RESEARCH ARTICLE

Systematization of a Training Experience for In-service Teachers through the Use of an Action Research Component

Sistematización de una experiencia de capacitación de docentes en servicio mediante el empleo de la investigación-acción

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Summary

The systematization of a relevant experience such as the training of 21 in-service teachers with the use of an action-research component was aimed at documenting and writing what happened, as well as explaining the results achieved as a result of the intervention. The aim was to interpret the experience critically, to learn from it and improve future practice. The study used qualitative and quantitative analysis techniques. The results suggest that the component favored teachers to question their own beliefs about teaching and strengthen their abilities to make teaching problematic. They also suggest that these changes occur in training events that include spaces for reflection and discussion about beliefs and practices.

Keywords: Conceptions of the Teacher; Teaching Practice; Action Research; Continuous Teacher Training; Peru; Basic Education.

Resumen

La sistematización de una experiencia relevante como la capacitación de 21 docentes en servicio con el empleo de un componente de investigación-acción, tuvo como propósito documentar y escribir lo ocurrido, así como explicar los resultados alcanzados como producto de la intervención. Se buscó interpretar críticamente la experiencia, extraer aprendizajes de ella y mejorar la práctica futura. El estudio empleó técnicas de análisis cualitativo y cuantitativo. Los resultados sugieren que el componente favoreció que los docentes cuestionen sus propias creencias sobre la enseñanza y fortalezcan sus habilidades de problematizar la docencia. También sugieren que estos cambios ocurren en capacitaciones que incluyen espacios de reflexión y de discusión sobre creencias y prácticas.

Palabras clave: Concepciones del profesor; práctica docente; investigación-acción; formación continua de profesores; Perú; educación básica.

Introduction

The Necessary Changes in Education to Address Diversity

During the last two decades or so, Latin American schools have been facing strong pressures from the progressive inclusion of new students from social and cultural groups traditionally excluded from the system. These students carry different subjectivities and require attention to emerging needs that ensure them minimum results in accesses, learning, and permanence (Fernandes, 2014). The scenarios opened by these processes demand changes in the teaching practices oriented to contextualized and inclusive teaching (Rodríguez Fuentes, 2017; 2018; Gallego & Rodríguez Fuentes, 2014; 2016; López, 2009), which responds to increasingly diverse educational environments, with their diverse, even multiple, adaptations as well (Rodríguez Fuentes, 2015).

However, pedagogical interventions do not necessarily ensure such changes in teaching practices. On the contrary, changes happen only on certain occasions and when they do, they occur in complex and slow processes (Fullan, 2007; Hernández & Goodson, 2004), since they are simultaneous changes of beliefs about teaching that have been incorporated by teachers throughout their lives and based on which they construct their representations about what is right or desirable (Pozo, Scheuer, Mateos & Pérez, 2006). In this sense, the adoption of new ways of thinking and doing things needs a basis of beliefs aligned with these orientations, as a condition that supports the teachers' willingness to change (Herrington, Yezierski, Luxford & Luxford, 2011).

The literature in the field reports that the change of implicit and unconscious teaching beliefs is only possible within the framework of processes that favor their explanation (Pozo, et. al., 2006). For this reason, mere training does not ensure that teachers will reflect what they have

learnt by introducing changes in their practices, and that they will do it in the expected way (Herrington, et. al., 2011). It is necessary that training processes consider spaces where teachers can question their own beliefs, from reflective, open and self-critical perspectives, as an indispensable organizational condition (Chamizo & Garcia-Franco, 2013; Park Rogers, et al., 2007; Vezub, 2007). An education centered in schools and teachers according to their needs, detrimental to decontextualized and hypothetical external proposals (Gallego & Rodríguez Fuentes, 2012).

The use of a participatory and dialogical methodology, such as action-research, in diverse training experiences has made it easier for teachers to initiate processes of reflection on their own practices (often in the spaces where they occur, in their classrooms), which have led them to seek new understandings of them (Montecinos, Solis & Gabriele, 2001; Elliott, 2010). A documentary review of these experiences made by Zeichner (2005), in addition to other specific studies (Chacón, Chacón & Alcedo, 2012; Yamin-Ali, 2010; Herrington et al, 2011; Megovan-Romanowicz, 2010; Ruiz-Mallen, Barraza, Bodenhorn, de la Paz Ceja-Adame & Reyes-García, 2010; Blanchard, Southerland & Granger, 2009; Maarof, 2007), report findings that link action-research to changes not only in teaching, but also in other contexts (including health and social) where mediation has been successful as a conflict resolution strategy (Marcianò & Romeo, 2018; Reid, Reddock & Nickenig, 2018; Yull, Wilson, Murray & Parham, 2018; Burke, Greene & McKenna, 2017).

However, these results are indirect from the perspective of what was intended in the systematized experience, because such interventions had the purpose of favoring changes in different areas of teaching practices, without considering specific training formats. These experiences did not report, at least not explicitly, the introduction of spaces for questioning the teaching beliefs as a precondition for change in practices.

The purpose of systematizing the experience of 21 teachers who participated in a research-action component was to fill this gap. The objective was to document, describe and interpret the changes occurred as a result of the training sessions, based on three questions: To what extent did a training that used spaces for reflection provide opportunities for teachers to question their own practices, including their underlying and supporting beliefs? To what extent did the use of the action-research methodology contribute to strengthening teachers' problematization abilities? And, within the framework of the experience, how and to what extent were the changes associated with the teaching beliefs and the abilities to problematize the practices?

The Experience. The Action-Research Component, a Space for Explanation of Teacher Beliefs

The systematized experience is the implementation of the action-research component by the School of Education (FAEDU) of the Universidad Peruana Cayetano Heredia as part of the training of 21 in-service teachers participating in the Specialization Program in Tutoring and Pedagogical Accompaniment of the Ministry of Education of Peru (MINEDU)[1].

Background of the Experience

The teacher training programs of MINEDU are implemented through public tender processes in which the schools of education of public and private universities and national teacher training institutes participate. These institutions are *executing entities* that operate under the organizational schemes and the general pedagogical guidelines defined by MINEDU in the terms of reference

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[1] The purpose of this program was to certify these teachers as monitors of larger groups of teachers "in the classroom" within the framework of the National Pedagogical Training and Education Program (PRONAFCAP), a public massive in-service teacher training program of MINEDU.

and other official documents provided to those responsible for training. But there is no document that defines the intervention strategy or that sets out the teacher professional development policies (Orihuela & Diaz, 2009).

During the last three decades, the Latin American governments (including the Peruvian government) have progressively eased their monopolies as promoters of culture, education, and science, and have opened up the participation of universities and other institutions (training institutes, reflection groups, NGOs) in these fields. The entry of new operators in the implementation of capacity-strengthening policies in the areas of education, public health or production brought with it the use of participatory methodologies and empowerment programs for local actors (Flores-Kastanis, Montoya-Vargas & Suárez, 2009).

