

# Inclusion of Information Literacy in the Curriculum through Learning Communities and Action Research

Javier Tarango  
José L. Evangelista  
Juan D. Machin-Mastromatteo  
Jesús Cortés-Vera

This chapter was originally published as:

Tarango, J., Evangelista, J., Machin-Mastromatteo, J.D., y Cortés-Vera, J. (2017). Inclusion of information literacy in the curriculum through learning communities and action research. In D. Sales y M. Pinto (Eds.). *Pathways into information literacy and communities of practice: Teaching approaches and case studies* (pp. 85–114). Oxford: Chandos Publishing. <https://doi.org/10.1016/B978-0-08-100673-3.00004-6>

## Abstract

This work corresponds to a practical and transversal integration process of Information Literacy in university curricula, specifically with undergraduate students from the Philosophy program of the Autonomous University of Chihuahua (Mexico), by developing alternatives to evolve traditional classroom teaching practices toward integrating Learning Communities and using Action Research as means of influencing a continuous improvement upon learning processes. This chapter discusses basic concepts from this study and provides the results, which were a product of the data collected from ethnographic processes. This practical experience has demonstrated the feasibility of combining this study's components for the achievement of active learning, but also for identifying specific elements that inhibit a full implementation.

**Keywords:** Information Literacy; Curriculum; Learning Communities; Communities of Practice; Action Research; Learning models; Higher education; Paradigms in education; Group interaction; New ways of learning.

## Introduction

Since ancient times, Education has established a paradigm which states that the learning process can only happen within a traditional classroom, although there have been many attempts to change such status. Recently, some non-conventional educational models have been integrated, such as the case of education mediated by using various electronic media technologies. However, it has proved decisive to return to the traditional essence of education, which is not a problem, as long as it comes to raising the profile of active learning.

Within the traditional classroom setting, which has demonstrated multiple benefits and formed countless generations, we have incorporated theories that propose alternatives to demonstrate the important role of students' activities in their learning. Such theories include constructivism and connectivism, from the perspective of sociocultural psychology; collaborative and cooperative learning, which is used for fostering subjects' interrelationships; flipped learning, which aims to incorporate alternative scenarios for academic work; and Information and Communications Technologies (ICT).

All these proposals have had global applications, and the classroom, although small, has been the formal setting to allow their dissemination at a macro-social level, without necessarily demonstrating its impact, which is supposed to be significant. All this is brought into question, because large budgets are invested in each government period and it seems that work continues within educational institutions but without identifying any relevance, nor about the use of such knowledge inside and outside the classrooms. The defense of the classroom is that it is considered that the true renewing action must arise from it, under the personal initiative of each teacher.

The contributions of this work are aimed at defending the role of the classroom as a formal setting for learning and as a direct way to influence in students, especially considering that in general terms, the curricular inclusion of information literacy (IL) has mostly emerged from individual initiatives (micro-social style models, either by teachers, information professionals or isolated institutions) and not through general implementations by educational systems. In consequence, this has meant having the advantage of being able to measure concrete results, but without addressing one major problem: resistance to change, which is manifested in the actions of those teachers that do not show interest in changing the planning and development of their school practices.

Beyond IL inclusion in the curriculum, it is necessary reflect upon the ways in which teaching takes place, by looking to connect students' knowledge to their interests and motivations, in such a way that they transcend their surrounding reality. In addition, it is proposed to transform the classroom into a real Learning Community (LC) of critical participants through Action Research (AR), where the student is really the protagonist of the action and interaction dynamics that may take place in the classroom, in the institution, and especially outside (lifelong learning).

LC implies a human community (temporarily) organized to undertake an educational project (formal or informal) of learning and common tools, whose equalitarian work generates an endogenous, cooperative and supportive effort, so that the results are improved for individual training as well as for social and educational transformation (Elboj-Saso & Pérez; 2003; Díez-Palomar & Flecha-García, 2010). Meanwhile, AR is defined as an experimental approach to the social sciences, which refers to a wide range of strategies applied cyclically in three basic steps: research - action – learning; which seek to improve practice through change and learning from the consequences of each change (Burns, 2007).

The curricular inclusion of IL using LC and AR processes involve searching for transcendence in students through their own decision-making capacity, their motivation for learning, and their interaction in the classroom; especially when the contents and promoted skills relate to the kind of context in which the activities and environments take place (Canal de León, 2002).

This project expected to achieve a high degree of motivation in students, helping to create autonomy and a commitment to knowledge itself. Moreover, to promote disciplinary and transdisciplinary analysis, the search for solutions to the issues they are faced with in their academic, social, and workplace contexts, both current and future.

The use of IL standards defines the curricular guideline to follow, specifically regarding contents and academic actions, possibly resulting in the simplest educational process for such kinds of initiatives, as it is possible to understand the partial or total inclusion of the skills proposed in each standard. However, the generation of a LC and the definition of AR processes could be considered somewhat complex, especially because of the challenges implied for teachers. Since, according to Dewey (1995), dialogic forms of participation are the basis for the construction of critical thinking and the development of a subject who is committed to society. Dewey's recommendation establishes an important link between school and society, so it is not enough to measure action in the classroom, but each individual's contributions for their future actions in life.

The various elements discussed in this chapter cannot work in isolation, according to what is proposed, first there must be an alignment between an IL standard and the curriculum, then the generative action integrating a LC emerges, and finally, through specific and continuous academic actions, we can reach the praxis, action and reflection using AR processes. Faced with such a wide variety of theories and methods, it may be suspected that a paradigm shift would be difficult. However, a teacher should be expected to operate around implementing ideas that contribute to revolutionize the classroom and strengthen the social, family and personal environments, and where student-teacher accountability and responsibility would be present.

The main challenge of the whole learning process is not simply the application of each proposed theory and method, but to achieve that the results reflect the offer and development of open and reflective cognitive processes and that participants can doubt themselves and accept that they can make mistakes, and that this allow students to generate changes through proposals that promote their self-improvement and that of their environment.

Specifically, this research proposes two objectives: a) demonstrate the compatibility of IL with educational planning, thus achieving the curricular inclusion in the program of a specific course; and b) experience the change of activities and strategies within the classroom, breaking the use of a teacher-student unilateral instruction.

The theoretical and methodological proposals included in this initiative are intended to contribute to the (re)construction of learning from experiences, beliefs and feelings from people while they interact with others. The most significant aspect of this process is to create a commitment in the student to coerce their social environment.

### **Curricular inclusion of IL to transform academic activities**

When a different scheme is incorporated into an academic model, it affects various elements from a didactic point of view, as it involves proposing new ways of understanding teaching and learning processes. This alters the academic curriculum with a different methodology, usually one not foreseen, goes beyond the topics to be studied, which cannot be structurally changed but they are regarding the form of transfer and assimilation, so it contributes in the development of other formation elements for students.

In this case, the inclusion of IL within the academic curriculum determines the need to generate new ways of understanding knowledge and its social issues. The expected result is for the major players in the teaching-learning process to reflect and assess contents beyond themselves, by problematizing them as part of a commitment from every student and teacher, considering this educational theory as a benefit for decision-making, being aware of people's and society's needs, seeking to offer contributions and improving their reality in the moments and circumstances affecting each individual.

