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Becoming Reflective and Inquiring Teachers: Collaborative Action Research for In-service Chilean Teachers

Transformarse en docentes reflexivos y analíticos: investigación-acción colaborativa para maestros chilenos en servicio

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Abstract

This article discusses the outcomes of a case study that engaged Chilean in-service teachers in systematic action research (AR) as a means of improving their pedagogical practice and effecting changes in their educational context. The study involved six in-service teachers from a region of Chile and two university researchers. The findings show that knowledge of systematic AR provided the teachers with the necessary means to engage in a critical reflection and inquiry process regarding their own practice. The teacher participants also perceived the self-reflective spiral of reflection and action to be crucial in establishing new habits of inquiry and reflection about their own pedagogical actions. The findings support earlier studies (e.g., Price & Valli, 2005; Steven & Kitchen, 2005, 2011) concerning the necessity of including knowledge of systematic AR in teacher preparation programs in order to foster strong habits of inquiry and reflection among preservice teachers. Finally, the study suggests that participation in a systematic reflection and inquiry process contributes to empowering in-service teachers to become agents of pedagogical change through their own actions.

Keywords: action research, in-service and preservice teachers, systematic AR.

Resumen

Este artículo presenta los resultados de un estudio que comprometió la participación de profesores chilenos en investigación-acción sistemática (I-A) como medio para mejorar sus

prácticas pedagógicas e introducir cambios en sus contextos educacionales. El estudio fue realizado con seis profesores en servicio de una región de Chile. Los resultados revelaron que el conocimiento de la I-A entrega a los profesores herramientas para realizar reflexión crítica e investigación acerca de su propia práctica. Los profesores percibieron que la espiral reflexiva de reflexión y acción es crucial para establecer hábitos de búsqueda y reflexión. Los resultados también apoyan estudios previos (por ejemplo, Price y Vali, 2005; Steven y Kitchen, 2005, 2011) sobre de la necesidad de incluir conocimientos acerca de investigación-acción sistemática en los programas de formación de profesores para fomentar hábitos arraigados de investigación y reflexión entre los profesores en formación inicial. Por último, los resultados muestran que la participación en procesos de reflexión e investigación sistemáticas contribuye a empoderar a los profesores en servicio para llegar a ser agentes de cambio pedagógico a través de sus propias acciones.

Palabras clave: Investigación acción, formación inicial docente, , investigación-acción sistemática.

I. Introduction

Concepts of critical reflection in one's own pedagogical practice are common elements in many preservice training and master's degree programs in North America, the United Kingdom, and Australia. Although each of the concepts has been theorized in various ways, for the most part the educational community agrees that such reflection is critical for the professional development of preservice and in-service teachers (e.g., Aulls & Shore, 2008; Baskerville & Myers, 2004; Ferraro, 2000; Leitch & Day, 2000; McMahon, 1999). The popularized work of Schön (1983, 1987), which emphasized the notion of reflection *in* and *on* action, has greatly contributed to the adoption of the concept of reflective practice by the teacher education community (e.g., Ferraro, 2000; McMahon, 1999; van Manen, 1995). Most teacher education programs present themselves as being deeply committed to preparing teachers to become reflective practitioners (Gore & Zeichner, 1991). However, despite the emphasis in the last two decades on the importance of building practitioners' capacity for reflection and inquiry, professional training based on systematic action research (AR) is lacking at the preservice and in-service levels (e.g., Burbank & Kauchak, 2003; Pellerin, 2011).

Many professional development paradigms for in-service teachers are still organized around the notion of the teacher as a mere technician following a recipe (e.g., Gore & Zeichner, 1991). In the Chilean context in which our study was conducted, in-service teachers relied mostly on traditional professional development paradigms; some also attended commercial training workshops at their own expense. However, these forms of professional development do not promote reflective practice and inquiry among teachers; they are just means of transmitting knowledge and skills. Teachers' classroom practice is carried out without reflection on the practice itself, so most of the time there is no feedback to help improve it (Ministerio de Educación de Chile, 2005; Paukner, San Martín, & Sanhueza, 2012).

