selecting each of the four possible ratings for each scenario. In order to find the overall direction of the teachers' responses more clearly, and for ease of discussion, the results were categorised into two main categories for each scenario: *Not AR* (consisted of definitely not AR and probably not AR) and *AR* (made up of probably AR and definitely AR).

Table 3: Teachers' assessment of 10 scenarios (Appendix, Section 1)

Scenario	Definitely not AR N (%)	Probably not AR N (%)	Probably AR N (%)	Definitely AR N (%)
1	8 (12.3)	11 (17.0)	19 (29.2)	27 (41.5)
2	20 (30.8)	23 (35.4)	18 (27.7)	4 (6.1)
3	17 (26.1)	14 (21.6)	19 (29.2)	15 (23.1)
4	6 (9.2)	12 (18.5)	14 (21.5)	33 (50.8)
5	22 (33.9)	17 (26.1)	12 (18.5)	14 (21.5)
6	2 (3.1)	5 (7.7)	23 (35.4)	35 (53.8)
7	12 (18.5)	13 (20.0)	16 (24.6)	24 (36.9)
8	25 (38.5)	20 (30.8)	14 (21.5)	6 (9.2)
9	25 (38.5)	12 (18.4)	17 (26.1)	11 (17.0)
10	21 (32.3)	13 (20.0)	15 (23.1)	16 (24.6)

It is clear from Table 3 that the scenario which was rated as AR by most teachers (89.2%) was number 6, in which an EFL teacher asks his critical friend to observe him in the classroom and then to compare their observations. This was the only scenario out of the 10 where only 2 respondents felt that it was definitely not action research. Two other scenarios which were also highly judged to be in the AR category were numbers 4 and 1, with 72.3% and 70.7% respectively. Another highly rated scenario is number 7, in which a teacher asks her learners to give her feedback on her teaching by distributing a written feedback form. The general themes that emerge from these scenarios are dealing with a practical problem, collecting information through some sort of questionnaire, and collaborating with colleagues.

Scenario 8 was that least recognised as AR (69.3% placed it in the not AR category). In this scenario, a teacher who is interested in finding out which of two methods for teaching grammar is more effective conducts an experimental study with two different groups. The other two scenarios which were highly rated as not AR were numbers 2 and 5, with 66.2% and 60.0% respectively. The common themes that emerge from these scenarios are those related to the traditional beliefs about research such as experimental/control group, large sample size, statistically analysing the data, and administering pre/post-test (though not explicitly stated in the scenarios).

The other remaining scenarios, i.e. numbers 3, 9 and 10, were more spread in terms of responses. For example, on scenario 3, while 23.1% said it was definitely AR, 26.1% said it was definitely not. In the same line, while 43.1% and 47.7% of teachers rated scenarios 9 and 10 as AR, respectively, the other teachers, i.e. 56.9% and 52.3% of them, rated these scenarios as not AR. The main themes extracted from these scenarios include the use of technology (such as audio/video recording) for collecting data, keeping journal, and observation.

Interview

As Table 3 shows, the three scenarios most highly rated as AR by the teachers were numbers 6, 4, and 1. Scenarios 8, 2, and 5 were the three least rated as AR. Although the statistical analysis of these scenarios gives us a general picture of teachers' beliefs about AR, it is far from reality to believe that the questionnaire data alone will provide us with teachers' reasons for their judgments. This is why we must make use of the follow-up data obtained, as discussed earlier, through interviews. Due to the lack of space, it is not possible to provide a comprehensive qualitative analysis of teachers' comments on every scenario, but common themes which shaped teachers' assessments of the individual scenarios most highly and least highly rated are extracted from spoken data. The representative comments are samples from all the comments reflecting a particular theme and are not meant to give an exhaustive view of all comments on that theme.

Scenario 6 was the one that was most highly rated as AR. Teachers who participated in the interview and who said this was definitely AR were asked to elaborate on their choice. The following comments illustrate a number of common influences on their assessments:

This [observation] is what we always do in our institute to help each other improve our teaching. In fact this is part of our teaching culture in the institute.

This method is really useful. Most of the times the supervisor comes into my classroom: not only me but all of the teachers, and completes a form and then she says what to do to have a better experience of teaching.