However, considering that the origins of IL are actually related to library and information science and it is not necessarily part of an educational policy, it can be assumed that it would function as a micro-social innovation, thus influencing in particular environments that are related to the classroom, within a particular parcel of the educational and institutional reality. Conversely, it can be assumed that the higher education institutions (HEI) would conceive IL only through the provision of ICT in the classroom or other institutional settings, thereby pretending to represent an educational modernization. Meanwhile, that status does not guarantee an appropriate use of ICT or that it meaningfully contributes to the development of an educational process; nor the introduction of ICT directly implies the introduction or development of IL.

The thematic content of academic programs and the use of ICTs are important elements in teaching and learning processes, both can indeed have a necessary relationship with the process IL, but they are not directly correlated. Within academic programs, we would expect students to show interactions based on: finding answers to stimulate the understanding and generalization of knowledge; help in thought development; foster argumentation; check arguments' veracity; and encourage dialogue. The achievement of these conditions requires the aid of IL methodologies, to ensure that knowledge reaches effectively those involved and for it to be applied in the classroom and wherever students engage in the near future and in the long term.

IL, as well as the other two methodologies involved in this work (LC & AR) suggest a dialogic engagement from students and teachers in the classroom, embedding it in educational processes, enabling the construction of critical thinking and the development of research processes. Hence, it is essential for students to early acquire the tools and skills they need to search for information, and for them to take into account that they should use quality sources appropriate for the situations studied. Monarca (2013) presents some conclusions that particularly link the importance of LC to IL:

- a) In order for LC to work, engagement is a necessary practice for the construction of individual and collective learning.
- b) Engagement is not just talk and comment; it involves the interaction of knowledge possessed by speakers (prior knowledge), with other knowledge and proven expertise.
- c) Its good application can offer benefits for the individual's own learning as well as for the generation of new knowledge.

Beyond the learning of the contents included in the curricula, when they are linked to IL favor the development of a research community, result in a flexible education that is focused on the motivation toward learning; a reflective education that allows implementing problem-based learning (PBL). This helps students to critically discover, interpret and understand their environment. Moreover, this allows achieving AR's ideal, which involves the possibility of improving individual and collective situations. Ramos-García (2002) considers that teaching is complex and contextual, it unites and combines ideas and actions; it involves transitioning from the mere reception of content to the attainment of substantive educational changes rather than formal.

The inclusion of IL as a curriculum alternative in HEI can have three variants with their respective features: a) identification of curricular transversality,

b) through the design and implementation of alternative training courses on IL, and c) by designing an IL model with a systemic vision. These three options are complementary and the ideal would be to have a holistic view that considers all three simultaneously, since the first is feasible for the academia, the second is usually practiced by librarians, and the third is present theory and practice research.

### **Identification of curricular transversality**

This inclusion of IL in the curriculum tends to have large-scale applications in complete study plans, institutions, and even in educational systems. However, it can work individually on a course under the control of a teacher; this type of application corresponds to the case presented in this chapter. A definition of transversality that comes from the educational reforms recently experienced in Mexico, involves "going through the curriculum" from a transdisciplinary dimension, which crosses through all its components, inserting academic actions related to procedures, attitudes and values of the educational component, also expressed as the integration of the elements of knowing, being, doing, and living together (Fuentes, Caldera & Mendoza, 2006; Rendón-Pantoja, 2007; Rueda-Galvis, 2013).

Basically, this form of curricular inclusion is legitimized in learning processes with the idea of "mass education", usually for a large population, with mandatory and intentional socialization and humanization (Rendón-Pantoja, 2007). Although the benefits are many, as it has the potential to permanently and systematically influence large populations, it has been criticized by various ideological perspectives as it is considered a form of control exercised by educational institutions and government agencies (Rueda-Galvis, 2013). Although it is easy to apply to school groups where their influence is limited but highly effective, it is known that some scholars struggle to understand and correctly apply IL in the curriculum, especially in a transversal manner.

Curricular transversality can happen in any educational process, and its conditions would vary according to its level of application. For example, Fernández Batanero and Velasco Redondo (2003) indicate that regularly in non-university levels there are mandatory activities that are developed through the formal curriculum; whereas university levels are characterized by the use of new strategies, methodologies and content organization schemes, which depend on students conditions and the courses, thus giving a greater realism to the issues that are intended to influence.

Successful IL implementations under the model of curricular transversality involve having librarians as partners in integrative learning initiatives for the development of the writing ability and the scientific culture of students, especially if they are provided in the first years of study (Galvin, 2006; Polkinghorne y Wilton, 2010). Other initiatives propose the integration of LC through the fostering and enhancement of reading circles (Morales, Chaclán, Maldonado, Sontar, Montenegro & Magzul, 2013).

### **Design and implementation of alternative training courses on information literacy**

This kind of IL curricular inclusion has been applied in many universities that offer standalone courses, either as part of the curriculum or as an extracurricular activity, where students acquire and practice to develop their IL skills. Such initiatives are regularly linked to actions taken by the academic libraries attached to the HEIs and they even become compulsory subjects, especially for freshmen students.

Several initiatives of this kind propose to first train library staff on IL, since they will be the ones responsible to teach students afterwards. For example, Pinto, Sales and Martinez-Osorio (2009) studied the self-perception of librarians when facing their realities and training challenges, considering also that when IL is part of alternative courses offered as a library service, they provide benefits such as: improving the use, management and performance of collections, benefit and empower users to be independent, helps libraries to promote their resources and services, and improves their image. All these purposes start from the general need to extend IL to all individuals. In general, other projects start by using needs assessments, as Pinto (2009) highlights in a specific case with translation students, who analyze, explore and improve their levels of IL through a digital portal. Furthermore, Machin-Mastromatteo, Beltran and Lau (2014) established the Information Culture Development Program, which implied the participation of librarians, teachers and students, integrating initiatives that worked as alternative courses and as curricular transversality, offering support to learning, development of IL and digital literacy, as well as for research and scientific communication. There are several of these kinds of previous experiences of holistic collaborations involving librarians and teachers to integrate courses that meet specific needs. Lindstrom and Shonrock (2006) consider that within these situations, practitioners identify long-term commitments for integrating

training programs in relation to the curriculum, which they know from its planning and are able to identify IL activities for developing critical thinking, problem solving and information skills. Similarly, from VanderPol and Swanson (2013) experience in the implementation of LC between teachers and library staff, which is based on the ACRL / ALA (2000) standard "Information Literacy Competency Standards for Higher Education", which was also used for this present study and it is divided into five standards. Not all standards may be developed by librarians, such as those related to the ability to synthesize and use information to develop new knowledge. However, these can be developed by teachers in the classrooms, if librarians lack the training or skills to do so. In fact, Saunders et al. (2015) consider as expected that some librarianship graduates would lack sufficient skills in order to provide service, assist and educate in IL programs. After reviewing librarianship study programs from 18 countries, they observed large differences in the levels of curricular strength in relation to the implementation of IL models.

### **Designing an information literacy model with a systemic vision**

This third option may be considered the most suitable, but at the same time it may be the most utopic, as it includes the above models and additionally other aspects of the organization, so its implementation is complex, although interesting. In this systemic view, the presence of IL in all aspects concerning HEI, demands an emphasis on the importance of the participation of all parties and their interrelationships, and analyze elements of the context, environment and other related systems (from either similar or higher level).