This study demonstrates the need to look at how we can empower in-service Chilean classroom teachers to become reflective practitioners by engaging them in collaborative action research (CAR). The study also emphasizes the importance of introducing systematic AR in Chilean teacher preparation programs to promote the habits of reflection and inquiry that preservice teachers can later apply to their teaching practice.

II. Theoretical Framework

2.1 Reflection on Action and Action Research

The concept of reflection in the educational context was first introduced by Dewey (1933). However, it was Schön (1983) who extended the notion of reflection *in* action and reflection *on*

action to counter the perception of teachers as mere technicians who received, implemented and transmitted theories and knowledge distributed by so-called experts (Aulls & Shore, 2008; Gore & Zeichner, 1991; Leitch & Day, 2000). Schön's concept of reflection goes beyond the higher level cognitive process discussed by Dewey, and involves the interrelations between thinking about actions and doing actions (Ferraro, 2000; Leitch & Day, 2000; Paukner, 2005; van Manen, 1995).

The notion of reflection in the pedagogical context implies not only that teachers should think during their actions (reflection *in action*)—which many teachers say they do every day (Pellerin, 2011)—but that they should also engage in a deeper reflection about their interventions and the impact of their interventions on their students' learning (reflection *on action*; van Manen, 1995). Moreover, the teachers' reflection *in* and *on* their practice needs to involve reflection about their attitudes, beliefs, and self-identity as professionals and as agents of change in their respective classrooms and educational contexts (Gore & Zeichner, 1991; Leitch & Day, 2000; McMahon, 1999).

2.2 Reflective Practice and Action Research

Reflective practice, which also entails reflection in and on practice, is often perceived by teachers and teacher educators as a means for both preservice and in-service teachers to improve their teaching practice. In the in-service context, reflective practice has been viewed as essential for reflection *on* action and for ongoing professional growth (e.g., Ashcroft & Foreman-Peck, 1994; Aulls & Shore, 2008; Ferraro, 2000; McMahon, 1999; Riel, 2010).

Reflective practice and AR have often been perceived as synonymous, and the terms are sometimes used interchangeably (Johnston, 2005; McMahon, 1999). Both concepts aim to improve practice and to impact students' learning process and motivation. Both reflective practice and AR involve the teacher in a sequence of actions found in the AR spiral; however, AR involves "strategic action. . . which corresponds to deliberate and planned attempts to solve a particular problem" (McMahon, 1999, p. 163). Although teachers who engage in reflective practice may decide to act upon their reflection by taking specific actions, reflection on practice is not always followed by AR.

2.3 Spiral of Cycles and Action Research Models

The spiral of cycles first introduced by Lewin in 1952 and revised by Elliott in 1991 (cited in Leitch & Day, 2000) entails cycles of reflection and action, such as planning, taking action, collecting evidence, reflecting, and taking further action. Each cycle provides deeper understanding, which guides the way to improved actions (Riel, 2010). Following Grundy's typology (cited in Leitch & Day, 2000), which differentiated between technical, practical, and emancipatory models of AR, the self-reflective spiral would correspond more to the practical model. Practical AR is also aligned with the reflective teacher model proposed by Ashcroft and Foreman-Peck (1994), because it promotes involvement in a more systematic inquiry than does the reflective practitioner notion first proposed by Schön (McMahon, 1999). However, some have argued that the ability of practical AR to effect changes at the teacher level is limited (e.g., Leitch & Day, 2000; van Manen, 1995). According to Leitch and Day (2000), a more emancipatory model of AR is necessary to bring changes not only at the individual level but also at the social and educational levels. The emancipatory model calls on the self-reflective spiral of reflection and action, which focuses not only on the improvement of the teachers' practice, attitudes, and personal theories, but also on the changes that can be made in the social or educational system (Gore & Zeichner, 1991; Leitch & Day, 2000; van Manen, 1995).