We are asked to observe our colleagues' classrooms every term and to talk about the problems that occur in the classrooms. At first it was not an easy task but now I believe that such an activity is really helpful.

References to classroom observation and teachers' collaboration recurred in the views on scenario 6 in the interview data; it seems that these ideas shape teachers' beliefs about AR in any kind of activity that involves research.

Scenario 8 was the one that was least highly rated as AR. Teachers' criticism of this scenario focused on the assignment of students to different groups and controlling the context, as illustrated in these comments:

What happens in this scenario reminds me of my Research Methodology course at university in which our instructor used to emphasise the control of the context and variables.

This is what we have always been told at university. I mean we have always been told that the main factors that make a piece of research worthwhile are similarity of subjects and controlling the variables.

This story fits in with what I know about ordinary research. When I was a university student, I remember that our Research Methodology professor asked us to do a kind of research at the end of the term. I did it with two other classmates and this [scenario 8] is what we exactly did. It took us a long time and it was really difficult. We went into an institute and divided the students and went through all that stuff. It was really difficult.

Characteristics of good quality AR

Section 2 of the questionnaire provides further information on teachers' beliefs about AR by asking them to rate a list of the characteristics of good-quality AR based on their importance. Table 4 summarizes the responses to this list of characteristics. For ease of reference and discussion, *Less Important* includes unimportant and moderately important ratings

for each characteristic, while *More Important* constitutes important and very important responses.

Table 4: Teachers' views on the importance of 12 action research characteristics (Appendix, Section 2)

Characteristics	Unimportant N (%)	Moderately important N (%)	Unsure N (%)	Important N (%)	Very important N (%)
1	6 (9.2)	10 (15.4)	9 (13.9)	13 (20.0)	27 (41.5)
2	5 (7.7)	8 (12.3)	10 (15.4)	10 (15.4)	32 (49.2)
3	10 (15.4)	17 (26.1)	11 (16.9)	12 (18.5)	15 (23.1)
4	2 (3.1)	2 (3.1)	10 (15.4)	16 (24.6)	35 (53.8)
5	2 (3.1)	3 (4.6)	7 (10.7)	15 (23.1)	38 (58.5)
6	6 (9.2)	6 (9.2)	15 (23.1)	13 (20.0)	25 (38.5)
7	11 (16.9)	6 (9.2)	17 (26.2)	11 (16.9)	20 (30.8)
8	3 (4.6)	10 (15.4)	12 (18.5)	7 (10.7)	33 (50.8)
9	15 (23.1)	13 (20.0)	16 (24.6)	11 (16.9)	10 (15.4)
10	8 (12.3)	8 (12.3)	11 (16.9)	9 (13.9)	29 (44.6)
11	15 (23.1)	10 (15.4)	14 (21.5)	14 (21.5)	12 (18.5)
12	10 (15.4)	12 (18.5)	8 (12.3)	7 (10.7)	28 (43.1)

The characteristic which was seen overall to be the most important was item 5 which stated "AR is a participatory and collaborative enquiry": 81.6% of ratings for this item were in the more important group. "AR is contextual, small-scale, and localized" (item 4) was the second most rated as important as 78.4% of teachers put this statement in the more important category. Taken together, teachers' views here reflect a belief of AR where collaboration between colleagues and locality of research are fundamental concerns. The other three highest rated characteristics in terms of importance were items 2, 1, and 8 which mirrored characteristics such as real practical interest (64.6%), systematic data collection and analysis (61.5%), and reducing gaps between academic research and classroom applications (61.5%), respectively. It is interesting to note that these three last characteristics reflect more pragmatic concerns. Other points worth noting here are that the statements "AR facilitates the professional development" (item 9) and "AR has the potential to become empowering" (item 3) were the characteristics which received the highest ranking in the less important category with 43.1% and 41.5%, respectively.

Interview

In the interviews, teachers were asked to clarify why they considered particular characteristics as important while some others as not important in terms of the quality of AR. For reasons of space, once again, the focus here is limited to teachers' comments on the characteristics most highly and least highly rated, namely, collaboration and professional development. Here are some of the teachers' views from the interviews which show why teachers rated collaboration so highly, and which help us to understand what meanings teachers assigned to this term:

As far as I know, action research is a kind of group work. I mean if I was supposed to do research alone it was something else not action research.