Tiscareño, Tarango and Cortes-Vera (2016) made a proposal for a systemic vision related to IL at universities where, more than consider the different subjects (students, teachers, librarians) and objects (library, curriculum, physical infrastructure) from a relatively isolated way, they propose conceiving universities as learning organizations. This would imply that responsibility for the educational process is shared by all members of the academic and administrative community. However, the way it happens is not free, since it must be based on objectives, identifying opportunities, challenges and especially for the effective application of knowledge.

Systemic vision models are broad, because they involve and assess a host of elements such as: specific social and organizational context,



IL program components (mission, objectives, goals, strategies) and learning outcomes (Lindauer, 2006). For Uribe-Tirado (2010), using a systemic view on IL should be related to the formalization (legitimization) of general institutional development plans, include all units involved, strategic action plans and institutional education projects. The latter are represented through the curriculum of academic programs of the HEI where the IL initiative is implemented.

### **From the traditional classroom to LC**

After integrating IL in the curriculum, the need to include LC emerges, with it comes the intention of contributing to the transformation of teaching practices in the classroom, so they should be used by taking into consideration the implications and benefits are intended to achieve and not just fall into a cliché that undermines the role of the traditional classroom. This means that its constant use will not always be possible, since any excess might tend to result in discriminating other equally effective methodologies. Actually, implementing LC requires time, resources and conditions, which are not necessarily available to everyday educational processes.

Authors such as Harris (2008) argue that IL standards suggest that the activities are learning processes for IL development and are often individualistic. However, teaching and research theories recommend configuring LC and Communities of Practice (CP) as valuable and appropriate means to develop training processes with meaningful learning outcomes. The incorporation of LC on university areas as academic transformation projects has shown a recent boom in countries such as Spain, Brazil and Chile; but it is not limited to any certain countries or types of schools, and in fact they are often used by various business organizations.

The main characteristic of the application of this methodology is that all members forming a group should pursue quality learning without any discrimination toward any of the participants. Ferrada and Flecha (2008) define LC as a project for the social and cultural transformation of a school and its environment, to thereby achieve an information society for everyone, one that is based on dialogic learning through the participatory education of the community in all its areas, obviously including the classroom.

Because within this educational alternative all members of the LC pretend to obtain learning outcomes of the same level and although the problems raised in class are studied in different ways, according to the learning styles of those involved,

it is considered that is feasible to reduce the conditions of failure, absence and academic lag (García-Fernández, 2002), as well as using models of open, participatory and flexible training. The measuring of LC's impact in IL was studied by Lebbin (2006), who investigated the perception of students regarding the long-term value of their learning through the LC. Such showed a greater satisfaction in those who participated in this group dynamic, as opposed to those who worked alone. In both cases, the students participated in activities related to the demands of some IL standards.

The characteristics of educational equality in all members of a LC brings the ability to reflect on their suitability when compared to the traditional classroom, in addition to considering the real conditions of higher education and the lifelong challenge of sharing the principles of the information and knowledge society. Therefore, LC should be seen as a form of vindicating education for all people, not only to solve current issues, but also those in the long-term of personal and professional life (Flecha & Puigvert, 2002; Ferrada & Flecha, 2008; Esteban-Moreno, 2012).

In order for LC to operate, the following is fundamental: engagement, development of joint activities, coexistence, and shared responsibility for the achievement of learning and caring relationships (Flecha & Puigvert, 2002). Work has to be jointly undertaken for all those who are committed in conforming a LC and everyone plays an important role to advance, thus giving a sense of meaning to the participations and goals they can achieve, as well as improving the motivational spirit in the environment (Esteban-Moreno, 2012; Rodríguez, 2012).

Although most of the pedagogical methodologies intend to develop multilateral communication processes, LC overcomes all pedagogical perspectives of the industrial society. Therefore, from a dialogic model of pedagogy, LC successfully face the consequences from the first phase of the information society, in which special emphasis is given to the idea of differentiating regardless equality; instead, the LC foster the recognition of educational and social inequalities (Ferranda & Flecha, 2008).

LC have opted for the academic success of all students, regardless of their educational level, and mainly for overcoming inequalities by transforming situations and processes which generate social exclusion (Flecha & Puigvert, 2002; Esteban-Moreno, 2012; Iturbe, 2012; Rodríguez, 2012). Therefore it is considered that the school and the school community are privileged spaces to develop the capacity for critical dialogue as a basis for the construction of a more just and egalitarian society.

Iturbe (2012) considers that general objectives and the area where LC act are four: academic, cohabitational, participatory and formational. Furthermore, LC members are homogeneous, which allow an active and dynamic engagement, reaching a state that fosters personal relationships transcending the classroom and with continuity in spaces beyond the school (Ferrada & Flecha, 2008). In addition to this, students have increasingly access to information sources that expand their interests and training needs. Therefore, knowledge is acquiring a very different dimension, since interest of knowing more is added to the social priorities that could benefit an entire community.

It has been mentioned that LC's main function is to work and collaborate so that educational and social inequality is reduced and thus educational success for all people can be achieved. Hence achieving the start of a democratic school, an achievable utopia where everyone is included, where their daily issues are heard and decision-making is independent from social conditions. This may be a school that can make people "more" in knowledge, skills, autonomy and for them to be able to make appropriate decisions both for themselves and for the common good, which is implied in the idea of "learning to learn". LC have been qualified by the scientific world as an example of good inclusive educational practices, since they present methodological strategies that overcome inequalities, contribute to social inclusion and are based on theoretical advances in the social sciences and in research results in this field (Rodríguez, 2012; Arandia-Loroño & Alonso-Olea, 2012).

Although the structures are similar, we must differentiate between LC and CP. In LC, its members are apprentices, while in CP they are experts whose communication occurs in a common jargon and with specific terms based on their knowledge and experience. Vega and Quijano (2010) summarize the similarities between the two concepts as follows: a) coexistence of harmonious relations and conflict; b) interest of its members to carry out activities together; c) appropriate and expeditious information flows and diffusion of innovation; d) the existence of an enabling environment that allows the discussion of issues; e) an unwritten code of common ground among all its members; f) awareness of the skills and knowledge of all the community members; and g) sharing a common narrative on regarding their worldview.

Although LC concepts focus on the physical classroom, changes in educational models have favored diverse experiences of migration to virtual formats using ICT for group integration (Dominguez-Flores & Wang, 2011; Padilla-Partida, Ortiz-Vera & Lopez de la Madrid, 2015).

Such experiences analyzed the following aspects from the skills of their participants: kinds of cognitive, learning and emotional interactions; advantages in sharing and comparing information, ways for discussing ideas, meaning negotiation and construction of knowledge; as well as the synthesis and construction of new proposals without personal contact of the participating members. Nghiem (2010) justifies the use of virtual environments, as they facilitate the improvement of the practice in the development of IL, allows for a flexible LC and it is based on the logic of the information technology society.

### **AR as a methodology for asserting information skills**

AR is a methodology frequently used in qualitative research. It is considered a participatory technique that arises from Lewin's (1946) initiative, whose purpose was to make a social reflective practice, undertaken by individuals, groups or communities in order to attack a specific issue presented in a particular situation. AR is a rigorous and logical process that allows acquiring knowledge, problem-solving, and it offers the opportunity to be implemented in a cyclical manner (planning-action-observation-reflection), thereby generating a dialogic process in problem-solving for issues studied under AR.

