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Improving teachers' pedagogical and instructional practice through action research: potential and problems

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ABSTRACT

This conceptual paper reviews the extant literature on action research/teacher led inquiry and answers the question: How and in what circumstances can action research improve teachers' classroom practice and therefore what might be the implications for school improvement? A critical analysis of the nature and purpose of action research as a mechanism for school improvement is explored via close examination of definitions, the characteristics of action research and models of action research. From the literature reviewed, it is noted that action research, whether conducted individually or collaboratively, has been found to contribute to teachers' ability to investigate their practice with a view to improving students' outcomes and for school improvement. Nevertheless, the success of action research is predicated on a number of conditions such as motivation, trust, mutual respect, and resources, particularly time spent within the situational context. Additionally, in educational contexts, action research is generally externally mandated, and tends to take place as a fulfillment for programs of higher education which are targeted at improving practice in settings such as schools and classrooms. Under these circumstances action research does lead to school and classroom improvement. Still, these circumstances can be called ideal and as such the question of institutionalizing action research as part of the routine of schools globally remains a challenge. Still, however, action research has the potential for improvement at both the individual and institutional level once the conditions are right.

Introduction

Action research may be described as one of the signature pedagogies (SP) in teacher education and teacher education programs facilitating teacher learning. Drawing on the work of Shulman who first coined the phrase, Yendol-Hoppey (2013) defines SP 'as a systematic and intentionally designed learning routine that facilitates pre-service teacher (PST) professional learning within clinically rich preparation.' Action research, in essence, requires teachers to engage in research and consequently to take specific action to inform their practice (Edwards-Groves and Kemmis 2016). This presupposes the presence of a number of situational conditions, for example, willingness of teachers to scrutinize their practice, trust, critical

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relationships, and freedom to act and make choices, which do not all exist in some school contexts.

Johnston (1994) observes that the action research process is unnatural to teachers and generally tends to be externally motivated, and this is relevant for this current research study. Like most people, teachers find it is easier to maintain the status quo, rather than challenge it. Teachers are not generally willing to scrutinize or subject their practice to scrutiny for many reasons, one being the fear of discovery and another the concomitant action or activity which reflection on practice may require. Hopkins et al. (1997, 2), refer to this as 'a sense of anxiety and feelings of incompetence, associated with relearning and meaningful change.' This scrutiny, however, may result in a change in the way one teaches a topic or may even lead to the sourcing of professional training or professional development to advance or hone practice.

There are other limiting factors to the conduct of action research by teachers. The school culture, for example, may not generally be supportive of reflection and inquiry. Further, teachers are members of other micro-political groups whose influence in the school may be powerful and who may not be supportive of scrutiny of practice. Further, Fryer (2004) notes that the egalitarian nature of action research may sometimes conflict with the hierarchical structure that exists in schools. This is also applicable in the Trinidad and Tobago school context.

Thus, the role of teacher-led inquiry figures prominently as a mandatory practice that has been envisioned to raise the level of achievement in schools. Its proponents laud it as a veritable best practice for improving what goes on in classrooms and schools. Oolbekkink-Marchand, van der Steen, and Nijveldt (2014, 124) for example, identify the goals and therefore the benefits of practitioner research as:

> individual professional development of the teacher as researcher, which can lead to change in their own classroom; school development, which includes staff development and school change that go beyond the individual classroom; and knowledge that can be generalized to other populations and contexts.

The authors' position is that much has been said about the benefits of doing action research in terms of improving teacher practice and for student and school improvement without necessarily being conclusive. This conceptual paper reviews the extant literature on action research/teacher led inquiry and answers the question: How and in what circumstances can action research improve teachers' pedagogical and instructional practice and therefore what might be the implications for school improvement?

The paper is divided into three sections. Section one critically reviews Action Research Theory. This section is subdivided into three parts which address the following: a definition of action research, a description of its main characteristics and of the key action research models, and exploration of the conditions which should exist for action research to occur optimally. Section two critically analyzes empirical literature on action research and explores the advantages which action research offers and limitations to its conduct. Section three explores action research as a mechanism for change and for engendering teacher, student, and school improvement, and proposes a paradigm for action research and learning.