It is always easier to do research with other people. There are a lot of benefits such as sharing ideas, reducing the burden of research and even sympathizing. Whenever I share a problem with my colleague and see that he has the same problems in his classroom I feel more comfortable because I know that I am not alone.

What is most important for me in doing action research is solving the problems of my classroom. Here the fame is not important at all. On the contrary, the professors in university are always trying to publish their research with their names appearing as the sole author. So why do not do it [action research] with other teachers when I know the result is more important than who does it? In addition, as they say, two heads are better than one!

As it was mentioned earlier, item 9 which emphasises on the professional development aspect of AR received a high ranking in the less important group. Here are teachers' comments about this characteristic:

I have never thought that action research may result in professional development. Of course action research is very interesting and it may help teachers think more about their job but in the end it is the learners who take advantage not the teacher.

I do not see any relationship between action research and professional development. Maybe when you are working at university it will help you to improve in your job but in private institutes I do not think so.

Personally, I believe that most of the English teachers in Iran are not motivated enough to improve in their jobs. I mean that it is not important whether you do action research or any other kind of activity to show that you are interested in your job. Everything ends up in money. I mean you have to work very hard to earn money especially in such a tough economic situation in Iran. So you do not have time to think about anything else.

Discussion

Wyatt (2011) believes that observation is one of the "crucial [skills] for teachers conducting classroom-based action research" (p. 423). It seems that most of the teachers in this study have also discovered the benefits of observation for conducting AR since scenario 6 which its general theme is about observation has attracted their attention more than any other scenario. As one of the teachers declares, "I believe that no two teachers have identical experience, training, and beliefs about teaching. So action research can be as simple as making use of opportunities such as observation to talk to colleagues and explore ideas about teaching". The popularity of this technique might result from both its familiarity and easiness. Regarding familiarity, Dornyei (2007) mentions three unique aspects of conducting research in a classroom context, one of them is classroom observation "which is a highly developed data collection approach *typical* of examining learning environments" (p. 176; emphasis added). One of the teachers clarifies the typicality of this technique by stating that

my colleagues and I are all familiar with observation schemes such as COLT [Communication Orientation of Language Teaching] because our supervisor sometimes asks us to take a copy of this into the classroom and focus on just one aspect of our colleagues' teaching practice.

Regarding easiness, we should note that organising and analysing data efficiently and effectively is extremely time-consuming from teachers' perspective. To assume that teachers

will find or make the time to implement and analyse various AR data collection and analysis methods such as journal writing, videotaping, or survey data analysis may be highly misguided. This is not thus surprising to see that most of the teachers in this study equate this simple technique to AR, however falsely.

Many previous studies have shown that teachers associate research with its conventional characteristics such as large sample size, statistics, pre/post-test, etc. For example, Borg (2007) shows that 98% of the teachers surveyed in his study believe that research means conducting a large-scale survey and analysing the data statistically. In other words, it can be inferred that a lot of teachers have a good knowledge of conventional research. In Borg's (2007) words, "the 'standard' view of research, on the basis of the available evidence, thus seems to remain the predominant model in the minds of teachers both generally and specifically in ELT" (p. 743). The finding in this section is in line with the previous research since it seems that teachers in this study know experimental study better than any other type of research. This is due to the fact that the least three rated scenarios (numbers 8, 2, and 5) all have the specific characteristics of conventional research. As one of the teachers confesses, "I may not know what exactly action research is but I surely know what ordinary research is". However, this can be considered a real threat to teacher AR. For example, Clayton et al. (2008) found that teachers' desire for conducting research can at times be debilitated by "quantitative and essentially positivistic" (p. 78) understandings of research. Although presenting a positive view of how AR is perceived, McNiff and Whitehead (2002, p. 1) have also expressed the same concern more than a decade ago:

> Today, action research is recognized as a valid form of enquiry, with its own methodologies and epistemologies, its own criteria and standards of judgment. Debates still take place about the natures of action research, how people carry out their research and for what purposes, but there is general agreement that action research has an identity of its own and should not be spoken about in terms of traditional forms of research.