This reflexive social action in which theory and practice can interact to establish appropriate changes in the particular situation studied and where there is no conventional distinction between what is investigated, who is investigating it and the investigation process itself. This transformation of educational processes that must be associated with social processes are needed for collective and social improvement (Restrepo-Gómez, 2007; Araque-Hontangas & Barrio de la Puente, 2010), since social transformation emerges along with the action taken from the research applied directly on the phenomenon under study. In fact, the link between AR and IL has been characterized as a new hope for the research and practice of IL, demonstrating its operation for the development of institutional implementation projects and the identification of related spaces for concrete actions to happen (Machín-Mastromatteo, 2012; Machín-Mastromatteo, Lau & Virkus, 2013).

Elliot (2000) considers the AR as processes that should focus on the inside of schools and educational processes, because it has to do with

recurring and new issues that emerge from the daily practice of teachers, engages students in the development of research and beyond problem-solving, they provide benefits to the student community. This author further states that this methodology provides teachers with the opportunity to criticize, problematize, analyze and suggest improvements to students' actions, thus perfecting their performances.

AR involves the development of a cyclical model in which action and reflection are two aspects that are in continuous interaction and complements themselves (Zeichner, 2004; Restrepo-Gómez, 2007; Álvarez-Gayón, 2009; Alberich-Nistal, 2007). Each cycle begins with an overview of a topic of interest, over which an action plan is generated. Then, the plan is examined, as well as its expectations, restrictions or obstacles; besides carrying out the first action step and evaluating it.

The conclusions drawn from the analysis of the results are the bedrock over which the next cycle starts; in this exercise a number of phases that invite to participate in the project and where everyone will be benefited are highlighted: reflection on a specific problem occurs, there is planning and the alternative action is undertaken to improve the particular situation and results evaluation is conducted with the possibility of launching a second round of these phases. Reflection is at the beginning of each cycle, as it is essential to transform practice. In this sense, the teacher is the lead investigator for the formulation, development and evaluation of their project.

The prototype of AR in its first phase is constituted as a deconstruction of the pedagogical practice of the phenomenon to resolve (Ahumada, Antón & Peccinetti, 2012; Durston & Miranda, 2002). The second phase involves a reconstruction (or statement of alternatives) for solving the problem and the third phase involves an evaluation to determine the effectiveness of the practice that was rebuilt. Deconstruction is the first methodological step in AR, which consists of an analysis of retrospective school practice, using field journals, texts, teachers' observations and focus interviews with students. The aims are to seek practical solutions to issues encountered in the classroom, identify problems and provide solutions in the best way possible. Different elements of teaching work are challenged, including the theories handled in class, as well as the tools, techniques and rituals (customs, routines, habits that are required in the classroom); all of the aspects that are susceptible for deconstruction.

An important element in AR is that the student must be self-critical. Vezzosi (2006) considers that critical self-examination allows to discover

the weaknesses of an expired didactic or the lack of interest in students, in addition to discovering our own flaws and to constantly challenge certain issues. Gómez-Restrepo (2007) puts it in the following way:

The recognition of our own limitations, self-criticism and their catharsis, deeper understanding of the pedagogical process and its angles, the identification of conflicting forces that underlie the practice; they carry the teacher from their insecurity and professional confusion to the serenity when facing the pedagogical process and allow them to doubt -without panic- the classroom organizational schemes and the methods preferred or those used (p. 7).

If we need to transform a teaching practice that must be strengthened, it can be done through this methodology of reflection and action. Reconstructing the practice produces new teaching knowledge for teachers, which is objectivized, systematized and written. This process involves going from a practical knowledge and to some extent an unconscious, to knowledge that is aware, critical and previously reflected. If AR's goal is transforming practice through individual pedagogical knowledge, this methodology is a tool that makes the teacher an apprentice, because their own results will benefit them to understand, comprehend and modify their classroom practice (Durstun & Miranda, 2002).

Given the need to justify AR as a method that encourages research, as well as fostering LC's elements, it can be argued that this methodology invites teachers to explore, reflect, identify issues, gather evidence, perform actions and analyze the effects of a change or transformation. Teachers cease to be intermediaries between the curricular expert and students to become true agents of innovation. It also provides an opportunity for teachers to take greater responsibility for the continuous improvement of their teaching practice, which would benefit their own professional development, and support the generation of new knowledge that students will never forget, because they were participants in its development.

## **Methodology**

The following paragraphs describe the methodological aspects followed to carry out the process of integrating IL into the curriculum. First, from the perspective of planning a particular academic course and correlating its contents with a standard. Second, its implementation in practice using two methods as described: LC for the purpose of integration and group work; and AR in order to develop outside-class individual didactic activities and group work for the classroom.

The purpose of these academic activities was to contribute to knowledge construction and the improvement of skills during their execution. Together with the methodological description, some results are presented.

Given means for developing research and collect data, a course was selected from the curriculum, which was Theory of Education, with a duration of 16 weeks, a total of 64 class hours, and four hours per week. This course is from the 8th semester of the Bachelor of Philosophy program, Faculty of Arts, Autonomous University of Chihuahua (Mexico). The main reasons for this choice were:

- a) Previous experience in teaching this course during the past five years.
- b) Students of the last semester of the program participated, thus ensuring greater academic maturity and scholar stability in students.
- c) The possibility to compare progress with a second group of similar characteristics but with whom traditional methods were used in the classroom (such results are not considered in this text, but they were a reference for the analysis of differences).
- d) The size of the group was considered sufficient to develop the experimental part (13 students in a closed community).

The description of the results is divided into three general phases, each with particular activities: a) educational planning, which involved tying the content of the course with the IL standard and define didactical activities according to such standard; b) executing, with activities of implementing the chosen school subject by integrating this group as a LC and applying AR cycles; and c) academic evaluation, which included the description of the processes of continuous and summative measurement. Such phases are described below.

### **Didactic planning phase**

In order to conduct and verify the operation of the proposed methodology, it was necessary to develop a curricular insertion of IL in the selected course (Theory of Education). So a standard that corresponded to college students was selected, the option chosen was a standard localized and approved by ACRL/ALA (2000) entitled *The Information Literacy Competency Standards for Higher Education*, which includes indicators for measuring the performance of a literate individual regarding their use of information.

The structure of the selected standard is divided into five standards (comprising 22 performance indicators and 89 outcomes). The first step was correlating the topics from the academic course with each of the five standards, in order to identify the outcomes that corresponded to the themes of the course.

From the interpretation of the standard and by taking as a reference the topics of the course, a thematic parity was performed in order to establish a correspondence between each performance indicator of the standard and the specifics of the course. Table 1 shows an example in relation to the topic *Educational problems: conceptualization*. The first column contain the Performance Indicators of standard one; the second column includes the specific issues under consideration; and the third column shows the outcomes adapted to research exercises according the ACRL / ALA standards. It is important to note that this procedure was developed for all the topics of the course, because Table 1 includes a single example.