Conceptual framework

The paper is grounded in the notion that the persons directly invested in education are the ones in the best position to initiate and engender improvement in it and one way to do so is via action research (Somekh 2006). According to Stoll, Fink, and Earl (2003) the nature of schools requires that 'real' improvement be initiated by those who teach, and within the immediate space where the process of learning is negotiated and eked out on a daily basis. Elliott (1996) and Mc Lean (1995) corroborate this point. Mc Lean (1995, 3) comments that action research furnishes teachers with 'the attitude not to accept the status quo, but to ask if there is a better way.'

Action research defined

Action research has its roots in Kurt Lewin's seminal work in the immediate Post World War Two period. Lewin proposed action research as a methodology for tackling the major social problems of the day. As an approach to problem-solving within a contextualized social framework, the theory has developed significantly since its introduction by Lewin in the 1940s. Stenhouse and Elliott further developed the approach in the 1970s. They expanded the notion of action research, by emphasizing the concept of 'teacher as researcher' and its value in terms of problem identification and solving at a very practical level (Stenhouse 1975). Edwards-Groves and Kemmis (2016) have taken it further, to link the practice to cultural, socio-political, and economic conditions within the context of site-based education development.

There are many definitions of action research and it is called by different names. Kemmis (1985, 44–45) defines action research as a form of inquiry undertaken by participants in social (including educational) situations in order to improve the rationality and justice of:

(1) Their own social or educational practices.
(2) Their understanding of these practices.
(3) The situations in which the practices are carried out.

Hopkins (1993, 1) calls it 'classroom research' and defines it as 'an act undertaken by teachers to enhance their own or a colleague's teaching to test the assumptions of educational theory in practice, or as a means of evaluating and implementing whole school priorities.' Mc Lean (1995, 3–4.) defines action research as a 'process of systematically evaluating the consequences of educational decisions and adjusting practice to maximize effectiveness.' Elliott (1996, 69), defines action research as 'the study of a social situation with a view to improving the quality of action within it.'

McNiff, Lomax, and Whitehead (1996) argued that action research is not only about practice. They claim

> …there must be praxis rather than practice. Praxis is informed, committed action that gives rise to knowledge rather than just successful action. It is informed because other peoples' views are taken into account. It is committed and intentional in terms of values that have been examined and can be argued. It leads to knowledge from and about educational practice. (McNiff, Lomax, and Whitehead 1996, 7–8)

Hollingsworth (in Keeves and Lakomski 1999) supports the above: '…teacher researchers are concerned simultaneously with ways to (a) improve their practice, (b) change the

situations in which they work, and (c) understand their practices within the larger society …' (57)

Bassey (1999) states that:

…action researchers … are teachers or managers who are trying to make beneficial change within their own workplace. In order to do this it is first necessary to understand what is happening and to evaluate it, then introduce change and evaluate the new situation. Action researchers are using systematic and critical inquiry in attempts to improve their practical situation (41).

Defining action research as a systematic inquiry is common within the literature, and indicates that a particular procedure and structure is used in the process (Mills 2011; Stringer 2014; Mertler 2016).

Macintyre (2000, 1) calls it 'classroom research' and defines action research, as teachers engaging in a meticulous self-appraisal of their current practice, with the intention to solve problems through a reflective and reflexive process. Coghlan and Brannick (2001) go further in their definition to include the role of collaboration or collaborative work in the research process: 'Action research has been traditionally defined as an approach to research that is based on a collaborative problem-solving relationship between researcher and client which aims at both solving a problem and generating new knowledge' (3).

The term 'clients' can refer to colleagues or students in school. What is noteworthy in this definition is that carrying out research is envisaged as a collaborative exercise and this raises issues of locus of control and the source of interpersonal power in the process. Nevertheless, this definition highlights that action research is about developing knowledge and understanding in order to improve educational practice.

Notwithstanding its intellectual ancestry, action research may be located within the broader framework of teacher inquiry, described as a research tradition 'highlighting the role classroom teachers play as knowledge generators. This tradition is often referred to as "teacher research," "teacher inquiry," "classroom research," "action research," or "practitioner inquiry." (Fichtman and Yendol-Hoppey 2014, 8). Still, to really understand the nature of action research, one has to examine its characteristics and these are explored in the next section.