2.4 Collaborative Action Research (CAR)

At first, the intention of AR was to have the individual teacher engage in a process of reflection and inquiry. Even Whitehead's work—which was more aligned with the emancipatory approach—

focused on the individual introspective process rather than a collective one (Leitch & Day, 2000). The value of having teachers connect, talk about their own classroom experiences, and grow together professionally has gained ground over the last two decades. Dialogue also plays an essential role in the CAR process. Rather than focusing on the individual teacher doing AR in isolation in his or her classroom, CAR emphasizes collaboration between teachers, and at times university partners (Pellerin, 2011), by means of “opening communicative space” (Kemmis & McTaggart, 2005, p. 578). In CAR, members of the group engage in collaborative dialogue in order to closely examine their current pedagogical practice and the assumptions or beliefs underlying their choices of teaching strategies. Through communicative actions, or the “public sphere” suggested by Habermas (1989), teachers engage in deeper reflection about issues beyond the four walls of their classroom. CAR allows the group to reflect on and inquire into social and political issues that affect their educational context (Pellerin, 2011).

2.5 The AR Tradition in Latin America

In Latin America, AR first appeared around 1960 as a popular political movement that merged popular education liberation theology, alternative communication, liberation philosophy, and participative action research. The main goal of AR was to allow deprived people to understand their own reality in order to change it. Today, this movement is known as the emancipation paradigm; it combines reflection and action and relies heavily on the deep knowledge that people have of their own settings, so they can work from there. Some of those who adopt this approach apply the ideas of Paulo Freire to find solutions to a wide range of social problems (including education). In Colombia, sociologist Orlando Fals Borda stressed the “action” aspect of participative AR (Ortiz & Borjas, 2008). Because Fals Borda’s ideas combine thinking with acting, understanding with changing, and knowing with doing, they have been an inspiration to educators and others who need to put social science into practice.

The AR tradition is not so well established in Chile. According to the Ministry of Education’s *Marco Para la Buena Enseñanza* (Framework for Good Teaching; Ministerio de Educación de Chile, 2008), systematic reflection about one’s own practice is part of a teacher’s professional responsibility. However, this skill is not part of the formal curriculum in most Chilean teacher preparation programs, and most Chilean teachers must face their classroom work without having been introduced to systematic reflective and inquiry practice.

2.6 Purpose of the Study

Although a large body of research provides evidence regarding the potential for AR and reflective practice to promote professional growth among in-service teachers, most studies are concerned with North American, European, and Australian contexts, where the notions of reflective practice and AR have evolved. The purpose of our case study was to engage in-service Chilean teachers in systematic AR as a means to support the concept of critical reflective practice and inquiry into their own attitudes, beliefs, and self-identity as professionals, and to promote the notion of teachers as agents of change in their respective classrooms and educational contexts.

III. Method

Collaborative action research (CAR) has been shown to be transformative by engaging teachers in systematic inquiry with the goal of improving their teaching practice (Denos, Toohey, Neilson, & Waterstone, 2009; Dolbec & Clément, 2000). CAR calls for the teachers' direct participation, which then impacts upon their beliefs, attitudes, knowledge, and skills, which in turn contribute to a pedagogical renewal in the teachers' practice (Kemmis & McTaggart, 2005; Nolen & Vander Putten, 2007).

The CAR used for the case study was first inspired by the systematic and cyclical process proposed in the AR spiral, which is concerned with planning, taking action, collecting data, analyzing data, and taking further action (Riel, 2010). The CAR model adopted for the actual research project was developed by one of the authors (Pellerin, 2011). The two university educators and researchers established an international partnership to combine their knowledge and expertise in engaging in-service teachers in AR, and then the in-service teachers were invited to participate in the research project.

Cycle 1. The participating teachers took part in an initial collaborative professional development meeting (CPDM), which corresponded to the start of Cycle 1 of their AR. The aim of this meeting was to provide a hands-on introduction to the systematic spiral of reflection and action that characterizes AR (Kemmis & McTaggart, 2005; Riel, 2010). During the first CPDM, in-service teachers were also introduced to the concept of documentation—based on the Reggio Emilia approach (Project Zero And Reggio Children, 2001) and further developed by one of the university educators (Pellerin, 2011)—using digital technologies. Digital documentation, which is crucial to the CAR model presented here, calls on the use of digital technologies to gather tangible and visible evidence of the impact of the changes implemented by the teachers in their respective educational contexts. Digital documentation was also used to engage in-service teachers in deeper critical reflection about the impact of implementing new actions in their educational context. The first meeting provided an opportunity for teachers to plan their questions for the inquiry and to plan tangible actions in order to initiate changes in their practice and/or educational contexts.