As part of this, MINEDU suggested including a "package of tools" in the Specialization Program for the monitor teachers exposed to the training to acquire abilities to reflect on their own practices, identify problems in their practices, and propose improvements, besides strengthening their capacities to transfer these abilities to larger groups of teachers. This proposal came after MINEDU identified, among the teachers already trained in previous programs[2], a set of weaknesses to deal with dilemmas or complex situations in the classroom, especially when it came to contextualizing teaching and adapting it to diverse educational groups and environments (Montero, 2011).

The suggestion made by MINEDU allowed the *executing entities* to choose the "package of tools" they deem appropriate and define how to integrate it into the Specialization Program. The FAEDU, of which we were part of the technical team, exhaustively reviewed different options and chose the action-research methodology, based on two fundamental reasons: 1. It was a methodology selected by MINEDU for the teaching practice and adopted in the teacher training programs as the "official" way of doing research in the classroom. 2. It was a methodology that, as part of its characteristics, was dialogical, reflective and critical, besides aiming to reach agreements, which was what was sought.

Epistemological Fundamentals of the Component

The majority of teachers reported that in recent years they had been highly exposed to matters related to action-research. This methodology was a priority of MINEDU which was present in the massive public training courses and in many of the private offerings. However, these training courses, far from clarifying concepts in many cases, generate confusion as the different *executing entities* did not have any previous agreements on the definition of research-action that should be used, among the many existing ones, or on the identification of its particularities as compared to other methodologies that were also used in education, or on the role that it could play in the professional development of teachers.

At the beginning of the implementation of the component, it was established that there was no consensual definition of action-research, not only in the framework of experience but also in education at the national level. However, some relevant previous work in the field were identified, in which some authors attributed common characteristics: the systematic use of self-inspection of the teaching practices from a critical perspective (Carr & Kemmis, 1988), the consideration of the teaching practices as object of study and learning field (Mitchener & Jackson, 2012), a marked emphasis on changing the practices (Elliot, 2010), and the leading role of teachers in the research processes (McKernan, 1996).

As a technical team, we go back to these characteristics to define action-research, in the framework of the component, as a reflective-active process which teachers are responsible for,

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[2] The National Teacher Training Plan (PLANCAD), PRONAFCAP or other public program of lesser scope.

and which dynamically links the reflection on teaching, the transformative action in the practices that sustain such teaching, and the teacher training. As it can be seen, the definition emphasized the dialectical game between the reflection that leads to the understanding of the facts (generation of knowledge, theory) and the action of change (practice, intervention) in those same facts. Both processes occurred simultaneously, interacting and feeding back each other, in a permanent circular logic that led to overcome the linear and asymmetric relationship that went from reflection to action, which is common in traditional academic research.

This exercise of previous construction of a definition of action-research was especially important as it allowed the participant teachers to be provided with a conceptual and methodological core about *what action-research is*, *what its purposes are*, and *how it works* (Elliot, 2010; Rodríguez Sosa, 2005; McKernan, 1996).

Pedagogical Fundamentals of the Component

The workshops made in the component used problematization-based methodologies and didactics. The facilitators did not provide previously elaborated knowledge, but rather the approach to specific topics or situations, from which they accompanied the participants in the identification of deficiencies or contradictions, with the purpose of giving them the form of problems. These problems were the core around which the whole learning process was organized. In operational terms, the facilitators provided one or more problems that challenged the participants to deploy their capacities to explain them or propose solutions. To do this, participants had to search for, identify and select the information they needed, use it to build possible solutions to the problems, and present them to the group for discussion.

According to Ortiz Ocaña (2005), the meaning of these investigative didactics is that the participants walk, in an abbreviated manner, through steps similar to those followed by the researcher in order to achieve their results.

Implementing the Component

The design of the component consisted of three modules to be executed in 10 weeks, in a total of 120 hours, 48 hours of face-to-face studies, and 72 hours of independent study. The face-to-face studies were conducted in two formats. The first one, the workshops, for the presentation of the contents, procedures and cases, included in the topics addressed in each module. The second one, the reflection circles, for open discussion on those topics addressed in the workshops, which had to be approached again from a critical perspective since they were considered especially relevant. In the initial design, the three modules included eight workshop sessions totaling 32 hours and four reflection circles totaling 16 hours.

The independent study, transversal to the three modules and permanent, was basically used in the development of the required products. The *Problematization* module had 24 face-to-face hours and 40 hours of independent study, while the *Information and Evidence Search* and *Cause Analysis* modules had 12 face-to-face hours and 16 hours of independent study each.

The scheme of all the modules was the same: workshops and reflection circles, both face-to-face, accompanied by an independent study before, during and after each face-to-face moment.

Table 1 shows the relationship between the abilities that were sought to be strengthened in the teachers and the modules in which they were worked.

Table 1.
Abilities and Modules

Abilities	Modules
Identification of problems* Scientific writing**	Problematization
Information and evidence search** Use of sources, informants and techniques *	Information and evidence search
Cause analysis* Action hypothesis* Intervention strategies*	Cause analysis

 *Skills of the action-research methodology
**Transversal skills

Four of the skills corresponded to common procedures in the action-research methodology: identification of problems, cause analysis, formulation of action hypotheses and proposal of intervention strategies (Rodríguez Sosa, 2005). The other three skills were transversal to research in general: information and evidence search, use of sources, informants and techniques, and scientific writing.

Definitions. Beliefs and Teaching Practices

We understand beliefs as components of knowledge that are characterized for being little elaborated, subjective and intuitive, that work as "personal truths", but that far from being individual are rather of collective nature (Pozo, et al., 2006). In effect, the daily experiences of contact with groups and institutions that are driven by particular value orientations and social interaction mechanisms, and that are also previous to the subject, constitute learning spaces that decisively influence the beliefs of the subjects, the way they see things and their dispositions towards them (Mead, 1972). Therefore, beliefs have a strong affective charge that makes them extremely consistent and difficult to change (Solis, 2015).

We understand teaching practices as the set of actions and precautionary measures that teachers carry out and that, far from dimply doing what they do on a daily basis in the classroom when they implement what is programed or deal with unforeseen situations, also extend to a set of activities that are generally carried out outside the classroom in time and space: planning of learning intentions that are then reflected in the curriculum, evaluation at different levels, reflection on the teaching needs or on the group being addressed, or continuous training (Monereo & Solé, 1999) (Monereo & Solé, 1999).

Beliefs and teaching practices are closely linked. Beliefs define what teachers end up doing in the classroom as if they were a "hidden curriculum" which is often unknown (Pozo, et al., 2006). Their effectiveness lies in the teachers' need to recover them frequently to deal with immediately the dilemmas that occurred in teaching situations (Marrero Acosta, 2010).