As Danielson and McGreal (2000, p. 24) assert, "teaching is highly complex, and most teachers have scant opportunity to explore common problems and possible solutions, or share new pedagogical approaches with their colleagues". Collaborative AR can assume a critical part in such a circumstance since it offers principles and frameworks which empower teachers to become more participatory and collaborative in ways that meaningfully engage them in the full cycle of AR, from problem-posing to making research results and implications public (Burns 1999). As one of the teachers states,

> What makes me feel depressed is that I sometimes feel that teaching is a kind of isolated job. But I think that if teachers do action research with their colleagues, they can learn from each other and foster a sense of professionalism in themselves.

As this quotation, and the ones mentioned earlier, shows this form of practitioner inquiry takes the form of a specific focus on improving classroom practice and deepening the teachers' understanding of themselves as professional practitioners. Such form of research has been considered extremely important because of both providing teachers with a framework for viewing themselves as researchers and playing an important role in making small-scale change (Brydon-Miller & Maguire 2009).

One interesting finding was that teachers' beliefs about the role of AR in professional development were the least rated. Although in both general education (e.g., Ado 2013; Cain & Milovic 2010; Descamps-Bednarz 2007; McNiff 2002; Vogrinc & Zuljan 2009; Zeichner

2003) and second language education (e.g., Atay 2006, 2008; Bailey et al. 2001; Campbell & Tovar 2006; Chou 2011; McDonough 2006; Richards & Farrell 2005) AR has been viewed as an essential factor in providing opportunities for professional growth and development, teachers in the present study do not express the same thought. This might be due to several reasons mentioned by the teachers who participated in the interviews such as lack of motivation, lack of deep knowledge about AR and its trivial effects on their professional lives. There is also evidence from general education that although teachers usually value AR as a means of professional development, it doesn't necessarily lead to changes in their practice. Haggarty and Postlethwaite (2003), for example, have reported that:

> [action research] led to understanding of new perspectives for some teachers but limited understanding for others. Where there was new understanding, that understanding led to change for some, but confirmation of existing practice for others. For a third group, the teachers' perceptions were that new understandings and classroom practice were separate – they had not altered or even confirmed their practice as a result of their new understandings (p. 435).

Implications

It is believed that AR has a great potential to help L2 teachers develop in their profession. First, an awareness of AR and its assumptions provides a suitable basis for understanding the particular assumptions about research, its purposes, and its methods that underpin specific classroom contexts. Many teachers wrongly associate research solely with academics and scientists, experiments and statistics. Shkedi (1998), for example, found that teachers' definitions of research commonly focused on quantitative tools, objectivity, hypotheses, representativeness, and generalisability. However, as Borg (2006a p. 23) truly asserts, in teacher research, "the goal is often understanding rather than proof". Second, doing AR provides L2 teachers with the knowledge and skill that can help them develop research skills required to become autonomous. However, although thoughtful teachers may possess certain skills they can exploit during research, many have not received the "research education" (Borg 2003) that equips them to effectively conceptualie and implement a piece of research. The previous research has shown that AR has the potential to increase the L2 teachers' research skills. For example, Thorne and Qiang (1996) reported in their study that the teachers who implemented AR projects improved research skills than did teachers who did not carry out their projects. Finally, AR gives teachers the knowledge and confidence to act as responsible professionals. As Flake et al (1995, p. 407) claim, "by becoming researchers, teachers can take control of their classrooms and professional lives in ways that confound the traditional definition of teacher and offer proof that education can reform itself from within". There is growing evidence that teachers doing AR together in the same school or program make significant impacts on school change, student achievement, and the professional development of teachers participating in the research (e.g., Elyildirim & Ashton, 2006; King & Newmann 2000; Loughran et al. 2002).

Conclusion

Research on teacher beliefs has already gained its reputation in the field of L2 education. It has been proposed that they play a crucial role in influencing our behaviours, actions and interactions in the classroom (e.g., Borg 2006b; Farrell & Lim 2005; Freeman 2002). Although these beliefs are not usually at the forefront of our cognisance as we teach: this is especially true for new teachers whose fundamental aim is to get by in the classroom, they create a complex network of assumptions that lie underneath our professional behaviour. Paying attention to the personal beliefs and being aware of their inescapable presence is especially of considerable importance in AR because they shape teachers' perception, analysis and interpretation of what is taking place in their classrooms during the AR process. However, as Burns (2010) makes it clear, many language teachers often "have only a hazy idea of what it [action research] actually is and what doing it involves" (p. 1). This study specifically showed that while AR is not unknown among Iranian EFL teachers, its use is not widespread. In part, this might be because AR assumes a high level of autonomy (Castle 2006) and reflection (McIntosh 2010) for practitioner-researchers, neither of which are traditional characteristics of the ELT system in Iran. This highlights the need for organisational, practical and intellectual support, since encouraging teachers to be research engaged without fulfilling such criteria seems difficult, if not impossible.