At the end of the initial CPDM, the in-service teachers were invited to implement their plan of action for a period of approximately eight weeks. During this period they also started to document the implementation process and the impact of their new actions on their students' learning and on their pedagogical practices. Teachers were encouraged to engage in an ongoing reflective and inquiry process during this implementation phase.

Cycle 2. A second CPDM took place at the end of Cycle 1. During this meeting the in-service teachers were invited to share with the group a few examples of their digital documentation and to engage in reflection on action with their peers. This was an opportunity to develop a greater understanding of the impact of the actions they had planned for Cycle 1, and to engage in collaborative dialogue and reflection. The second meeting also allowed the teachers to revisit their first action plan and to create necessary modifications for Cycle 2. In the 3-month period following the meeting, the teachers implemented the second action plan and gathered data.

3.1 Participants

Eight Chilean in-service teachers first joined the project. They were recruited as volunteers from a graduate education course at a research university in Chile [details removed for peer review]. One of the incentives to participate in the study was that the participants could use their AR project to fulfill a major assignment for their master of education program. One teacher who joined the project was not enrolled as a student in the master's program. The teachers worked in various educational and socioeconomic settings in and near [name of city removed for peer

review]. Only six teachers remained with the project because two of them left it due to lack of time, and five participated in the interviews at the end of the project. One of those five participants was not interviewed for personal reasons. All of the teachers who participated in the interviews had a bachelor's degree and taught in urban schools. Their teaching experience ranged from three to sixteen years. Two of the teachers worked in private schools.

The project also involved the collaboration of two university professors, one from the local university and the other from a Canadian university. Both researchers were professors in the faculty of education in their respective universities.

3.2 Description of the Participants

Teacher 1 was a 41-year-old kindergarten teacher who worked at a private school; she had sixteen years of teaching experience. Her project consisted of designing and applying a didactic unit that included collaborative work to improve English reading and writing skills in a group of kindergarten children. Teacher 1's AR project attempted to demonstrate the advantages of cooperative learning when children face new challenges in second language acquisition.

Teacher 2 was a 34-year-old special education teacher who owned a language school. She worked with 4-year-old children and had ten years of experience. Her project consisted of improving the use of the school's didactic material, which was underutilized because it was hidden away and disorganized. The goal of Teacher 2's AR project was to create a way to have the material ready to use and then to monitor its utilization.

Teacher 3 was a 28-year-old physical education teacher with four years of experience. He worked in a public school with students at all elementary levels. His AR project consisted of a pedagogical intervention using the rules of popular sports to teach vulnerable children to behave. The main goal of this project was to teach civic skills to the whole community, taking advantage of knowledge of popular sports in order to teach leadership, anger management and emotional control.

Teacher 4 was a 36-year-old teacher who taught history and administration. She worked in a public high school that offered both regular and technical education. She had twelve years of experience. Her AR project consisted of a pedagogical intervention to improve teamwork in the school community. The main goal of her project was to leverage interpersonal skills to promote teamwork as a way of accomplishing educational tasks.

Teacher 5 was a 27-year-old physical education teacher who worked for the government as a sports and recreation promoter. He had three years of experience and coordinated programs with municipalities. His AR project consisted of taking advantage of children's technological and networking abilities to improve their learning at the school level. The main goal was to help these "digital natives" use their skills to do better in their daily tasks at school.

3.3 Data

The data collected for this project came from interviews with five of the six teachers who remained with the project. One teacher was not able to participate in an interview for personal reasons. The two university researchers conducted interviews with each in-service teacher, either in the teacher's educational setting or at the university. Each interview lasted 45 to 60 minutes. The interviews were in Spanish, which is the first language of all the teachers.