We as subjects are active constructors of meanings. This is a very important characteristic if we consider that it is from those meanings that we approach to the understanding of the facts, we assign a value to things or we choose among different options in the environment (Von Wright, 1997). In the case of teachers, as such, the construction process goes through a continuous re-signification of the available cultural property and contents with the purpose of fitting them to a previous notion of "desirable pedagogy", which is fundamentally defined by the probability of producing student learning (Marrero Acosta, 2010).

This "desirable pedagogy" is based on a set of beliefs about teaching that teachers inherit from their life experiences as students and teachers. These beliefs act as filters to restrict and

direct the meanings given by teachers to the pedagogical theory or to science contributions, among other things.

Literature in the field reports that teachers carry deep-rooted beliefs about teaching that appear as given facts. Their implicit nature leads, in many cases, to the fact that some of these beliefs have never been explained or discussed, let alone questioned, during the professional life of teachers (Pozo, et al., 2006). Thus, a change in teaching practices, in the ways of teaching, needs a previous change in the beliefs of teachers about teaching in a process that is only possible through explanation (exposition) of such beliefs and their questioning.

Method

Method of Systematization of Experiences

Systematizing means reconstructing the logic of the life process as part of a relevant experience, identifying the factors conditioning its development, as well as establishing the way these factors were connected to each other and the experience itself, with the purpose of interpreting it critically, extracting learning from it and improving the future practice (Jara, 2006).

This study used the systematization model of Zeballos-Manzur and Rodríguez-Sosa (2018) (figure 1).
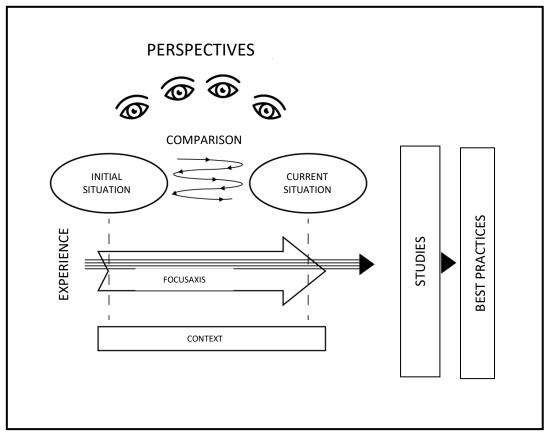

Figure 1. Model of Systematization. Adapted from: Zeballos-Manzur and Rodríguez-Sosa (2018, p. 6).

The model begins with the definition of a focus or focuses of systematization, which are facts or dimensions of the experience that we want to observe in particular and that, in general, are presented as one or more questions.

The analysis paths used operated in two approaches:

– The first approach is a comparison between the initial situation of the experience and the final situation to identify the aspects that changed in the course of the intervention, the extent or magnitude of those changes and the senses or directions they took. It also sought to establish the factors that facilitated the changes, as well as the aspects that did not change, along with the explanations or reasons that favored the permanences. Finally, it sought to identify the emerging changes unforeseen in the intervention, their roles in the implementation and their scores.

– The second approach is the observation of the facts from the perspectives of the different actors involved. Every educational intervention is a space for the encounter of different actors that have particular views and interests. This diversity was gathered and incorporated into the analysis in order to later identify the convergences in the perceptions of those involved in the facts, as well as the divergences in relation to those same facts.

This systematization model can be considered an observational study of an analytical nature, limited to a critical analysis of the dimensions of the experience chosen as focuses. It should be taken into account that, in terms of time, the experience was limited to a training "outside the classroom". Therefore, the systematization was limited to the same thing, without including the observation of the teaching practices "in the classroom" or in other environments in subsequent moments.

Participants

The subjects of study were 21 teachers from Lima and northern Peru (Barranca, Huacho, Casma, Chimbote, La Libertad), who were selected through a qualitative sampling of maximum variability in order to show different perspectives and represent the complexity of the issue being studied, or to document diversity in order to identify differences and coincidences, patterns and particularities (Hernández, Fernández-Collado & Baptista, 2007, p.97). With respect to the fundamental features that characterize the sample, we emphasize that 14 are women and 7 are men. Their ages range between 30 and 45 in 12 teachers, between 46 and 55 in seven teachers, while two teachers were under 30. A majority of 16 teachers studied in Higher Pedagogical Education Institutes and the rest studied at university. At the time of implementation, five teachers held a Master's degree, nine teachers had a Second Specialization, and seven teachers held only a Professional Education Degree.

Sources and Techniques of Information Collection

The techniques used to collect information varied depending on the sources (spaces or products) in which they were applied. Table 2 presents this link.

Table 2.
Sources and techniques of data collection

Sources	Techniques
Reflection circles	Recording/analysis of statements
Workshop sessions	Opinions and attitudes towards teaching research
	Observation of teaching beliefs using a descriptive belief card
Written products	Analysis of texts
	Evaluation of teachers' problematization skills
Projects	Research skills test / Scale checklist
	Evaluation of teachers' problematization skills

The statements of the teachers were recorded in the reflection circles and the workshop sessions, the latter mainly from the second and third modules. The descriptive belief card was employed to observe the verbal and non-verbal language used by the teachers.

The texts were part of the products required in each module of the component and worked in groups of three teachers. These exercises were used to strength and evaluate specific research skills on the assumption that these texts exposed the teachers' understanding of research in general and of the problematization of teaching in particular.

The projects were developed by the participants in response to the *Research Skills Test*. It was an expert-reviewed open (unstructured) test that used a scale to scale checklist, with scores ranging from 0 to 10. It evaluated skills in problem formulation, cause identification, approach justification and solution proposal. It also assessed skills in evidence and information use and writing. In addition, each project was evaluated in terms of its pertinence, relevance and basis, understanding that a problem is pertinent when it is identifiable in the everyday teaching practices and can be addressed from the practice itself (Rodríguez Sosa, 2005), that is relevant when justified by the potential introduction of benefits (and beneficiaries) and/or its practical implications in problem-solving (Hernández et. al, 2007), and that is based on evidence gathered from previous research in the field (Slafer, 2009).

For this purpose, teachers were asked to attend the first meeting of the component with a defined topic of their interest, as well as a problem proposal, which approach and solution is within the scope of the teaching practices. The test was applied individually in the *before and after* moments of the implementation. And the teachers were asked to maintain, as far as possible, the topic and the problem addressed in both moments.

Analysis Procedures

The first analysis path, i.e. the comparison between the initial and final situations of the experience, used qualitative and quantitative analysis procedures. From this perspective, along with Rodríguez-Sabiote and Gutiérrez Pérez (2005) and Rodríguez-Sabiote, Pozo and Gutiérrez (2006), we can affirm that we have used a way of complementation within the logic of methodological integration. This way differs from triangulation and methodological combination in the degree of comparative interaction of the results obtained by one means or another (quantitative vs. qualitative). While in triangulation and methodological combination, the results achieve a maximum interaction by which they are presented as a single whole in the methodological complementation. On the contrary, the results are presented separately dominated by the logic of addition.