Characteristics of action research

There are some central characteristics of the action research approach which are discussed in this section. Action research claims to initiate change which can impact positively on educational outcomes via interventions. Action research is responsive and supports change from the inside out and not vice versa (Elliot 1988). It is disciplined inquiry. Action research is validated through triangulation. Action research is participatory at various levels, (Kemmis and Henry 1985). Mertler (2016), drawing on the work of several writers, explains the characteristics of action research by delineating what it is and what it is not. His points about what action research is, corroborates what has been discussed so far in this paper. Still, in the interest of providing a balanced view, it is worthwhile listing his points about what action research is not. According to Mertler (2016, 18):

- Action research is not the usual thing that teachers do when thinking about teaching: it is more systematic and more collaborative.

- Action research is not simply problem-solving; it involves the specification of a problem, the development of something new (in most cases), and critical reflection on its effectiveness.
- Action research is not done 'to' or 'by' other people; it is research done by particular educators, on their own work, with students and colleagues.
- Action research is not the simple implementation of predetermined answers to educational questions; it explores, discovers, and works to find creative solutions to educational problems.
- Action research is not conclusive; the results of action research are neither right nor wrong but rather tentative solutions that are based on observations and other data collection and that require monitoring and evaluation in order to identify strengths and limitations.
- Action research is not a fad; good teaching has always involved the systematic examination of the instructional process and its effects on student learning.

Finally, action research is a process, which, as Lewin outlined, involves at least four stages: reflecting, planning, acting, and observing. This process approach is congruent with school improvement literature. Fullan (1992) states that school improvement is not a one-off event, it is a process. Hopkins (2001) also maintains this view. Thus, the action research approach is an organic form of inquiry.

Models of action research

Various models of action research exist which are applicable in diverse spheres. In the context of schools and classrooms, this conceptual paper examines three main models espoused in the literature: Hopkins (1993), Elliot (1996), and Macintyre (2000). It also explores Somekh and Zeichner (2009)'s framework for analyzing action research practices within context, which, in a way provides an organizing frame to read action research as it is conducted in a variety of contexts. This methodological framework presents a synthesis of research related to the dimensions of action research that takes into consideration the political, professional, and personal (Noffke 1997), and extends the boundaries (Somekh 2006).

Somekh and Zeichner (2009, 10–11) outline eight dimensions in their analytic framework which take into consideration: the purposes for which action research is conducted; the contextual conditions for action research; the philosophy toward teachers and their learning; who sponsors the research; incentives for doing action research, the form of inquiry, and the relationship of action research to other research.

Hopkins' model

Hopkins (1993) refers to action research as 'classroom research' which should situate within the wider nexus of the school and its objectives. According to him, 'we need to strive consciously for a synthesis between teacher research and school development.' The central tenets of Hopkins's model, though he claims that his is not in fact a model, is summed up in his statement that 'The original purpose of teacher research was to free teachers from the constraints of pre-specified research designs' (Hopkins 1993, 55). Hopkins's position is that classroom research should be a tool which emancipates teachers from the bureaucratic

structures that restrict and disempower them. In addition, he is concerned that action research be viewed not merely as a 'deficit model,' responding only to problems or needs to improve, but rather to view it as a process of continuous professional development, a pro-active rather than a reactive approach.

Hopkins rejects most models of action research on the basis that they are too prescriptive. He does acknowledge the models produced by other writers, for example, Kemmis and Mc Taggart (1988) who developed a spiral model, 'Action Research Planner'; Elliott (1996) 'Action Research Model,' which proposes that we view action research as a series of cycles, each incorporating the possibility for feedback within and between cycles; and Mc Kernan (1991) 'Time Process Model,' which emphasizes non-rigidity in time. However, he is concerned with the specificity of the process in these models, since these prescriptive frameworks can ensnare teachers, making them too reliant on following the structure which, as he says, 'will consequently inhibit independent action' (Hopkins 1993, 55).

Hopkins offers methods and techniques that can be used by teachers in their research. As a precursor to his techniques and methods he presents six criteria for classroom research by teachers, which outline the parameters within which classroom research by teachers should be conducted (Hopkins 1993, 57). He suggests that the action research process begins with 'developing a focus,' which is a procedure whereby the teacher determines what he is going to research. As stated before, it does not have to be a problem; it can stem from an interest or new idea (Hopkins 1993, 63). It derives from a teacher's reflection on practice. He advises that the choice of topic should be guided by what is doable, manageable, relevant to practice, can be done collaboratively, and is congruent with the overall development objectives of the school.