The verbatims of each interview were transcribed by both researchers and a research assistant fluent in both languages (English and Spanish). The data analysis used a coding process aligned with qualitative research approaches (Miles & Huberman, 1984). Analysis of the raw data

obtained from the interviews allowed the identification of initial and emerging categories. The initial coding categories and subcategories emerged from the themes found in the interview questions and were guided by the conceptual framework of this study. A second set of categories also emerged from the teachers' responses to the interview but were more aligned with the grounded theory method of qualitative data analysis (Glaser & Strauss, 1967; Strauss & Corbin, 1994).

For the purpose of this paper, the categories have been organized into two main categories: initial coding categories and emergent categories. Each category is presented with the researchers' interpretation, followed in some cases by quotes from the transcribed verbatims that support their evidence.¹

V. Findings

5.1 Initial Categories

The initial coding categories emerged from the themes found in the interview questions and were also guided by the conceptual framework for this study.

Teachers' motives for engagement in the CAR project. Some of the in-service Chilean teachers had personal motives for participating in the project. Some saw an opportunity to increase their own knowledge about the concept of AR. For other participants, involvement in the project allowed them to seek new perspectives and provided a new personal challenge.

One teacher thought the CAR project would help enable a move away from the rigid pedagogical approach that permeates the Chilean educational system.

To stop being so pedagogically rigid, to try to get out of the behaviorism that pervades Chilean education as much as possible.

Some teachers also hoped it would guide their own inquiry process for their master's thesis project. Finally, they viewed participation in a research project with a Canadian professor as an opportunity to gain new educational perspectives from outside the Chilean educational context.

Types of reflection used by teachers. All the teachers indicated that before starting the CAR project, they had primarily engaged in informal reflection about their pedagogical practice. Most of that reflection took place after the activities, to assess what worked and what needed to be changed. The teachers also explained that their reflection was more intuitive than formal. For the most part, these Chilean teachers did not engage in a systematic reflection and inquiry process with the intent of questioning their present pedagogical practices and inquiring into new ways of improving them.

Impacts of the involvement in a CAR project. The teachers were able to view the effect of AR on their own reflection and inquiry process, as well as on their teaching practice. Because changes regarding pedagogical practice do affect students directly, the teachers were also able to discuss the impact of the AR on their students' motivation and behaviors, which in turn affected their learning. Involvement in the CAR project also affected the teachers' beliefs and attitudes as professionals; they came to perceive themselves as the main agents of change in either their own classrooms or their educational settings.

¹ The interview quotes in this article were translated from Spanish to English.

Impact on teachers' reflection habits and inquiry process. The teachers commented that their involvement in the CAR project had an impact on their habits of reflection and inquiry. One teacher explained that it allowed him to become more analytical and reflective about his own teaching practice.

Yes, in my teaching practice, first I observed and then I analyzed and reflected, and I came to the conclusion that I was capable of being much more critical and much more reflective about my own practice. . . . After the research, that has been one of the things I've learned, you could call it a habit, the habit of reflecting about my own practice.

Another teacher remarked that the CAR project allowed her to realize that each teacher has the power to effect changes in the classroom. She became aware that she can be both a principal actor and an active participant within her own classroom: "I see now that I can be a main actor and an active contributor in the classroom".

Impact on teachers' practice and students' motivation and learning. All five teachers who were interviewed agreed that the implementation of their AR had a direct impact not only on their teaching practice but also on their students' motivation and learning. Teacher 1 explained that his AR helped him to rethink ways of motivating his students and how to evaluate the students in a more engaging and authentic way. Moreover, the outcomes of his AR will influence his future practice.

It will directly influence the way I evaluate and how I set the evaluation in front of the students, and I'll also be looking for new ways of evaluating.

Teacher 2 explained that the implementation of her AR had a direct impact on her perceptions of how young students learn. Her AR helped her to reflect on her beliefs and perceptions regarding such learning and about the learning process of those who were functioning at a slower pace or experiencing learning difficulties.

What it comes down to, in doing it [smaller groups strategy] constantly every day, we finally saw tremendous advances in kids who we never expected would read this well, and in another language. . . . So to me that was really revealing. It's true that everybody can learn.