**Table 1. Breakdown example of the topics of study by Performance Indicators (standard one)**

Performance Indicators	Specific topics	Outcomes
1. The information literate student defines and articulates the need for information.	<ul style="list-style-type: none"> <li>▪ What does it mean to educate?</li> </ul>	<ul style="list-style-type: none"> <li>▪ Participate providing your opinion on what you think is education. Then, after everyone’s opinions have been stated, talk about the concept and its implications for society and yourself.</li> <li>▪ Write a short text (extension: one page) for presenting it to the group and draw conclusions. You must use digital documents and a minimum of two references and a specific style manual. This work is more difficult because students must be capable of developing a research topic.</li> </ul>
2. The information literate student identifies a variety of types and formats of potential sources for information.	<ul style="list-style-type: none"> <li>▪ Education goals</li> </ul>	<ul style="list-style-type: none"> <li>▪ Search new sources to complement the topic and present progress to the group.</li> <li>▪ Identify your topic’s key concepts and terms, in order to explain the contents of the presentation.</li> </ul>
3. The information literate student considers the costs and benefits of acquiring the needed information.	<ul style="list-style-type: none"> <li>▪ Education and the conceptualization of man</li> </ul>	<ul style="list-style-type: none"> <li>▪ With the information gathered, students realize that they can combine thought and ideas of the topics presented and paraphrasing information in the work they are tasked with next.</li> <li>▪ Write a project or essay where you formulate questions based on the information need if necessary.</li> </ul>

(Continued)



**Table 4.1 (Continued)**

Performance Indicators	Specific topics	Outcomes
4.The information literate student reevaluates the nature and extent of the information need.	<ul style="list-style-type: none"> <li>▪ Education and society</li> </ul>	<ul style="list-style-type: none"> <li>▪ Organize the retrieved information in order to use it in your text and present it to the group.</li> <li>▪ Identify the value of the information resources at your disposal, using them to the fullest.</li> <li>▪ Prioritize primary and secondary sources, using them in an adequate way according to the needs and characteristics of the presentations.</li> <li>▪ Build new information from the data gathered in the retrieved sources.</li> </ul>

Once the correspondence Performance Indicators - Specific issues – Outcomes was defined, the learning activities that each student should develop we identified (both individual and in group), as well as those intended to be performed within or outside the classroom. A total of 80 exercises were carried out during the semester, and precise criteria for assessing and implementing each of them were designed and determined.

#### **Implementation phase**

After extensive planning, we proceeded to the implementation during the academic semester of January-June 2015, which consisted of two basic aspects: the integration of the LC and the use of AR for the development and improvement of academic activities.

## Integrating LC

As it was mentioned in the didactic planning phase, prior to the integration of the LC, the precise activities for each class session were defined, according to the course topics and the ACRL/ALA standards. During the first session, the integration of the group was known and students were asked that as a LC they should perform and discuss their interpretation of two readings written by his teacher on the conceptualization of IL and the characteristics of a LC. This allowed developing the first dialogic action in which all members explained their interpretation of both topics. Later, they were asked to locate and review the ACRL/ALA standards, in order for them to know about what should be observable in a university student with sufficient levels of IL.

The second session consisted of fostering the formal integration of the LC, starting with the introduction of each of its members (including the teacher) and identifying their expectations; and also, working rules for the development of activities and academic evaluation were explained. This sought to decrease inequalities among members, promoting critical and active engagement, in addition to an egalitarian dialogue to recognize and respect differences. Then, a non-formal (psychological) contract commitment was generated, this included that each member (especially students) would participate in such a way that may foster the continuous improvement in the activities of others. The basic rules for the LC proper functioning were established:

- i. Work on shared goals.
- ii. Actively participate with all members.
- iii. Create an atmosphere of high expectations with the commitment of offering everyone the best efforts.
- iv. Collaborate in an inclusive environment.
- v. Try to constantly maintain the aspects of timeliness, attendance and permanence, as well as the values of respect and honesty.

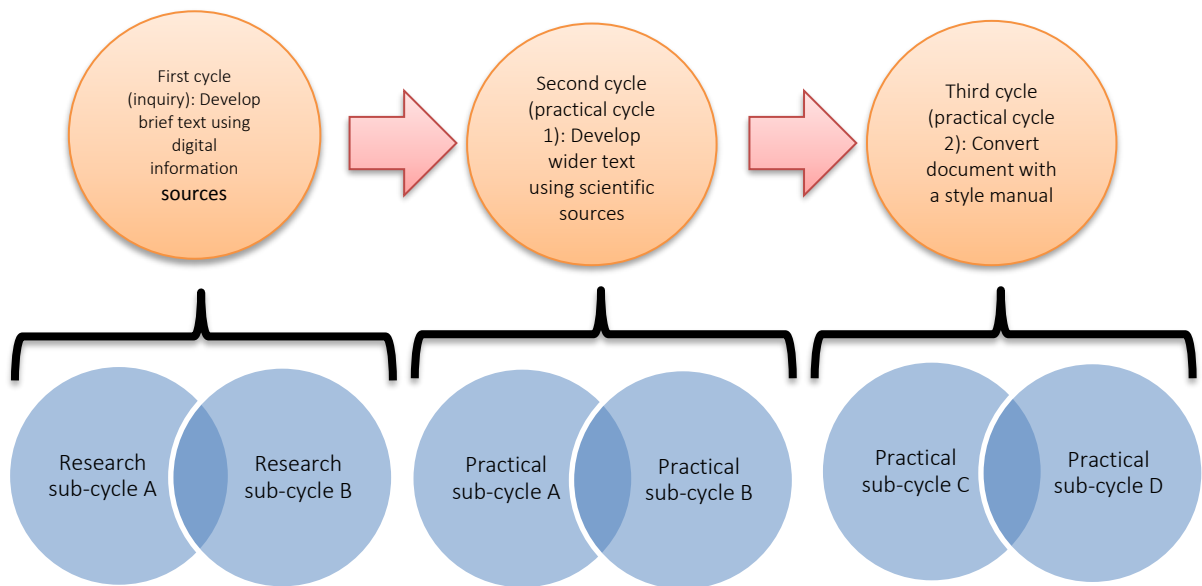
The challenge of this process was maintaining the enthusiasm of all the LC members during the work period, so that commitments were not only related to temporary euphoria, but a lifelong passion for the whole semester. Although findings of the academic evaluation processes are analyzed later on, by the end of the course an evaluation of the LC performance was conducted through a group reflection on the experience, and data on students' perceptions about it were collected.

### Applying AR in academic activities

Given the complexity of each activity, as well as time and resources availability, AR was developed in three cycles. The first cycle, known as *Inquiry Cycle*, included initial activities that were stated by the teacher by applying the requirements of the outcomes, thus seeking to apply the following processes: planning, action, observation and reflection. These same processes were repeated in the second and third cycle, known as Practical Cycles 1 and 2; the first corresponds to the original activity developed by the student; and in the second, the practices stemming from the review and recommendations are improved, both for the teacher and other LC members. All activities conducted were classified as follows: group activities in general, small group activities, and individual activities; all within and outside the LC.

Figure 1 shows an example of an evaluation for an activity involving analysis and writing, derived from an information query using digital information sources. This example used the methodology of AR, which consisted of three continuous cycles. Each cycle had its own checklist and complexity between each stage of evaluation increases. Each cycle is constituted of two sub-cycles, so that all academic evidence submitted by the student contained improvements.