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About the Authors

Vahid Rahmani Doqaruni is currently a Ph.D. candidate in Teaching English as a Foreign Language (TEFL) at Ferdowsi University of Mashhad, Iran. He has published several papers on second language education research in national and international journals. His major research interests are: action research, teacher education, second language writing, mixed methods research and task-based language teaching.

Behzad Ghonsooly is professor in the Department of English Language and Literature at Ferdowsi University of Mashhad, Iran. Publishing many papers in international journals, he is interested in introspection research, second language reading and language testing.

Reza Pishghadam is professor of language education and courtesy professor of educational psychology at Ferdowsi University of Mashhad, Iran. Over the last nine years, he has published more than 170 articles and books in different domains of English language education, and has participated in more than 20 national and international conferences. In 2007, he was selected to become a member of Iran's National Foundation of Elites. In 2010, he was classified as the distinguished researcher of hu-

manities in Iran. In 2014, he also received the distinguished professor award from Ferdowsi Academic Foundation, Iran.

Authors' addresses
Vahid Rahmani Doqaruni
Department of English Language and Literature, Faculty of Letters and Humanities, Ferdowsi University of Mashhad
Campus of Ferdowsi University of Mashhad, Azadi Square, Mashhad, Iran
Email: rahmanidoqaruni@mail.um.ac.ir

Behzad Ghonsooly
Department of English Language and Literature, Faculty of Letters and Humanities, Ferdowsi University of Mashhad
Campus of Ferdowsi University of Mashhad, Azadi Square, Mashhad, Iran
Email: ghonsooly@um.ac.ir

Reza Pishghadam
Department of English Language and Literature, Faculty of Letters and Humanities, Ferdowsi University of Mashhad
Campus of Ferdowsi University of Mashhad, Azadi Square, Mashhad, Iran
Email: pishghadam@um.ac.ir

Appendix: Questionnaire

English language teachers' beliefs about action research (AR)

What is your belief about AR? This is an important question in our field—especially at a time when language teachers all around the world are encouraged to do AR as an effective way to improve their teaching skills and gain more understanding of themselves as teachers, their classrooms and their students. This survey of English language teachers asks you for your beliefs on this issue and will take 10–15 minutes to complete. Participation in this study is voluntary. Thank you for your interest in contributing.

SECTION 1: SCENARIOS

The purpose of this section is to elicit your views on the kinds of activities which can be called AR. There are no right or wrong answers. Read each description below and choose one answer to say to what extent you feel the activity described is an example of action research.

1) A teacher of English language in a high school had negative feelings about the oral tests she used in class. To understand the nature of her problem, she collected information by giving students a questionnaire. She found that the interruptions she made were distracting students from searching their minds or following their trains of thought. As a result of this information, she restricted her interventions to a minimum.

Definitely not AR	Probably not AR	Probably AR	Definitely AR
☐	☐	☐	☐

2) A researcher wishes to know whether the use of group work will improve students' ability to speak English. He assigns one group of students in a school to an experimental group, where all classroom tasks are conducted through group work for a period of two months. An equal number of students (the control group) are taught using the same tasks through a whole-class teacher-fronted approach for the same period. The results show that the students assigned to group work have performed at a higher level in relation to fluency, but their accuracy is lower than the control group.

Definitely not AR	Probably not AR	Probably AR	Definitely AR
☐	☐	☐	☐

3) A researcher decides to move away from using whole-class speaking activities in his classroom. He decides to introduce more group work for certain tasks and to observe how the students react. He assigns students to groups and keeps a journal noting down his observations over a period of two weeks. His journal entries indicate that students are reluctant to do group work. The researcher discusses the problem with some colleagues who suggest he tries letting students choose their own groups. He tries this strategy over a further period of one week and notes that students are less reluctant.