Hopkins (1993) suggests the use of a range of data collecting techniques which is outlined in his taxonomy of data gathering techniques. He stresses the collaborative approach to data gathering on various levels – with colleagues and with the research participants, for example students and parents. His three phased observation cycle emphasizes the importance of teacher researchers creating an environment of trust and mutual support and buoyant interpersonal relationships. Hopkins, like Elliott, whose model is described below, emphasizes the need for validation of the research through triangulation and the need to ensure that ethical procedures are observed during the conduct of the exercise.

Elliott's action research model

The central tenet of Elliott's approach is that action research is a process which develops a teacher's capacity to work out 'best practices' through discernment within singular, complex, human circumstances, which subsequently enhances professional development and performance. Elliott (1996) presents an action research model quite similar to Lewin (1946)'s original model. However, there are three fundamental principles upon which Elliott's model is based, which makes it unique and which are worth mentioning. Firstly, the initial idea should be flexible; secondly, reconnaissance is both a fact-finding and analytical process which should take place at and within every stage of the research process; thirdly, monitoring the implementation of an action step should precede the evaluation of its effects (Elliott 1996, 70).

Developing a general idea is the first step in this model, and can be generated by the need to address an existing issue or to improve a situation. Elliott cautions that teachers

must choose a topic that is doable. The reconnaissance stage, as stated before, involves the collection of facts and analysis of same. This process can lead to contextualized hypothesis formulation. The next stage involves constructing a detailed but flexible plan of action, which includes a revised statement of the general idea; provisos for ethical issues; negotiating access; a statement of the intervention/s and concomitant actions to be taken; an indication of the resources needed to support the intervention; development of the action steps by careful monitoring of the intended and unintended effects of the implementation; and finally, implementing the next action and as such reopening the entire process from the beginning (Elliott 1996, 75–76).

Elliott suggests the use of a wide range of data collection methods and analysis, including analytic memos, diaries, and observation. Elliot advocates for triangulation to establish the integrity of the research rather than to rigorously establish validity and reliability. Another key aspect of Elliott's model is developing a timeline, for the cycles of the research to take place. The case study approach is used to report the data and Elliott stresses the ethical considerations in conducting research.

Macintyre's model

Macintyre (2000) prefers the term 'classroom research' as opposed to 'action research.' The model she puts forward is cyclical and involves a planning phase, an implementation phase, and an evaluation phase (Macintyre 2000, 1). The action research process according to Macintyre (2000), like that proposed by both Hopkins (1993) and Elliott (1996), begins with teachers' reflection on current practice. The research formulation process in this model is rigorous, largely because the model is constructed such that the subsequent processes, methods of data collection and analysis, situate inherently within the research questions. Therefore, a key principle underlying this model is the formulation of the research questions, which can be done in two ways: firstly, as a result of the reflection on practice, and secondly through a perusal of the recent literature. As an alternative to a research question, she proposes hypotheses formulation, whereby two variables are examined within an 'if X then Y' scenario, (Macintyre 2000, 42–43). Hypotheses are either confirmed or denied by the evidence. Her proposition on validity is that it need not be rigorous for a small-scale piece of classroom research (Macintyre 2000, 50).

Macintyre, like Hopkins and Elliott, stresses the importance of ethical considerations in conducting research, especially for teachers who, because of the very nature of their work situations, are in positions to prejudice their research, particularly in terms of bias and exploitation of pupils. She refers to bias existing on two levels, 'personal and procedural' (2000, 48). Her suggestion to eliminate bias also involves the concept of triangulation, utilizing a two pronged process, with teachers and students at one level and the use of a variety of data collection methods at another. The other key principles in the model include devising the action plan, implementing it, monitoring it, evaluating it and finally, as the cycle indicates, making final amendments.

Conditions for action research

Elliott (1996) suggests that a tremendous desire to innovate and improve is an essential precondition of action research. Notwithstanding the need for facilitating conditions in which

action research by teachers can be conducted, and the willingness to expose one's practice and self to scrutiny by self and others, teachers must first be motivated to conduct action research. Noffke (1997) suggests three areas that provide motivation for teachers to engage in research. These motivations exist at different levels. Firstly, at a personal level, teachers are motivated to conduct inquiry into their practices so as to gain a better understanding of their individual teaching and the possibility of gaining knowledge of how to improve it. Secondly, on a professional level teachers are motivated by the fact that the outcome of their research is knowledge they can share with colleagues via seminars, conferences, symposia, and publications. Thirdly, at the societal level, teachers are motivated to contribute to the greater good of society, equity and social justice to bring about change in the system. As such, the levels of motivation can be categorized as: individual, institutional, and societal; they are not, however, mutually exclusive and teachers may be motivated by some or all.