With regard to the qualitative analysis, it was based on a longitudinal collection of statements that allowed to compare "what opinions the teachers had when they entered" and "what opinions the teachers had when they left" in order to determine the changes they experienced as a result of their participation in the component. The statements made it possible to observe the changes in the opinions and attitudes of the teachers towards the problematization of teaching, as well as the possible effect of these problematization exercises on the improvement of practices. Table 3 summarizes what was found after using the descriptive belief card.

Table 3.

Observation of teachers' beliefs about the problematization of the practices

Beliefs	Language	
	Verbal	Non-verbal
Implicit beliefs	The teacher perceives the problematization of the practices as something other than teaching. The teacher accepts it if it involves "abstract practices" or practices of other teachers, but the teacher rejects it if the teacher has to introduce it into his own practices. The teacher only explains or verbalizes the subject if the teacher is asked a specific question.	Gestures of displeasure, signs of disapproval (NOT with the finger or palm), or chuckle or laughter (trick).
Explicit beliefs	The teacher accepts that there is a subject of beliefs deeply rooted in him/her. The teacher addresses the subject, verbalizes it and explains it. The teacher does not vary significantly his positions on the problematization of the practices.	Gestures of confusion or being addressing something new, unknown. Sounds (Mmm...), tight lips, "Chinese-like" eyes, glances at each other looking for the reactions of others.
Moderate questioning	The teacher questions what he/she has been doing. The teacher evaluates and tries to identify the deficient aspects in his practices. In general, overcoming these deficiencies means slight changes.	Gestures of doubt or questioning (fingers on the face, mouth, finger snapping). Search for new answers or explanations in the trainer or colleagues.
Open questioning	The teacher deeply questions what he/she has been doing and the supporting "knowledge". The teacher evaluates and concludes that it is necessary to change what is done for other ways of doing things.	Gestures of discovery, of having found new things or paths (punching in the forehead or head, open hands "as a sign of" reception). Need to present the findings to others.

Sources: Author

The quantitative analysis was used to evaluate the projects developed by the teachers in response to a Research Skills Test applied in the *before* and *after* moments. To do this, the descriptive statistics of total scores were extracted, while at inferential level, the parametric significance test ("t-test") was used for the related groups. This test required the previous fulfillment of the assumptions of, at least, normality through the *Shapiro-Wilk* and *homoscedasticity* test through the *Levene* test. In both cases, the statistical calculations obtained statistically significant results $p > .05$, an unequivocal sign of the fulfillment of both assumptions and of the appropriateness of the application of such test. The data collected were processed with the IBM SPSS Version 18 software.

The second analysis path, i.e. the establishment of convergences and divergences in the teachers' perceptions of the facts, used double-entry matrices: the teachers in the vertical entry and the statements with the addressed subjects in the horizontal entry. After separating the statements that were not helpful, the conventional procedures of the qualitative analysis were applied to this information: data reduction, data presentation, and interpretation (Miles & Huberman, 1984).

Results

The Use of Reflection Circles as Favorable Spaces for Questioning of Beliefs and Practices.

The greatest possible alignment between design and implementation was planned in the implementation of the action-research component. Teachers were expected to understand the importance of incorporating critical reflection and an attitude of self-inspection of their practices. They were also expected, within this framework, to explain and question their beliefs that sustain what they do and explore other ways of doing things. These new ways of conceiving and doing things had to play fundamental roles in the training processes.

For this purpose, it was considered necessary to have spaces for open dialogue, the so-called reflection circles, where the different conceptions or positions that could lead to controversies were not hidden but made explicit, recognized and discussed. It was understood that giving new meanings to some dimensions of the teaching practices (and reaching agreements for it) could only be performed in spaces which organizational and psychological disposition was favorable, where active listening, open-mindedness, and critical thinking prevailed (Gonzalez-Weil, Cortez, Pérez, Bravo & Ibaceta, 2013).

The initial design of the component included four moments of four hours each for these reflection circles. However, as it was implemented, a good part of the workshop hours turned into this reflective format. In addition, the groups of teachers who met outside the scheduled times in order to develop a product were implementing their own reflection circles with the same format and purpose.

The times finally allocated to these spaces exceeded the 16 hours planned, giving a reflective, critical and negotiating nature to the entire training. This emergent event, initially unforeseen, became a strength of the component, recovering the epistemological and pedagogical bases of its design, and facilitating the achievement of its purposes.

Strengthening the Skills in Problematization of Teaching

At the beginning of the implementation of the component, in the first reflection circle, the teachers perceived that the problematization of teaching was a different process and external to the teaching practice as such, which could exceptionally be used as part of it if there was a justified need. The consideration of the use of problematization as a tool for identifying problems which solution had the potential to improve teaching was minimal.

The projects presented by teachers as part of the solution of the *Research Skills Test* in the *before* moment had, among others, two difficulties for the identification of problems in their own practices: where they find these problems and the scarce information used in their justification, including the support of their solution proposals. These same proposals were taken to the first module to be presented and discussed in the first workshop sessions and reflection circles.

A fact that caught the attention of the team responsible for the intervention was that the teachers had little or no willingness to self-inspect their practices, a situation that made them look for the causes of the problems they were identifying in areas external to those practices. Some of the recurrent areas were the personality traits of the students or the limitations in their abilities: *"...young people who have very little motivation for study, or no motivation at all..." (workshop session 1; teacher 8)*, *"These children have no curiosity for any topic or anything. They are not inquisitive. They do not try to discover [...] their lack of interest is in everything. They do not get into anything. So it is very difficult to deliver something to them, to achieve some learning" workshop session 1; teacher 13), or "It is difficult that they can learn something if they understand half or less of what they read, then how we expect that they can understand what they are asked*

to solve in a problem [...] It is not only that they do not know the mathematical principles necessary to solve problem A or B, they do not understand what the problem is about" (workshop session No. 1; teacher 12). Another area they mentioned was family problems: *"This boy was condemned by the poverty of his family. He may have academic ability, but that is not what is important in his family...the most important thing, the priority, is that he works in any job and brings additional income into his family, not school" (workshop Session #1; teacher 7).*

The identified problems had, with some variations, a sense similar to the following: *Why is disorder generated and bullying exacerbated in students of the 6th grade of secondary education of the Educational Institution "María Negrón Ugarte" of Trujillo in the non-conventional spaces for classroom work (collective, participative, playful)? (test at the moment before / workshop session 1; teacher 18).* The identified causes of this problem were*: violent social environments, everyday violence at school, high levels of family destruction which are detrimental to the transmission of living rules and the compliance with basic rules, or crisis of social values which were important in the past,* all of them with similar levels of occurrence.