Figure 1. AR Cycle and sub-cycle structure for text writing and analysis



It is important to point out that by working through this methodology, the number of activities became abundant (80 semester activities), and if each of them usually demand two cycles, this caused certain implications in its implementation. There was a paradigm shift in students when developing these activities, as the cycles were repeated they acquired greater perfection when integrating activities into a portfolio format. This represented more work than in a traditional class, but there was a greater differentiation of learning styles as well as an alteration in individual advancement rhythms. It is also

necessary to clarify that given space constraints, specific details of all activities are not provided. Hence, we present below an example of the three cycles for only one academic activity from all those that were performed during the semester.

Subsequent steps followed by LC members after each activity was developed were: a) start, the teacher assessed the conditions of the academic product and requested improvements over its current state; b) identification of characteristics needed to change; c) solution of the situation from action; d) hypothesis formulation and implementation of actions; e) evaluation of the effects of the action (it is even possible to reach situations of metacognition)

### **Academic evaluation phase**

One of the most difficult aspects of this research experience was to establish the evaluation criteria taken into account to assign a quantitative result, since many of these activities were evaluated qualitatively by analyzing the ways students worked in their presentations, participations and teamwork. The broader the activity that was performed, the greater was the need for defining evaluation criteria, but we did not resort to traditional exams.

For the evaluation of the activities of LC students, it was necessary to use and adapt proposals from other experiences similar to this research. For example, Boeriswati (2012) assigns a score to activities where students consulted information sources to integrate a product through analysis and writing. Hence, we included a checklist from the mentioned author, which contains the following assessment criteria: relevance, importance, novelty, characteristics of information sources used, ambiguity management, linking ideas, justification, critical evaluation, practicality, and ability to understand. The latter trait refers to thinking independently, fairly, tastefully, having intellectual curiosity and perseverance. Similarly, each item required its own form and interpretation elements.

When the products resulting from the activity posed to students were delivered, these were reviewed both by the teacher and students, after establishing evaluation criteria.

Evidence integration required each cycle to be an antecedent of contents for the next, so constructivist learning allowed observing the progress of students regarding their performance until high-level results were achieved by in all LC participants. This experience is described below:

a) During the first cycle (Inquiry Cycle), students were asked to develop a brief text individually, by searching digital information sources to support their contents and citing the sources they used. The first evaluation, for the first sub-cycle (Research sub-cycle A), involved the analysis of quality characteristics of written contents and the quality of the information sources used. The grades granted for this activity were not favorable enough, mainly due to the use of sources of little value. Then, the LC was explained about the needs of change given these evaluation results, by requesting an improvement of the product through the second sub-cycle (Research sub-cycle B), when they remade the contents and replaced the sources according to quality criteria explained by the teacher. The results in grades (expressed from 1 to 10, the minimum passing grade was 6) are presented in Table 2, which allows appreciating the variations among grades granted between sub-cycles A and B.

**Table 2. Research cycle (sub-cycles A and B) grades for writing short texts using digital information sources**

LC Members	Sub-cycle A	Sub-cycle B	% improvement
1	5,00	8,29	39,69
2	5,01	8,42	40,50
3	5,01	8,42	40,50
4	5,12	8,67	40,95
5	5,15	8,83	41,68
6	5,15	8,83	41,68
7	5,17	8,88	41,78
8	5,54	8,96	38,17
9	6,20	9,04	31,42
10	6,25	9,13	31,54
11	7,00	9,58	26,93
12	7,00	9,58	26,94
13	7,00	9,58	26,93
<b>Average</b>	<b>5,74</b>	<b>8,94</b>	<b>35,81</b>

b) For the second cycle (Practical cycle 1), students had to individually improve, the text they submitted before, but expanding it and resorting to the use of scientific information sources. This second cycle used the same mechanics of the first through the Practice sub-cycle A (adjustments according to the outcomes) and Practice sub-cycle B (improvements over results). Similarly, we proceeded to the grading of both moments, which showed substantial improvements and a lower percentage of improvement than in the first cycle, thus allowing to perceive an improvement in the student as they advanced through the second cycle (see Table 3).

**Table 3. Practical Cycle 1 (sub-cycles C and D) grades for writing a text using scientific information sources**

LC Members	Sub-cycle A	Sub-cycle B	% improvement
1	5,00	8,40	40,47
2	5,21	8,46	34,41
3	5,36	8,46	36,46
4	6,09	8,48	28,18
5	6,12	8,63	29,08
6	6,75	8,69	22,32
7	7,12	8,94	20,35
8	7,96	9,09	12,43
9	8,34	9,10	8,35
10	8,37	9,28	9,80
11	8,37	9,32	10,19
12	8,53	9,40	9,25
13	9,12	9,46	3,59
<b>Average</b>	<b>7,10</b>	<b>8,90</b>	<b>20,19</b>

c) The level of complexity was increasing, so that by the third cycle (Practical cycle 2), students were asked, individually, to convert their texts according to the requirements of a style manual, specifically they had to follow the format of the Modern Language Association (MLA); considered the most relevant for the humanities. For the grading of the exercise in sub-cycle C, the texts were peer reviewed (one student reviewed the work of another). During sub-cycle D, each work was reviewed by three students, so they had to match the evaluation

criteria together as a team and define the conditions for granting a qualitative and quantitative grade. Numerical grades between sub-cycles were favorable because the differences between the grades for sub-cycles C and D cycle were minimal (see Table 5). Percentages of improvement were getting shorter when compared with previous cycles while grades increased, which may indicate that with the advance of the course, students showed a continuous improvement from the first attempt.

**Table 5. Practical Cycle 2 (sub-cycles C and D grades for converting the text according to a style manual**

LC Members	Sub-cycle C	Sub-cycle D	% improvement
1	8,50	8,70	2,29
2	8,52	8,82	3,40
3	8,40	8,96	6,25
4	8,9	9,05	1,65
5	9,00	9,16	1,74
6	9,00	9,23	2,49
7	9,00	9,24	2,59
8	9,10	9,38	2,98
9	9,20	9,45	2,64
10	9,20	9,48	2,95
11	9,59	9,59	0,00
12	9,62	9,62	0,00
13	9,96	10,00	0.4
<b>Average</b>	<b>9,08</b>	<b>9,28</b>	<b>2,22</b>

LC working conditions and using AR favored the learning process, either to develop contents to encourage theoretical and practical knowledge, but also to foster the development of factors related to IL. Regarding the above results, improvements were observed between cycles as well as between sub-cycles. As more complex reflections of each academic product strengthened, there was a contribution to the achievement of the performance indicators. There were even improvements between cycles, although the activities in each of them were different or presented in a progression, thus demonstrating the strengthening of IL skills.

### **Analysis of results: description of the main findings**

The curricular insertion of IL using the group methodology of LC and the qualitative research strategy of ethnography for the continuous improvement through the logic of AR might seem of simple execution, as it was conducted in a semester-long course with 13 participants. However, it represented a challenge both in planning and implementation processes. It is feasible for this experience to be extended to the whole curriculum in a professional program, but it would require substantial and complex academic preparation even if it was not expected for each course to observe all performance indicators in the ACRL/ALA standards.