Definitely not AR	Probably not AR	Probably AR	Definitely AR
☐	☐	☐	☐

4) A group of five teachers of adult ESL students volunteered to be part of a collaborative project to investigate the teaching of mixed-level classes. First, each teacher identified a focus area for research such as investigating materials development to cater for mixed levels or examining various student groupings. Then, each teacher described the actions they were putting in place in the classroom and their methods for collecting data on what happened. They supported each other by providing reflections, suggestions, and feedback on each project.

Definitely not AR	Probably not AR	Probably AR	Definitely AR
☐	☐	☐	☐

5) A teacher was interested in the use of mobiles in English language teaching. He gave a questionnaire about the use of mobiles in the classroom to 150 learners. He used a professional statistics software to analyze the data. He found that most of the learners were interested in the use of mobiles in the classroom as a way of improving their language. The teacher wrote an article about his study and submitted it to an academic journal.

Definitely not AR	Probably not AR	Probably AR	Definitely AR
☐	☐	☐	☐

6) A teacher who teaches EFL at a primary school wanted to try out different tasks in the classroom to evaluate their effectiveness for students. Because task-based teaching was a new approach for him and he would be fully occupied in teaching the children the language items and then trying out the tasks, he asked a critical friend to observe him in the classroom and to take notes on various aspects of his teaching. At the end of the lesson, he and the observer got together to compare their observations of how a particular task had worked.

Definitely not AR ☐	Probably not AR ☐	Probably AR ☐	Definitely AR ☐

7) A teacher is teaching a class of beginners who are reluctant to interact. She wants to increase confidence and communication among her learners. She asks her learners to give her feedback on her teaching by distributing a written feedback form. The teacher analyzed the feedback forms and used the information based on which she decided to change his teaching method.

Definitely not AR ☐	Probably not AR ☐	Probably AR ☐	Definitely AR ☐

8) A teacher was interested in finding out which of two methods for teaching grammar was more effective. In order to ensure that the students in the experimental group are not at higher levels of language learning to begin with, the researcher first administers a test. She then assigns students to two groups on the basis of the test results and teaches grammar to each class using a different method. At the end of the two months, each of the groups is given a further identical test in order to see whether any of the methods has resulted in better results. She decided to use the method used with the experimental group.

Definitely not AR ☐	Probably not AR ☐	Probably AR ☐	Definitely AR ☐

9) A teacher was interested in the types of oral feedback he and six of his colleagues gave in their classrooms. Data were collected through audio-recordings. Two oral tasks from one of his own lessons and one of his colleagues were chosen for analysis. These were recorded, transcribed and the teachers' use of oral feedback in them analyzed. He found that most of the oral feedbacks were evaluative. He concluded that he should change his feedback strategy because such an attitude might frustrate learners and create in them negative attitudes toward learning.

Definitely not AR ☐	Probably not AR ☐	Probably AR ☐	Definitely AR ☐

10) A teacher was interested in whether and how learner autonomy operated in her two speaking classes which focused on the oral presentation activities of students. She video recorded ten 90-minute sessions of her two classes, which consisted of 99 students who were studying at the upper-intermediate level of English. She used an unstructured

class observation method to observe the classes (not to follow any fixed plan or structure). The videos were of great use as she reviewed specifically what the students and she had been doing in class, focusing on elements related to independent learning.

Definitely not AR ☐	Probably not AR ☐	Probably AR ☐	Definitely AR ☐

SECTION 2: CHARACTERISTICS OF GOOD QUALITY AR

Here is a list of characteristics that AR may have. Tick ONE box for each to give your opinion about how important it is in making a piece of AR *good*.

Characteristics	Unimportant	Moderately Important	Unsure	Important	Very Important
1) AR requires systematic data collection and analysis					
2) AR addresses questions of real practical interest					
3) AR has the potential to become empowering					
4) AR is contextual, small-scale, and localized					
5) AR is a participatory and collaborative enquiry					
6) AR occurs through a dynamic process of cycles					
7) AR usually helps to deepen personal theories about teaching					
8) AR reduces gaps between academic research and classroom applications					
9) AR facilitates the professional development					
10) AR acquaints teachers with research skills					
11) AR involves teachers in reflecting on their teaching					
12) AR is subjective rather than objective					

If there are any other characteristics which in your opinion a study must have for it to be called *good* action research, please list them here.