As it can be seen, the proposal shows that the teacher tended to look for the causes of the problem in an "other" outside "what happens" in the school and the classroom (traits that the student "brought", problems in his family, school's social environment), to which is attributed the ability to influence what can be done, and that would be explaining poor performance or any other deficit, while simultaneously this "outside" search prevented the necessary reflection on the own practices, an exercise that could have led teachers to find out the problems in what they did (or failed to do) in the classroom, that is, in their natural environments of manifestation.

Additionally, when some anticipated answers were given to the questions asked (or action hypothesis, if desired), the causes of the problems continued to be searched in areas external to the teaching practices. As a result of this, the proposed solutions had to be processed outside the school, even under the responsibility of actors other than the school actors. This approach biased the knowledge of the real situations teachers had to face, besides limiting the possibility of anticipating effective solution strategies, since it was done with problems that "did not exist" at the school or that were perceived as very distorted.

The application of the *Research Skills Test* shows how the approach to the problems changed significantly (p<.001) in all the evaluated dimensions if we compare the scores obtained by the teachers in the *before* and *after* moments of the implementation (table 4), reporting gains in the scores in all the evident dimensions, as the negative values of the typified empirical "t" scores congruently denote.

Table 4.
t-Test of related samples in the before and after moments of total score and by dimension

Dimension	T	gl	Sig.	Before		After	
				M	DE	M****	DE
PI	-15.232	20	.000***	4.76	1.480	10.29	1.309
WR	-8.401	20	.000***	8.76	2.234	14.00	1.414
IS	-9.244	20	.000***	2.62	0.805	4.76	0.944
US	-10.583	20	.000***	4.67	1.155	10.00	1.549
CA	-11.204	20	.000***	5.43	1.287	11.24	1.338
AH	-16.019	20	.000***	4.76	1.338	11.24	1.179
EI	-17.858	20	.000***	3.24	1.300	5.29	0.784

Note: PI, Problem identification / WR, Writing / IS, Information and evidence search / US, Use of sources, informants y techniques / CA, Cause Analysis / AH, Action hypothesis / IE, Intervention strategies
*Statistically significant: *p<.05** p<.001***p<.001*
**** The average values sometimes exceed the value of 10 (maximum value) as they are calculated from the total scores of the evaluators.|

Indeed, the situation was gradually reversed as the component was implemented in the sessions of the workshops 1, 2 and 3, or in the brainstorming circles interspersed in these sessions. *What to do in face of the differences (in performance, motivations, interests, etc.) within the classrooms* emerged as the situation of analysis in the first circle. This exercise was an excellent opportunity for collective reflection and open dialogue, which continued in the following circles. However, this process was not fluid but rather resisted. The first thing noticed was that although teachers agreed that reflecting was important to become aware of problems, it was not clear whether there was an additional purpose, let alone usefulness or application in the immediate practice. In this sense, the desired changes did not succeeded in all teachers or they did not happen in the same degree or within the same period.

However, in the majority of teachers, the conceptions of problems changed from *we have this problem, with these causes and characteristics*, *which limits what we can do as teachers*, to a different approach that questioned *how addressing and solving this kind of problems change the ways we do things (because we did not have the disposition or the necessary skills)*. This new reflection approach incorporated pedagogical intentionality to the proposals, making teachers play a leading role in the solutions and making their practice be the field of operations. The problem raised by the teacher 18 in the framework of the test in the *before* moment, presented in previous paragraphs, was modified as follows:

> *How can activities, norms and agreements be agreed upon and made explicit in order to take maximum advantage of the non-conventional spaces for classroom work (collective, participative, playful) with the students of the 6th grade of secondary education of the "María Negrón Ugarte" Educational Institution in Trujillo? (test in after moment; teacher 18).*

The re-defined proposal (better said re-made with a new orientation) represented a complete change, shifting from an approach in which the teacher's role was not active: *the non-conventional spaces for classroom work (collective, inclusive, and playful) generate disorder and bullying in students*, to an approach in which the solution was part of the teacher's activity and leading role: *what can be done (what changes can be made) to take advantage of the non-conventional spaces for classroom work.* Likewise, the causes of the problem were found in the practice itself, identified as the teacher's inefficiencies in the management of tools for *working in groups*, *students' involvement* or *motivation*. Thus, the intervention strategies should be focused on strengthening such abilities: *the implementation of a workshop on inclusive exercises with teachers, the organizational redesign of the classroom, taking into account a dialogue space, agreements and decision-making, and the provision of decision-making abilities to students to choose the key topics that will be addressed in the non-conventional spaces (test in after moment; teacher 18).*

At the same time, the intervention proposals and hypotheses formulated were gradually aligned with the new treatment given to the problems. The initial position on the problems and their solutions seemed to correspond to the teacher's beliefs about how a student should be to have a successful school experience, or what type of families are most likely to ensure this, or in what environments educability is facilitated (López, 2009). Thus, the planned solutions started from a stereotyped vision of the negative situations and had a high level of prejudices, producing interference in the teachers' assessments of their students, opinions that immediately sustained the confidence assignments or future performance expectations, directly influencing the final decisions made.

With respect to the second deficiency identified, the weak information used, several of the problem proposals presented were justified by appealing to personal experiences as the whole evidence, without complementing them with real evidence from research or systematic evaluation. In other cases, questionable, unreferenced information was used, or an attempt was

made to support the problems on the basis of particular arguments, generally supported by the beliefs that teachers brought with them or by the implicit theories they use.

The majority of the proposals used one or two indirect secondary sources (institutional documents, sector reports or dissemination texts), along with inadequate data processing. In some cases, when the data were not aligned with pre-established "theories", they were used in such shortened or distorted form, or they were simply disregarded. There were no proposals in which it was evident that the author was aware that the problems addressed involved different actors (at least students and peers, but also parents and authorities), with different perspectives on the facts and different interests. None of the proposals used procedures of "triangulation" of sources *in the before* moment of the test, adding the use of interviews, focus groups or other techniques of interaction with informants to the secondary information available.

This situation showed the need to approach teachers to the use of other sources of information and the analysis of different perspectives. Consequently, it was necessary to discuss the topic with them, agreeing to strengthen their information search and collection skills, as well as their analysis skills. This was carried out mainly in the sessions of the workshops 5 and 6 of the *Information and Evidence Search* module, where oral presentations were encouraged for each teacher to present their products, making a pause in the evaluation of their supporting evidence to discuss the need to include the discourse of other school actors in the justification of their products.

In applying the *after* moment of the test, 12 of the 21 teachers demonstrated that they had incorporated multiple perspectives and "triangulation" of sources, while seven additional teachers also did so albeit partially.