Teacher 3 came to the understanding that through the use of AR the teacher is forced to think about each task and reflect on what needs to be changed. She also suggested that the process could be very productive if done in conjunction with all her colleagues.

But the most important thing is that it allows us to stop and think, to reflect, and that's what we can change; but if that reflection could be done collectively with all of our colleagues, I think that would be the most productive thing ever.

Teacher 4 was also able to observe a change in his practice as well as in his ability to analyze and reflect on it. The change in his practice also had a direct impact on his students; through the documentation process, he was able to notice a tangible change in their behavior. His own documentation (anecdotal notes in class logs) demonstrated that from the beginning of September onward, he observed a decrease in negative notes regarding students with behavior problems.

I saw a change in my students; in fact in the class logs you can see that from September on, misbehavior entries for the children I worked with decreased significantly.

He was also able to see changes in their attitude and in their motivation.

More respectful, more integrated into a group where they accept some responsibility, where they have to follow certain rules—for instance respect, respect for their classmates.

Teacher 5 perceived that the AR had some professional impact on the teachers she worked with. Her goal for her AR project was to enable teachers to use new material made available to them, in order to enhance the quality of their teaching practice and in turn have a positive impact on the students' learning.

The change took place on a personal level; in looking at it personally or professionally, in a way I was forced to use the material, so I had to really look at every syllabus or material and how I could use it.

The teacher was also able to observe such changes through her documentation, the videos she made of the other teachers' classrooms as well as her own.

I recorded some other teachers' classes as well as my own, and watched them, and I can tell that [the students] are much more interested in the material in the classroom. It's much more innovative, when there's a slide show, for instance, and they work in groups and interact more than they do when one person controls the class. It's much more intuitive for them; it's much more enriching for them to use the material.

5.2 Emerging Categories

This section is concerned with the categories that emerged during the coding process. These categories were developed from the themes found in the interview questions, using the "ground up" process based on the notion of grounded theory (Glaser & Strauss, 1967).

Challenges faced by teachers during the implementation of their AR. As we mentioned in the Theoretical Framework section, the Chilean Ministry of Education considers systematic reflection about one's own practice to be part of a teacher's professional responsibility (Ministerio de Educación de Chile, 2008). In spite of this, in-service teachers participating in the research project demonstrated little or no prior knowledge about systematic reflection and inquiry.

Lack of training in systematic action research. All the teachers participating in the CAR project attributed the absence of formal and systematic reflective practice among Chilean teachers to a lack of knowledge and formal training in this area. With the exception of one who had taken a course on AR at the master's level, all the teachers indicated that they had not been introduced to the concept of AR or to the process of critical reflection and inquiry during their teacher training program at the university. Likewise, they all stated that this lack of knowledge and training made it more difficult to engage in a formal AR at first.

Letting go of conventional approaches, learning to think outside the box. Most of the teachers found it a challenge to let go of conventional teaching approaches or paradigms, to be more open or willing to adopt new ways of doing things, and to learn to think outside the box. One teacher in particular, who was working with a second language program that was very structured and rigid, felt some distress at the beginning of her AR project, even though she could see the benefits of her new approach.

One challenge was that basically I couldn't fall behind in what the program dictated in terms of content, but at the same time I had to develop the skills in a different way. Not only that, but cooperative assignments can take longer, and the timing also needs to be a bit more flexible.

Some teachers also felt that they needed to demonstrate to their colleagues and their students that bringing changes into their practices or their institutional context was worthwhile. Some participants explained that it is not enough for the teacher to create new ways of doing things or to adopt a new pedagogical approach; the students need to be receptive and show interest.

The teacher is the one who creates things, who innovates, and you hope the kids will respond. But you can create something really nice, and if the children aren't interested. . . you won't be able to accomplish much.

Lack of collaboration between teachers. The teachers perceived their Chilean colleagues' lack of collaboration or unwillingness to implement the AR as a major challenge.

When I tried to get them involved by giving them a questionnaire to identify the problem, to show what the problem is, they rejected the idea right from the start.