Johnston (1994) found that an examination of the examples of action research in the literature shows that the motivation to conduct action research is generally of external origin or is an intervention and not necessarily initiated by teachers themselves. The external sources of motivation may include '…funding, assessment requirements for coursework studies, a group facilitator or a university researcher' (40). One can therefore infer that external motivation is an important condition for action research to take place in schools. This inference undoubtedly raises questions about the institutionalization and sustainability of action research in schools when driven by external forces. Johnston (1994) proffers a response to these questions by suggesting alternative ways for teachers to examine their practice. She identified the inquiring teacher movement and the teacher as researcher approach, utilizing narrative inquiry as possible alternatives.

Day (2005) identifies four fundamental conditions necessary for action research to take place. He describes these as: trust; establishing critical relationships; the ability to sustain these relationships (given the assumption that the inquiry process is not a one-off event); and resilience and tenacity to sustain the process. These conditions create an environment which is supportive of change, shared learning, and mutual risk-taking.

Much action research involving teachers takes place in graduate teacher professional development programs. In a review of literature which explored action research in these programs, Vaughan and Burnaford (2016) noted that 'Action research as a methodology provides teachers with opportunities to build and sharpen the dispositions that create reflective and collaborative teacher leaders. The flexibility of action research as a methodology allows for simultaneous development of research skills and practitioner dispositions' (286). Such an approach facilitates the development of teacher knowledge, which can lead to improved student outcomes and teacher professionalization. This approach therefore suggests that a key condition that should exist for facilitating action research is an environment in which opportunities exist that encourage teachers to engage at the level of skill development and in the affective realm where positive attitudes to engaging in research can be fostered.

Cain (2011) and others (Ulvik 2014) discuss the role of faculty researchers and the nature of the interaction between these researchers and teachers. Educational researchers as the term is used below may refer to teacher education faculty who engage in the supervision of teacher research at sites such as universities where these teacher education programs are located. Cain (2011) states:

> If teachers' classroom-based action research is to fulfil its potential to improve the theory and practice of teaching, educational researchers should work with teachers to find methods which are congruent with the nature and ethics of teaching. There is evidence that such methods can generate rigorously researched and inspiring narratives of change, showing teachers' and students' struggles to achieve their educational ideals … (14).

Zeichner (2003) contends that action research can aid in teachers' professional development, also under particular facilitating conditions. Zeichner examines data from four studies of teacher research conducted outside of a university-based program for teacher education. These studies were essentially district initiated and school and classroom based. He identifies the following several key conditions which should be in place to facilitate the research process: 'respect for teacher knowledge and voice, a safe and secure environment for inquiry, sufficient time to inquire in depth, and intellectual challenge and stimulation' (320).

Action research: some empirical evidence

Reports on empirical studies lend support to the value of action research for teachers' professional development (TPD). Several studies emerging from diverse locales are examined below: (1) Kember (2002), involving academic staff in higher education; (2) Seider and Lemma (2004) focusing on the engagement of practicing school teachers in an action research project as a requirement for a Master's program; (3) Hagevik, Aydeniz, and Rowell (2012) involving pre-service teachers also engaged in a teacher education program; (4) Ulvik (2014) which explored secondary school pre-service teachers' engagement in action research within the context of a teacher education program; and (5) Katsarou and Tsafos (2013), two university teachers whose aim in a course was to teach students how to teach at the same time that they were being taught to research their own teaching.

In a study conducted in a higher education context, Kember (2002) proposed the action research 'approach to quality in teaching and learning' (84). The outcomes gained through action research included the 'development of skills, changes in attitudes and the development of revised practices that endured' (92). Kember identifies some longer term outcomes for teachers as follows:

(1) lasting effect on teaching
(2) teaching became more student-centered
(3) learning how to conduct action research
(4) developing capacity to reflect upon their own teaching
(5) developing teamwork skills
(6) changing the attitude of others

In the study by Seider and Lemma (2004), the action research project which they report on was designed to engage teachers in inquiry as it related to issues they faced in their schools and classrooms requiring research interventions that could inform their practice. Data were collected from teachers, principals, and colleagues of those teachers who had been engaged in the program. The researchers make six assertions based on the data which serve to underscore the value of action research by teachers. The assertions are as follows:

(1) Teachers sustained the 'inquiry mindset' gained while learning the processes associated with conducting action research and continued using aspects of the process; however, conducting new projects was less likely.