The Questioning of Beliefs and the Problematization of Teaching Practices

At the beginning of the implementation, the teachers had little willingness to reflect on "what they did in the classroom", or evaluate the support or achievements associated with these ways of teaching. The teachers were very skeptical of the contribution of this type of exercise to improve teaching. They doubted their capacity to adequately problematize teaching, and even stated that they did not have enough time to do so, given the burden of the scheduled activities that prioritized the transmission of contents, with a proportion that practically excluded the possibility of assuming other activities. The teachers expressed these different reasons simultaneously, but with different intensity in each case.

This is shown in the following statement:

"Reflecting with the students and seeking solutions to the problems that may arise in this relationship between us as teachers and them, seeking a dialogue, a close knowledge of the problems that the students may have, may be important. It certainly is, but the priority is the contents. If I have to choose between one and the other, I choose to develop all my contents and do it well because I know that the students are not going to do these two things. Many teachers couldn't either. Things are not going to be done well, at least the students couldn't "(reflection circle 1; teacher 12).

However, during the implementation, the teachers changed from a problematization of teaching that had an "abstract teaching practice" as its purpose to the observation of the own practice, although this change was neither an easy nor resistance-free task. Adding self-inspection elements into the practices meant introducing changes in the ways of doing things in which the teachers believe and for which they perceive they have the necessary skills. Although some resistance was exhibited, there was a great willingness to assume problematization as something that could be beneficial, but with doubts and gradual acceptances.

In all the cases, the teachers shifted the focus of their observations to their own practices. The process happened gradually, at different rates in each case and with different results. Nine out of 21 teachers succeeded in explaining their beliefs, 10 additional teachers questioned their beliefs moderately, while two other teachers questioned their beliefs openly (figure 2).
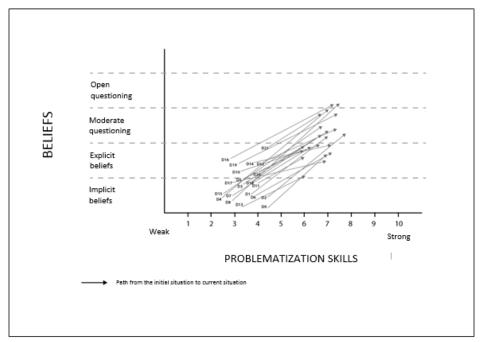

Figure 2. Changes in Teaching Beliefs and Problematization Skills

The majority of the twelve teachers who questioned their beliefs, either moderately or openly, had previous experiences in which they were addressed, while the teachers who only explained their beliefs started from having them implicit. A strong association can also be observed between the explanation or questioning of the beliefs and the teachers' scores in the *research skills test* in the *after* moment.

Discussion

The results suggest that an action-research training component used to train in-service teachers as part of a comprehensive program encouraged teachers to question their teaching beliefs and to strengthen their teaching problematization skills. The results also suggest that such changes occur if the training includes spaces for reflection and discussion on beliefs and practices.

The implementation of a research-action component designed with spaces for teachers to actively participate, surpassing formal representation, made them to experience on a daily basis the effective possibility of reflecting on their own beliefs and practices in order to explain them and question them if required by a negative score (Pozo, et al., 2006). These results are consistent with those reported by studies that observed interventions with similar characteristics in different contexts (Paredes-Chi & Castillo-Burguete, 2018; Anyon, Kennedy, Durbahn & Jenson, 2018; Mancila, Soler García, Moron Dominguez, 2018; Chamizo & Garcia-Franco, 2013; De Souza, 2016; Gonzales-Weil et. al., 2013; Halbach, 2016; Herrington, et. al., 2011).

The experience showed that teachers have a set of teaching beliefs that are latent but that they activate and recover in a reflex way while being part of a training event. Also, these beliefs act as "filters" of the contents received in such training sessions, enabling the integration of new contents only if they were aligned with the previously constructed conception (belief) of a "desirable pedagogy" used by the teachers. According to Marrero Acosta (2010), teachers often have a very unclear awareness of this situation.

With respect to the problematization skills, the quantitative analysis shows that between the *before* and *after* moments the seven evaluated skills are strengthened with significantly high scores in all cases. These improvements are consistent with the findings from different studies of experiences that used action-research methodologies to strengthen capacities in didactic management (Herrington et al., 2011; Ruiz-Mallen, et al., 2010; Megovan-Romanowicz, 2010; Blanchard, et al., 2009; Silverstein, et al., 2009), and that also reported the support of attitudes prone to reflection and self-evaluation (Justi & Van Driel, 2005).

The qualitative analysis shows that the teachers strengthened an attitude prone to self-inspection of the practices. This implied that the approach to problems shifted from situations which causes were sought in students or their families to situations understood as deficiencies or insufficiencies found in what they were doing. These new approaches show us that the teachers were finding the explanatory factors and the possible problem solutions in areas increasingly closer to their practice, to their area of influence. The teachers regained with these changes the capacity to intervene, since by locating the problems in their area of influence, the problem solutions simultaneously produced improvements in the practices. Thus, the interventions came to be understood not only as solutions or actions to improve what happens in the classroom, but also as learning and professional development processes, while the use of teaching research in support of these processes began to make sense for the teacher. These results are aligned with those reported by experiences that employed action-research methodologies and enabled significant achievements in strengthening skills to identify or explore problems in the classroom (Yamin-Ali, 2010), or in developing the teacher's reflective thinking and even in improving the research capabilities in general (Halim, Buang & Meerah, 2010).

It seems that the probability of locating the teaching practice problems in areas of influence of the practice itself is due to the fact that teachers question some situations taken as given, but not presented for discussion (Woolfolk, Davis & Pape, 2006). When this happened, the teachers questioned the ways they have been dealing with the situations or dilemmas they faced on a daily basis, opening up the possibility of understanding these problems as deficiencies in teaching.

As a final reflection, we will say that in-service teacher training is a field in which research has not yet provided sufficient evidence of the effective organizational formats or methodologies in continuous in-service teacher training. Action-research is an emerging field still exposed to ongoing interventions and evaluations. Within this framework, everything that can be said is part of what is being done and is being known.

References

Paredes-Chi, A. & Castillo-Burguete, M. (2018). Is Participatory Action Research an innovative pedagogical alternative for training teachers as researchers? The training plan and evaluation for normal schools. *Evaluation and Program Planning*, 68, 176 - 184. Doi: https://doi.org/10.1016/j.evalprogplan.2018.03.007

Anyon, Y., Heather, K., Durbahn, R., & Jenson, J. (2018). Youth-led participatory action research: Promoting youth voice and adult support in afterschool programs. *Afterschool Matters*, 27, 10-18. Recuperado de: http://www.niost.org/pdf/afterschoolmatters/asm_2018_spring/ASM_Spring2018_Youth LedResearch.pdf

Blanchard, M., Southerland, S., & Granger, E. (2009). No silver bullet for inquiry: making sense of teacher change following an inquiry based research experience for teachers. *Science Education,* 93(2), 322-360. Doi: https://doi.org/10.1002/sce.20298

Burke, K., Greene, S., & McKenna, M. (2017). Youth voice, civic engagement and failure in participatory action research. *Urban Review: Issues and Ideas in Public Education,* 49(4), 585-601. doi: http://dx.doi.org/10.1007/s11256-017-0410-4

Carr, W., & Kemmis, S. (1988). *Teoría crítica de la enseñanza. La investigación acción en la formación del profesorado*. Barcelona: Editorial Martínez Roca.