One of the main findings in terms of qualitative observations allowed determining the extent to which students adequately develop and make the most of school, through the use of different methodologies and academic strategies. In addition, this must be understood in terms of a physical space that originally corresponds to a classroom and outside the school environment through access to information sources (both print and digital). It is important to note that LC members were aware of curricular insertion of IL, as well as how to work as LC and through AR.

It took a broader effort by the teacher to achieve -in the short term- changes in students' routine forms of engagement in their classes, considering this was only one of their courses. However, the improvement experimented regarding work during the implementation and development of this project highlights the willingness of the LC members to carry out the activities. It should be noted that by working as a LC, the teacher had to change their own paradigm, from the mere exposure to play the role of guide and facilitator. This resulted in a high commitment, considering the high level of demand provided by the IL standard that was used as a working parameter. Some specific aspects of the experience presented are highlighted, as well as recommendations for future proposals:

- a) Given the administrative and academic characteristics of HEI for implementing educational programs, this research did not start from the development of a diagnostic process on IL levels possessed by the LC members, which added complexity to individual progress and the delimitation of strategies.
- b) All the thematic content of the course hardly agree with all the performance indicators of IL standard. Sometimes it is only possible to influence on almost all of them, leaving others unaddressed.



This justifies the curricular insertion of IL in the majority courses of a program.

- c) The combination of IL, LC and AR works best in small groups, as care should be given to the exchange of opinions, proposals and contradictions in the dialogues that occur. Accordingly, while enriching the topics of educational programs, they can turn out to be too large and complex.
- d) Any IL standards by themselves or didactic alternatives from a theoretical perspective are complicated to apply in an educational reality. This is especially true when considering the infrastructure conditions of public universities, which are insufficient to meet large populations. In addition to having teachers with work overloads because they have to focus on large numbers of school groups and on the inaccuracy in the purposes and impacts expected of public policies.
- e) Teachers have a saturation of proofreading and grading activities, so if LC dynamics are introduced, they must be able to follow the performance of its members very carefully. Otherwise, it would favor the emergence of passive individuals. To avoid this situation, it is recommended to use other methodologies, such as participatory and collaborative pedagogy, thus changing the original meaning in working.
- f) Students were not used to applying the method of AR, which involves constant processes of correction and improvement upon their proposals. In addition, too much time was consumed in meeting established work cycles using this methodology, especially in the early activities. It can be inferred that these situations occurred because of the group's lack of experience and the complexity of the processes of correction and improvement of academic tasks; which demanded more efforts also for students. Despite this, it should be recognized that in the end, results were gratifying.
- g) From the ideal conditions of a LC (which demands ideal results in the performance of all its members) and AR (which proposes cycles towards improvement), the grading with quantitative scores in higher education tends to be discriminatory and practically follow a principle of natural selection. To reach academic results using LC and AR ideally involves that all participants would achieve favorable grades, besides an indisputable improvement.

This means that several institutional paradigms regarding their conception of teachers, student and their performance would have to change.

- h) Although academic planning is done in detail, there are elements outside of the teacher's control that affect the performance of activities, such as student absence (for personal reasons, labor, etc.), the low number of sessions, as academic semesters are short (for various reasons, justified or not, such as holidays, suspensions, academic events, etc.).

The development and application of research, considering the influence of IL as a main strategy, allowed us to establish the following basic features that were extracted from this academic experience, which influenced students and the teacher:

- a) Develop action-oriented activities and be part of the history they are living allowed students to openly participate from the first contact with them. In addition, they initiated individual work more easily, and then group participation was strengthened (in pairs, small groups or the whole group).
- b) Classroom activities became social processes. Therefore, we expect their influence to extend beyond the classroom, even with the ability to become actions consistent with the social reality for the benefit of others.
- c) Use of ICT to develop academic presentations was important in developing coherent and illustrative work on the topics studied. Such presentations were perfected during the course of the semester.
- d) It was possible to foster social relations based on thoughts and actions involving reflection, besides the application of values and the manifestation of personal interests.
- e) To directly incorporate the IL experience to an educational environment without relying on other bodies such as the academic library or institutional policy, involved changing the pedagogy and the higher education didactic, thus improving the educational quality.
- f) Facilitating access to information sources (in print and digital format) must be recognized, as it is vital to be able to rely on substantial and updated content, thus enriching the knowledge of the participants. This helped students differentiate the quality traits of the information sources they used, in addition to improving their capacity for synthesis, reasoning and expressing value judgments.

The use of IL should be a reasoned practice that would not ultimately inhibit the fulfillment of the thematic content of academic programs, but instead it should provoke self-study processes, both by students and teachers.

This is a task with ethical, cultural and social consequences, as well as with the educational foundations students need to be self-sufficient with the knowledge he acquired and will continue to have by the end of their career.

## Conclusions

This work allowed showing two aspects: first, generate didactic planning elements that made possible the curricular insertion of IL, through which learning experiences were enriched. Second, it allowed implementing the project using various methods instead of the traditional ones, thus it fostered individual and collective engagement. Both moments led to the identification of the conditions teachers must face in higher education for achieving favorable results. These conditions are especially related to institutional and social circumstances of the environments in which there are no suitable resources available for its implementation. Other difficulties stem from the characteristics and conditions of the participating population. Therefore, extending such experimentation to broader contexts has a high complexity.

The inclusion of IL in an academic process is a challenge, but represented only the first part of the research process. To demonstrate its compatibility with the didactic planning was necessary groundwork toward a second phase, establishing a change of activities that would break with the unilateral teacher-student instruction. The appropriateness of including complementary methodologies (such as LC and AR) lies in their importance as accurate means for generating educational environments, thus increasing the potential for impact on learning outcomes in the short and long term.

This study focused on students' behavior, while there is low attention toward the role the teacher should play, from whom we should have higher expectations so that initiatives such as the one here presented are functional. All this, according Fainholc, Nervij and Romero (2013), implies having a shared vision; modify traditional strategies and include different aspects to the teaching practices, such as: new training, curricular and technological mediation; exercise fluid communication; implement actions toward research; maintaining dialogue, openness and flexibility, to name the most important. This makes it necessary to consider the implementation of Communities of Practice as a project that can continue the present.