(2) Teachers' sense of professional efficacy was enhanced, even after many years had intervened.
(3) Action research had immediate benefits for students but long-range benefits were not determined.
(4) Though challenging, teachers perceived conducting action research was professionally valuable.
(5) Teachers reported that administrators, although supportive, played passive roles, whereas colleagues were more collaborative during planning and implementing their projects.
(6) Teachers described school environments conducive to conducting action research as ones that provided structures for teams to work on mutual goals supported by strong administrative leadership (219).

In a third study, Hagevik, Aydeniz, and Rowell (2012) concluded that conducting action research 'engaged them [teachers] in inquiry into their own practice … was a means to reflect upon and determine ways to change their teaching practices, and … promoted critical reflection in a collaborative learning environment' (675) An extract from one teacher's personal journal on the value of engaging in action research supports this:

> The greatest value … was learning the skills to identify a problem in the classroom and researching a means to solve it. This was incredibly fulfilling and strengthened my confidence. I think that talking about my results especially helped me to look at my teaching and how to help my students learn (682).

In another study, Ulvik (2014) reports on her experience as a teacher educator facilitating a module on action research for secondary school teachers on a pre-service teacher education program at a university. The writer indicates that she was investigating a 'double perspective by analyzing and reflecting upon student-teachers' AR reports, which are also their examinations, as well as my experiences with supporting the student-teachers' processes' (519). Gathering data via conversations, students' anonymous evaluations of the module, and her own observations and reflections, Ulvik was able to identify the value which both she and student-teachers ascribed to action research and the pros and cons of engagement in action research during a program focused on preparing teachers for teaching.

In Ulvik's view, action research could serve as a meaningful tool in teachers' professional development. Doing action research facilitated participants' ability to reflect on and question their own practice, identifying problems and challenges in the classroom. As they were able to focus on a problem of practice that needed to be addressed, they 'had to find their own answers and resources to deal with their challenges' (530), in the process moving toward connecting theory to practice. AR thus 'could offer an opportunity for nurturing professional development and contribute to students-teachers' learning' (529).

In drawing on the data from both herself and students, Ulvik identified both limitations or challenges to action research as well as advantages. Ulvik indicated, 'I find problematic the limited time, a framework controlled by schools and not least the pressure one feels to be in a situation that includes assessment' (528). However, among the pros of action research were 'the opportunity to connect practice and theory, … to be offered an active role and to experience a tool in further professional development' (528).

In their roles as university teachers/educators, Katsarou and Tsafos (2013) report on an action research which they conducted as they sought 'to investigate the proper ways to

introduce action research to our student-teachers in the university so as to empower them in a lifelong professional development perspective' (532). Challenges were faced – among them, adequate time to engage fully in the research spiral; finding strategies that could facilitate the envisaged aim of the course which was to teach students how to teach at the same time that they were being taught to research their own teaching; a local context in which the teacher is 'viewed as a technician, who is effective when able to implement theory mastered in the university' (545), a view which was reflected in some teachers' approaches to the action research process and the relation of theory to practice.

Nevertheless, the writers reported a measure of success in avoiding the dominant positivistic approaches to educational research and the corresponding theory-practice dualism.

> We engaged most of our students in processes that promote questioning, inquiry and reflection, critical dialog for the interpretation of educational situations, collaboration, study of the self, and processes of formative evaluation, in a context of democratic dialog and relative autonomy in decision-making on the part of the students, to the degree that this is possible in the context of a teaching course, which automatically shapes relationships of power and decreases the learners' autonomy (546–547).

We (the writers) acknowledge the predominant focus on action research as part of teacher education programs where it is introduced either as a methodological tool for engaging teachers in ways of reflecting on and improving practice or as content in terms of an area of developing research skills. Researchers have acknowledged that action research at the site of teacher education programs tends to occur most frequently, in alignment with the view that it tends to be externally motivated. A further focused review of literature which explores research into the use of action research in school contexts – on the ground, as it were – and the extent to which the activity contributes to improvement of teachers' practice and school improvement is warranted.