Centro de Estudios y Promoción del Desarrollo – DESCO (2011). *La sistematización de experiencias. Guía conceptual y metodológica*. Lima: DESCO.

Chacón, M., Chacón, C., & Alcedo, Y. (2012). Los proyectos de aprendizaje interdisciplinarios en la formación docente. *Revista Mexicana de Investigación Educativa, 17* (54), 877-902. Recuperado de: http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1405-66662012000300009&lng=es&nrm=iso&tlng=es

Chamizo, J., & García-Franco, A. (2013). Heuristics diagrams as a tool to formatively assess teachers' research. *Teachers and Teaching: theory and practice*, *19*(2), 135-149. Doi: http://dx.doi.org/10.1080/13540602.2013.741841

De Souza, A. (2016). Collaborative action research and the impact on training teacher in collaboration with a teacher in service. *Linguas & Letras*. 17 (37), 112 - 128.

Elliot, J. (2010). *La investigación acción en educación*. Madrid: Morata.

Fernandes, C. (2014). Relaciones entre la investigación y la formación docente permanente: El conocimiento necesario para la diversidad". *Estudios Pedagógicos, 40* (2),161-174. Doi: http://dx.doi.org/10.4067/S0718-07052014000300010

Flores-Kastanis, E., Montoya-Vargas, J., & Suárez, D. (2009). Investigación-acción participativa en la educación Latinoamericana. Un mapa de otra parte del mundo. *Revista Mexicana de Investigación Educativa, 14* (40), 289-308. Doi: http://www.scielo.org.mx/scielo.php?pid=S1405-66662009000100013&script=sci_arttext&tlng=en

Fullan, M. (2007). *The new meaning of educational change* (4a. ed.) Nueva York: Teachers College Press.

Gallego, J., & Rodríguez Fuentes, A. (2012). *Bases teóricas y de investigación en Educación Especial*. Madrid: Pirámide.

Gallego, J., & Rodríguez Fuentes, A. (2014). El reto de una educación de calidad en le Escuela Inclusiva. *Revista Portuguesa de Pedagogía*, *48*(1), 1-24. Recuperado de: http://impactum-journals.uc.pt/index.php/rppedagogia/article/view/2237/1476

Gallego, J., & Rodríguez Fuentes, A. (2016). *La alteridad en educación. Teoría y práctica*. Madrid: Pirámide.

González-Weil, C., Cortez, M., Pérez, J., Bravo, P., & Ibaceta, Y. (2013). Construyendo dominios de encuentro para problematizar acerca de las prácticas pedagógicas de profesores secundarios de Ciencias: Incorporando el modelo de Investigación-Acción como plan de formación continua. *Estudios pedagógicos,* 39 (2), 129-146. Doi: http://dx.doi.org/10.4067/S0718-07052013000200009

Halbach, Ana (2016). Empowering Teachers, Triggering Change: A Case Study of Teacher Training through Action Research. *Estudios sobre Educación*, 31, 57-73. Doi: https://doi.org/10.15581/004.31.57-73

Halim, L., Buang, N., & Meerah, S. (2010). Action research as instructional supervision: Impacto on the profesional development of university based supervisors and science student teachers. *Procedia. Social and Vihavioral Sciences,* 2 (2), 2868-2871. Doi: http://dx.doi.org/10.1016/j.sbspro.2010.03.430

Hernández, F., & Goodson, I.(eds.). (2004). *Social geographies of educational change*, Norwell, MA: Kluwer Academic Publishers. Doi: http://dx.doi.org/10.1007/1-4020-2495-9

Hernández, R., Fernández-Collado, C., & Baptista, P. (2007). *Metodología de la investigación*. México: McGraw-Hill / Interamericana.

Herrington, D., Yezierski Ellen, L., & Luxford, C. (2011). Target inquiry: Changing chemistry high school teachers' classroom practices and knowledge and beliefs about inquiry instruction. *Chemistry Education Research and Practice, 33*(1), 74-84. Doi: http://dx.doi.org/10.1039/C1RP90010B

Jara, O. (2006). *Guía para sistematizar experiencias*. San José de Costa Rica: UICN-NORAD.

Justi, R., &/Van Driel, J. (2005). A case study of the development of a beginning chemistry teacher's knowledge about models and modelling. *Research in Science Education*, 35, (2-3), 197-219. Doi: http://dx.doi.org/10.1007/s11165-004-7583-z

López, N. (coordinador). (2009). *De relaciones, actores y territorios. Hacia nuevas políticas para la educación en América Latina*. Buenos Aires: IIPE-UNESCO.

Maarof, N. (2007). Telling his or her story through reflective journals". *International Education Journal,* 8 (1), 205-220. Recuperado de http://ehlt.flinders.edu.au/education/iej/articles/v8n1/Maarof/paper.pdf

Mancila, L., Soler Garcia, C., Moron Dominguez, C. (2018). Cooperative Action-Research in Teacher Training. New Perspectives Based on the Roma Project. *Revista Interuniversitaria de Formación del Profesorado-RIFOP*, *92,* 123 - 137.

Marcianò, C. & Romeo, G. (2018). Action research and participatory decision-aid models in rural development: The experience of "Terre Locridee" local action group in Southern Italy. *Smart Innovation, Systems and Technologies*, 101, 29-41. Recuperado de: https://link.springer.com/chapter/10.1007/978-3-319-92102-0_4

Marrero Acosta, J. (ed.). (2010). *El pensamiento reencontrado*. Barcelona: Editorial Octaedro.

McCkernan, J. (1996). *Investigación-acción y currículo.* Madrid: Morata.

Mead, G.(1972). *Espíritu, persona y sociedad*. Buenos Aires: Paidós.

Megowan-Romanowicz, C. (2010). "Inside out: Action research from the teacher–researcher perspective. *Journal of Science Teacher Education, 21*(8), 993-1011. Doi: http://dx.doi.org/10.1007/s10972-010-9214-z

Miles, M., & Huberman, M. (1984). *Qualitative data analysis. A source book of new methods*. Beverly Hills: Sage.

Mitchener, C., & Jackson, W. (2012). Learning from action research about science teacher preparation. *Journal of Science Teacher Education*, 23(1), 45-64. Doi: http://dx.doi.org/10.1007/s10972-011-9261-0

Monereo, C., & Solé, I. (1999). *El asesoramiento psicopedagógico: una perspectiva profesional y constructivista*. Madrid: Alianza Editorial.