Some of the teachers maintained that the lack of collaboration and investment in the AR reflected the attitudes of many Chilean teachers. One teacher explained that in the Chilean educational context most teachers work in isolation from one another and are reluctant to get involved in the implementation of new programs or pedagogical approaches, to be active agents inside their own classroom rather than mere recipients and transmitters of pre-established knowledge or programs. Moreover, teachers are afraid to show their weaknesses to other teachers for fear of being judged incompetent. Consequently, it is unusual for Chilean teachers to engage in dialogue and feedback regarding their practice.

It's hard to get teachers to reveal their weaknesses and accept others' strengths. It's hard to try to give feedback because no teacher would want to appear weak in front of the others or show their mistakes; this happens in practice and is very. . . well, it's a problem.

One teacher realized that she needed to rethink her plan of action, following her colleagues' reaction to the idea of implementing the new material in their pedagogical planning.

All of them were totally in agreement, and up to that point everything was fine. But afterwards when you asked me to do an interview and I did the interview, what happened was, they told me otherwise, they told me that in fact they were not familiar with the material.

The need to include AR in teacher training programs in Chile. All the teachers in the present study agreed that it was important to provide preservice teachers with knowledge and situated practice regarding reflective practice and AR. They believed that it was crucial to engage preservice teachers in the reflection and inquiry process at some point in their teacher training, in order to provide them with a strong foundation and understanding about their future role as reflective practitioners.

In my opinion, I think this action research methodology should be part of pedagogy students' curriculum, because it's the only way teachers are encouraged to be active, creative, reflective actors.

Some felt that there was definitely a gap in their teacher training program, and that the introduction of the AR approach to early teacher training could contribute to promoting greater reflection among future teachers, as well as a move away from the closed paradigms promoted by teacher training and the educational system in general.

If future teachers could be taught from the beginning to think, and to use this method as a way to reflect about their own practice, it would be very helpful, because teachers

could get out of that paradigmatic box they're locked into with the teacher training we have now.

Possible impact of the knowledge of AR on Chilean teachers. The teachers who experienced firsthand the implementation of AR in their daily practice suggested that formally introducing Chilean teachers to the systematic approach of AR during their initial training would help them to engage in more reflection and inquiry about their daily practice. They believed that this in turn could contribute to changes in the Chilean educational context.

Imagine the changes that could take place if, starting now, other teachers became aware of the work we're doing, intervening, reflecting, intervening again.

I think from the very moment teachers start using action research and it becomes part of their daily routines, the results will be much better. . . because it implies changes, implies a new way of doing things, a new attitude on the part of the teacher, in the classroom and toward the children.

Other teachers believed that Chilean teachers' lack of knowledge regarding the AR approach also contributed to their lack of knowledge about the benefits of the reflection and inquiry process, and their failure to support such an approach.

They're not familiar with it since they didn't get any training in it at the university, and because they're not familiar with the methodology itself, they aren't aware of the benefits that come with it.

Anyway, one of the reasons other teachers didn't get involved in this initiative was lack of knowledge [about AR].

The outcomes of this study clearly indicate that acquiring knowledge and skills in systematic AR supports and promotes critical reflection and inquiry among in-service teachers. First, the study demonstrates that the systematic AR approach provided the necessary means a priori for in-service teachers to engage in reflection and inquiry regarding their daily practice. Although teachers had engaged in reflection *in action* (Schön, 1987) prior to the CAR project, it was through use of the spiral of reflection and action cycles that they were able to bring changes to their practice as well as to their habits of reflection.

Second, engagement in their own AR research allowed teachers to reflect and to act upon their attitudes, beliefs, and self-identity as professionals, and their role as agents of change in their respective classrooms and educational communities. Thus the self-reflective spiral of reflection and action provided the means for teachers to engage in a deeper process that corresponded more to practical AR (Leitch & Day, 2000).

The findings also show that for some teachers, the self-reflection process went beyond their own classroom issues. These teachers began to reflect on broader social issues that impacted their teaching context and the Chilean educational context as a whole. This type of reflection and action corresponds to an emancipatory model of AR, which goes beyond the improvement of the teachers' practice and includes changes that can be made in the social or educational system (Gore & Zeichner, 1991; Leitch & Day, 2000; van Manen, 1995). Although not all the teachers in the study engaged in this kind of emancipatory reflection, the CAR project demonstrated potential for promoting self-critical reflection that empowers teachers to become agents of social change.