Problems and potential of action research: a synthesis

An exploration of the literature reveals that, like all other areas of research there are challenges and limitations to the use of AR for improvement of teachers' practice; but the conduct of action research holds potential for teacher practice and ultimately school improvement. These are synthesized below.

Problems of action research

A key issue, in examining the problems or limitations of action research, is not whether it can work, but whether it is workable. An analogy will be used to exemplify the point. There are many dying from illnesses for which there are cures. There are many factors constraining the ill from getting the medicines they need. These can be classified under the following headings: accessibility, finances, time, capacity, availability, technology, and knowledge. There are some who can overcome all the inhibiting factors, yet simply refuse to act to bring about improvement in their condition because of apathy, distrust, and other cultural and moral reasons. Others may start treatment, but for various reasons, do not sustain it. So it is with action research: while studies have shown that it can work, it is up to individual teachers and schools to adopt it and sustain it and thus make it 'workable.' This may be easier said

than done for, as Fullan (1991, 32) states, real improvement 'represents a serious personal and collective experience characterized by ambivalence and uncertainty.' Change of this type – involving individual or group action, in unknown and sometimes 'unknowable' circumstances, leading to a sustainable goal – is extremely difficult to initiate. The very proponents of action research admit this. Hopkins et al. (1997, 2) state, 'change is a process whereby individuals need to alter their ways of thinking and doing and this is why most changes fail…'

Indicated above are some of the limitations that can inhibit the success of action research. Even if one were to overcome these factors, there are others of which one must take account. For example, Fullan (1991) recognizes that teachers and students sometimes do not have the choice to be change agents and Hopkins (1993, 1) acknowledges the powerlessness of teachers and students in some schools. Further, even if teachers have the choice, they may or may not have the capacity, confidence, expertise, or time to conduct action research to improve their practice (Robson 2002). Indeed, Durrant (2004) highlights the problems action research can engender in the school situation, such as opportunity costs, replication and scaling up, volunteerism (which allows for school improvement for the 'most able,' and discriminates against some people for various reasons, for example, finance), and the crucial matter of sustainability. Sustainability is perhaps one of the most challenging limitations to effecting successful action research in schools because the process can easily be compromised by a lack of motivation, resources, or even mortality (Hadfield 2004).

Another limitation to action research as an approach is the methodology, or lack thereof, depending on which side of the epistemological divide one stands. The debate about the legitimacy of action research as a method of inquiry can deter some from engaging in action research. There are those who are skeptical about teachers' capacity as researchers. Hitchcock and Hughes (1995), for example, refer to practitioner research as 'a travesty of science, in which the unqualified engage in confirming their own common sense.' Conversely, Johnston (1994) recommends alternative ways of exploring practice exemplified in endeavors such as 'The Inquiring Teacher Movement,' 'The Teacher as Researcher Movement,' and 'The Narrative Inquiry Proponents.' All three adhere less rigidly to a positivistic approach to research but do offer teacher researchers the opportunity to engage in inquiry into their own practice for the purpose of effecting change, both at an individual level, that is, in teachers' individual classrooms, and at the school level, as classroom level change redounds to wider whole school change.

From a practitioner's perspective, limitations to action research may also be gleaned. Dadds (2003), making reference to practitioner research, states:

> …we may be entering into processes by which we deconstruct some basic, historically rooted views of ourselves. In such processes our existing images of the professional self will be challenged, questioned, re-thought and reshaped in some degree. These processes are necessary if change and development are to occur and self-study is to lead to new learning. We cannot escape them, nor the discomfort they may bring if we value our commitment to professional development (288)

Mockler and Groundwater-Smith (2015) refer to these 'discomforts' as 'the unwelcome truths.' By this they mean that action research can churn up results that challenge practitioners' beliefs and perceptions about themselves, which may pose some unpleasantness for them that may deter them from continuing to pursue action research. Still, Mockler and

Groundwater-Smith (2015) submit that these 'unhappy truths' can stimulate reflection and 'provide a catalyst for rethinking and recasting practice' (606).