Montecinos, C., Solis, M., & Gabriele, A. (2001). Aprendiendo a enseñar a través de la investigación-acción. *Paideia Revista de Educación, 30* (31), 37-50.

Montero, C. (2011). Estudio sobre acompañamiento pedagógico. Experiencias, orientaciones y temas pendientes. En: Consejo Nacional de Educación. *Hacia una propuesta de criterios de buen desempeño docente. Estudios que aportan a la reflexión, al diálogo y a la construcción concertada de una política educativa*. Lima: Consejo Nacional de Educación, pp. 71-172.

Orihuela, J., & Diaz, J. (2009). *Presupuesto público evaluado: Programa Nacional de formación y Capacitación Permanente. Informe final*. Lima: MINEDU.

Ortiz-Ocaña, A. (2005). *Pedagogía problémica: metodología del Aprendizaje Basado en Problemas (ABP)*. Barranquilla: Centro de estudios pedagógicos y didácticos CEPEDID.

Park Rogers, M., Abell, S., Lannin, J., Wang, C., Musikul, K., Barker, D., & Dingman, S. (2007). Effective professional development in science and mathematics education: teachers' and facilitators' views. *International Journal of Science and Mathematics Education, 5*(3), 507-532. Doi: http://dx.doi.org/10.1007/s10763-006-9053-8

Pozo, J., Scheuer, N., Mateos, M., & Pérez, M. (2006). Las teorías implícitas sobre el aprendizaje y la enseñanza", en Pozo, Juan Ignacio, Scheuer, Nora, Pérez, María del Puy, Mateos, María del Mar, Martín, Elena y De La Cruz, Montserrat (2006). *Nuevas formas de pensar la enseñanza y el aprendizaje*, Barcelona: Grao. pp. 95-132.

Reid, S., Reddock, R., & Nickenig, T (2018). Action research improves services for child sexual abuse in one Caribbean nation: An example of good practice. *Child Abuse and Neglect*, 88, 225-234. Doi: https://doi.org/10.1016/j.chiabu.2018.11.018

Rodríguez Fuentes, A. (2015). *Un currículo para múltiples adaptaciones*. Madrid: EOS.

Rodríguez Fuentes, A. (2017). Editorial. Caminando con sentido hacia la inclusión educativa mundial, *RETOS XXI*, 1, 9-15. Recuperado de: http://revistas.utp.ac.pa/index.php/retoxxi/article/view/1516

Rodríguez Fuentes, A. (2018). Editorial. Expansión postmoderna tecnológica, escuela inclusiva tecnológica. *RETOS XXI, 2,* 6-12. Recuperado de: http://revistas.utp.ac.pa/index.php/retoxxi/article/view/2055

Rodríguez-Sabiote, C., & Gutiérrez-Pérez, J. (2005). Un modelo de validación de estudios empíricos en Investigación Educativa mediante procedimientos de triangulación. Aplicación a un estudio de caso sobre disfunciones y desajustes asociados a la reforma de un plan de estudios universitario. *Revista Portuguesa de Pedagogía*, Coimbra, 39, 135-157. Recuperado de: https://www.uv.es/RELIEVE/v12n2/RELIEVEv12n2_6.htm

Rodríguez-Sabiote, C., Pozo-Llorente, M., & Gutiérrez-Pérez, J. (2006). La triangulación analítica como recurso para la validación de estudios de encuesta recurrentes e investigaciones de réplica en Educación Superior. *Revista de Investigación y Evaluación Educativa (RELIEVE), 12*(2), 1-18. Recuperado de: https://ojs.uv.es/index.php/RELIEVE/article/view/4231/3838

Rodríguez Sosa, J. (2005). *La investigación acción educativa ¿Qué es? ¿Cómo se hace?* Lima: Doxa.

Ruiz-Mallen, I., Barraza, L., Bodenhorn, B., Ceja-Adame, M., & Reyes-García, V., (2010). Contextualising learning through the participatory construction of an environmental education programme". *International journal of science education*, *32* (13), pp. 1755-1770. doi: http://dx.doi.org/10.1080/09500690903203135

Shiller, J. (2018). The disposability of baltimore's black communities: A participatory action research project on the impact of school closings. *Urban Review: Issues and Ideas in Public Education,* 50(1), 23-44. Recuperado de: https://link.springer.com/article/10.1007/s11256-017-0428-7

Silverstein S., Dubner J., Miller J., Glied, S., & Loike, J. (2009). Teachers' participation in research programs improves their students' achievement in science". *Science, 326* (5951), 440-442. Doi: http://dx.doi.org/10.1126/science.1177344

Slafer, G. (2009). ¿Cómo escribir un artículo científico?. *Revista de Investigación en Educación, 6,* 124-132.

Solis, C. (2015). Creencias sobre enseñanza y aprendizaje en docentes universitarios: revisión de algunos estudios. *Propósitos y Representaciones*, *3* (2), 227-260. Doi: http://dx.doi.org/10.20511/pyr2015.v3n2.83

Vezub, L. (2007). La formación y el desarrollo profesional docente frente a los nuevos desafíos de la escolaridad". *Profesorado. Revista de Currículum y Formación de Profesorado, 11,* (1), 1-23. Recuperado de: http://recyt.fecyt.es/index.php/profesorado/article/view/41837

Von Wright, M. (1997) Student Teachers' Beliefs and a Changing Teacher Role. *European Journal of Teacher Education, 20* (3), 257-266. Doi: https://doi.org/10.1080/0261976970200305

Woolfolk, A., Davis, B., & Pape, S. (2006). Teachers' knowledge, beliefs, and thinking. En: Alexander, Patricia y Winne, Philip (eds.), *Handbook of Educational Psychology,* pp. 715-737. Mahwah, NJ: Lawrence Erlbaum.

Yamin-Ali, J. (2010). Translating concerns into action in the foreign language classroom. *GEMA Online Journal of Language Studies, 11* (2), 21-38. Recuperado de: http://ejournal.ukm.my/gema/article/view/54

Yull, D., Wilson, M., Murray, C., & Parham, L. (2018). Reversing the dehumanization of families of color in schools: Community-based research in a race-conscious parent engagement program. *School Community Journal*, 28(1), 319-347. Recuperado de: https://www.questia.com/library/journal/1P4-2091281430/reversing-the-dehumanization-of-families-of-color

Zeballos-Manzur, M., & Rodríguez-Sosa, J. (2018). *Sistematizar para aprender, aprender para mejorar. Guía para las organizaciones de la sociedad civil*. Lima: Grupo Propuesta Ciudadana.

Zeichner, K. (2005). Educational Action Research. En: Reason. Peter y Bradbury-Huang, Hilary (eds.). *Handbook of Action Research. Participative inquiry and practice*. London: Sage.