Although the goal of the CAR project was to promote collaboration between the teachers participating in the project and their respective teaching communities, the teachers indicated

that it was difficult to engage their colleagues in any collaborative actions. They also perceived the lack of collaboration among teachers to be endemic to the Chilean context, along with unwillingness to think outside the box and resistance to any change that might require teachers to adopt alternative approaches.

Whereas it is becoming more common for North American teacher preparation programs to introduce preservice teachers to the concept of reflection and inquiry, the findings demonstrate that for the Chilean teachers participating in the project, this training has been lacking in their teacher preparation programs. Moreover, the teachers in the study attributed the lack of collaboration and the resistance to change in part to the lack of knowledge and training regarding reflective practice and AR during teacher preparation training at the university level. They believed that the Chilean education system as a whole could be improved if teacher education programs in all Chilean universities included the concepts of reflection and inquiry and if they engaged preservice teachers in some type of AR during their field experiences. Some suggested that doing so would help preservice Chilean teachers to better link theory to practice. They also believed that providing such training would contribute to creating better professionals, free to think outside the box rather than simply following old paradigms and beliefs about education. These teachers perceived that introducing the systematic reflection and inquiry process during teacher training would be an important step toward finding sustainable solutions to problems encountered by teachers in their teaching context, as well as issues in the educational system as a whole.

5.3 Limitations and the Need for Further Studies

Although the study outcomes demonstrated that introducing systematic AR allows teachers to engage in a reflection and inquiry process about their own pedagogical practices, beliefs, and professional attitudes, several limitations need to be addressed. The case study was limited to six teachers (two of the eight original participants did not complete the project) and only five teachers participated in the interview process. It will be important for further studies to involve teachers from different parts of Chile, as well as teachers who received their preservice training from different institutions within the country. Although the project helped teachers become reflective and inquiring practitioners, the limited number of research cycle phases (2) did not allow us to examine the long-term impact on students' learning and on the educational setting and school community.

V. Conclusion

This study supports what the educational literature has suggested all along regarding the benefits of reflective practice and action research on the pedagogical experience of in-service teachers. It also illuminates the critical role of a priori knowledge of, and first-hand experience with, the systematic spiral of reflection and action. The study advances our understanding of how such preparation provides the necessary means for teachers to engage in a critical reflection and inquiry process regarding their own practice and develop a sense of professional ownership.

Moreover, the study supports earlier claims that teachers who engage in systematic reflection and inquiry about their practice are less inclined to become locked into routines guided by conventional paradigms, authority and, at times, false personal beliefs and theories (Cruikshank, 1987; Dewey, 1933; Schön, 1983, 1987). When teachers become knowledgeable about the benefits of systematic reflection and inquiry, they also become empowered to continue to grow as professionals and to become active agents of change in their own classroom as well as in the larger educational context.

The findings suggest that in order for in-service teachers to engage in a systematic reflection and inquiry process in their own classroom, they must have prior hands-on experience with the spiral

of reflection and action during their preservice training, a claim that is also supported by the literature (Aulls & Shore, 2008; Odhiambo, 2010). It is critical to cultivate habits of systematic reflection and inquiry right at the roots of the profession. If preservice teachers learn to become analytical and critical about their evolving pedagogical practice, they will be better equipped to apply these professional skills in their future practice. Cultivating these habits will empower preservice teachers to become active agents of change right from the start (Kitchen & Stevens, 2005), rather than mere recipients of transmitted "teaching recipes." Moreover, preservice teachers will thereby develop professional ownership and consequently not feel so powerless when facing future educational problems. They will start looking inward, instead of relying only on external sources to provide them with solutions.

Helping preservice teachers become knowledgeable and skilled in the systematic reflection and inquiry process will contribute to teachers' understanding that the act of teaching embodies change agency (Price & Valli, 2005). When this happens, in-service teachers will no longer wait for changes to happen in the educational system. They will be aware that they themselves are the catalysts for changes starting in their own classrooms.

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