Potential of action research

Despite the challenges, the problems, the limitations, evidence suggests that action research can work (Halsall 1998). The advantages and thus the potential of action research are inherent in the approach, in that the participants and researchers are accessible, the 'problems' are specified and contextualized, it is collaborative, it is procedural, and proximity allows action to take place almost immediately. Action research impacts at the classroom level, on teaching and learning via a process of modifying the dynamic inherent in teaching and learning. Further, proponents of action research such as Stenhouse (1988) and Elliott (1996) advocate that research into 'educational best practices' to enhance teaching and learning should be carried out within the ambit of practitioners and their clients, the students. This argument is not only sound, but logical. Day (1999) suggests that recognition of the impact of teachers, within their immediate work context is important because this fosters professional development, which in turn can impact positively on practice and consequently on student achievement.

Some advocates of the action research approach, such as Bruck et al. (2001), view it as a more valid methodology for educational research, than other quantitative or qualitative approaches, because of its proximity to the space where teaching and learning occurs on a daily basis. Sankaran et al. (2001) further suggest that the methodology allows for different ways of responding to new modes of knowledge that are closely aligned to problem-solving on site. This reintroduces the point about 'inside' vs. 'outside' negotiations for change and improvement.

This is not to say, however, that outsider input is unwelcome. Rather, action research, through its emphasis on a collaborative approach, endorses the view that outsiders can and do play a part in effecting change, though not exclusively (Elliott 1996). Harris (2000, 18) puts it succinctly when she says 'successful school improvement efforts embody the core principle that change and development are owned by the school rather than imposed from outside.'

Another key advantage of action research lies in its potential to empower teachers and this in turn can have a positive effect on the teaching and learning in the classroom. Zeichner and Noffke (2001), like Day (2005), suggest that action research facilitates the voices of teachers and students and integrally this brings empowerment to a normally marginalized group of people in research spheres. In addition, as indicated by Hopkins (2001), action research operates to emancipate at three levels: student, teacher, and school. Ultimately, action research is about the involvement of teachers in bringing about change to improve teaching and learning.

Despite the challenges, the evidence weighs heavily on the side of action research as an opportunity that can be taken advantage of for the potential that it offers for the larger issue of school improvement through teacher improvement.

Action research: a mechanism for improvement

School improvement writers such as Hopkins et al. (1997) have advanced that for 'real' improvement to occur, innovations should intervene directly on teaching and learning. In this regard, action research is poised to be a successful school improvement approach. As other school improvement writers suggest, school improvement is contingent on the willingness of stakeholders to make changes physically, socially, culturally, and mentally which translate into visible action and behaviors (Fullan 1993; Harris 2000; and Hopkins 2001).

The push to fostering facilitating conditions within schools that give rise to an environment which is supportive of change, shared learning, and mutual risk-taking, therefore needs to be undertaken. This point is corroborated in the school improvement literature. Walker, Shakoto, and Pullman (1998), Mitchell and Sackney (2000) and Harris (2000) all regard these conditions as crucial if successful school improvement is to be achieved.

Action research can be workable in schools where there is some mutual agreement, critical friendship and the environment is supportive of the 'risk-taking' which Harris (2000, 5) posits as a necessary condition for improvement. These are factors which, according to Day (2005) can work positively for the inquiry. Thus, while it may be quite challenging to make action research part of a school's approach to improvement, it is a 'door' which can unlock the processes of improvement (Joyce 1991). Additionally, whether undertaken individually or institutionally, school improvement literature consistently links successful school improvement with inquiry and reflection (Halsall 1998).

Conclusion

This conceptual paper reviewed the extant literature on action research/teacher led inquiry to determine the potential of action research for improving the pedagogical and instructional practices of teachers. The paper also explored the problems encountered in using action research to improve teachers' pedagogical and instructional practices. In so doing, the paper examined how and in what circumstances action research has the potential to improve teachers' classroom practice and the challenges faced in conducting action research. The evidence presented in this paper indicates that although teachers may face some problems conducting action research, its potential to improve teachers' pedagogical and instructional practices outweighs these problems. This paper offered some suggestions on how to mitigate the problems that may impede teachers' conducting action research.

Whether or not instituting action research leads to improvement depends on the right mix of factors and conditions being present within specific contexts so as to facilitate the research process by teachers. It also depends on the independence and willingness of practitioner researchers to act, which in a sense involves 'reculturing' (Stoll 1999). Such 'reculturing' requires that the necessary time and resources are allocated, at both the individual and institutional levels if gains in student achievement, improvement in teachers' practice and school improvement are to be achieved.

Disclosure statement

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