## References

- ACRL/ALA. (2000). *Information literacy competency standards in higher education*. Retrieved from <http://www.ala.org/acrl/standards/informationliteracycompetency>
- Ahumada, M., Antón, B., & Peccinetti, M. (2012). El desarrollo de la investigación-acción participativa en psicología. *Enfoques*, 24(2), 23-52.
- Alberich -Nistal, T. (2007). *Investigación-acción participativa y mapas sociales*. Retrieved from <https://www.uji.es/bin/serveis/sasc/ext-uni/oferim/forma/jorn/tall.pdf>
- Álvarez-Gayón, J. (2009). *Cómo hacer investigación cualitativa: Fundamentos y metodología*. México, D.F.: Paidós.
- Arandia-Loroño, M., & Alonso-Olea, M. (2012). Universidad y comunidades de aprendizaje: Aprendiendo de una relación: El caso del País Vasco. *Tendencias Pedagógicas*, (19), 87-106.
- Araque-Hontangas, N., & Barrio-de-la-Puente, J. (2010). Atención a la diversidad y desarrollo de procesos educativos inclusivos. *Prisma Social: Revista de Ciencias Sociales*, 4, 1-37.
- Boeriswati, E. (2012). The implementing model of empowering eight for information literacy. *US-China Education Review A*, 7, 650-661.
- Burns, D. (2007). *Systemic action research: A strategy for whole system change*. Bristol, UK: Policy Press.
- Cañal de León, P. (2002). Innovación educativa, motivación del profesor y desarrollo profesional: problemas y propuestas de actuación. In P. Cañal de León (Coord.). *La innovación educativa. Sociedad, cultura y educación* (pp. 147-164). Andalucía, España: Editorial Akal.
- Dewey, J. (1995). *Democracia y educación*. Madrid, España: Editorial Morata.
- Diez-Palomar, J., & Flecha-García, R. (2010). Monografía: Comunidades de aprendizaje. *Revista Interuniversitaria de Formación del Profesorado*, 67(24,1), 11-15.
- Domínguez-Flores, N., & Wang, L. (2011). Online learning communities: Enhancing undergraduate student's acquisition of information skills. *The Journal of Academic Librarianship*, 37(6), 495-503.
- Durston, J., & Miranda, F. (2002). *Experiencias y metodologías de la investigación participativa*. Santiago de Chile: CEPAL, División de Desarrollo Social.
- Elboj-Saso, C., & Pérez, O. (2003). Las comunidades de aprendizaje: Un modelo de educación dialógica en la sociedad del conocimiento. *Revista Interuniversitaria de Formación del Profesorado*, 17(3), 91-103.
- Elliot, J. (2002). *El cambio educativo desde la investigación-acción*. Madrid, España: Editorial Morata.
- Esteban-Moreno, R. (2012). Presentación. *Tendencias Pedagógicas*, (19), 1-2.
- Fainholc, B., Nervi, H., Romero, R., & Halal, C. (2013). La formación del profesorado y el uso pedagógico de las TIC. *Revista de Educación a Distancia*, 12(38), 1-14. Recuperada de: <http://www.um.es/ead/red/38>
- Fernández-Batanero, J., & Velasco-Redondo, N. (2003). La transversalidad curricular en el contexto de la enseñanza superior. *Agenda Académica*, 10(2), 61-69.
- Ferrada, D. & Flecha, R. (2008). El modelo dialógico de la pedagogía: Un aporte desde las experiencias de comunidades de aprendizaje. *Estudios Pedagógicos*, 34(1), 41-61.
- Flecha, R., & Puigvert, L. (2002). Las comunidades de aprendizaje: Una apuesta por la igualdad educativa. *Revista de Estudios y Experiencias en Educación*, 1(1), 11-20.
- Fuentes, L., Caldera, Y., & Mendoza, I. (2006). La transversalidad curricular y la enseñanza de la educación ambiental. *Orbis: Revista Científica Ciencias Humanas*, 2(4), 39-59.
- Galvin, J. (2006). Information literacy and integrative learning. *College & Undergraduate Libraries*, 13(3), 25-51.

- García-Fernández, N. (2002). *Las comunidades de aprendizaje: sistemas de trabajo con las TIC en el sistema educativo y en la formación de profesionales*. Retrieved from [www.um.es/ead/red/6/comunidades.pdf](http://www.um.es/ead/red/6/comunidades.pdf)
- Harris, B. (2008). Communities as necessity in information literacy development: Challenging the standards. *The Journal of Academic Librarianship*, 34(3), 248–255.
- Iturbe, X. (2012). La escuela inclusiva tiene nombre propio: Comunidades de aprendizaje. Una experiencia de más de 10 años en el CEIP de Lekeitio. *Tendencias Pedagógicas*, (19), 43-66.
- Lebbin, V. (2006). Students Perception on the Long-Range Value of Information Literacy Instruction through a Learning Community. *Research Strategies*, 20, 204–218.
- Lindauer, B., (2006). Los tres ámbitos de evaluación de la alfabetización informacional. *Anales de documentación*, 9, 69-81.
- Lindstrom, J., & Shonrock, D. (2006). Faculty-Librarian collaboration to achieve integration of information literacy. *Reference & User Services Quarterly*, 46(1), 18-23.
- Machin-Mastromatteo, J. (2012). Participatory action research in the age of social media: Literacies, affinity spaces and learning. *New Library World*, 113(11), 571-585.
- Machin-Mastromatteo, J., Beltrán, O., & Lau, J., (2014). Piloting a holistic information culture program: The experience of CETYS Universidad System of Libraries. *Communications in Computer and Information Science*, 492, 350–360.
- Machin-Mastromatteo, J., Lau, J., & Virkus, S. (2013). Participatory action research and information literacy: Revising an old new hope for research and practice. *Communications in Computer and Information Science*, 397, 48-53.
- Monarca, H. (2013). Participación dialógica en la universidad: Condición para el desarrollo del pensamiento crítico y el compromiso social. *Revista Iberoamericana de Educación Superior*, 4(9), 53-62.
- Morales, L., Chaclán, C., Maldonado, S., Sontar, G., Montenegro, R., & Magzul, J. (2013). *Reforma educativa en el aula: Fragmento tomado de comunidades de aprendizaje y círculos de lectura*. Guatemala: Juarez & Associates.
- Nghiem, H. (2010). Los programas de la Alfabetización Informacional en el contexto de la sociedad de las tecnologías de la información y las perspectivas interculturales. In *World Library and Information Congress: 76th IFLA General Conference and Assembly*, 10-15 Agosto, Gotemburgo, Suecia. Retrieved from <http://www.ifla.org/en/ifla76>
- Padilla-Partida, S., Ortiz-Vera, L., & López de la Madrid, C. (2015). Comunidades de aprendizaje en línea: Análisis de las interacciones cognitivas, docentes y afectivas. *Apertura: Revista de Innovación Educativa*, 7(1), 1-18.
- Pinto, M. (2009). El proyecto ALFINTRA: Desarrollo y evaluación de las competencias informacionales en el Grado de Traducción e Interpretación. *Ibersid*, 291-298.
- Pinto, M., Sales, D., & Martínez-Osorio, P. (2009). El personal de la biblioteca universitaria y la alfabetización informacional: De la autopercepción a las realidades y retos formativos. *Revista Española de Documentación Científica*, 32(1), 60-80.
- Polkinghorne, S., & Wilton, S. (2010). Research is a verb: Exploring a new information literacy–embedded undergraduate research methods course. *The Canadian Journal of Information and Library Science*, 34 (4), 457-473.
- Ramos-García, J. (2002). Motivación, entorno e investigación. In P. Cañal (Coord.). *La innovación educativa*. Andalucía, España. Editorial Akal.
- Rendón-Pantoja, S. (2007 junio). Significados de la transversalidad en el currículum: Un estudio de caso. *Revista Iberoamericana de Educación*, 43(2), 1-14. Retrieved from <http://www.rieoei.org/deloslectores/1675Pantoja.pdf>

- Restrepo-Gómez, B. (2007). Una variante pedagógica de la investigación acción educativa. *OEI: Revista Latinoamericana de Educación*, 1-10.
- Rodríguez, J. (2012). Comunidades de aprendizaje y formación del profesorado. *Tendencias Pedagógicas*, (19), 67-86.
- Rueda-Galvis, J. (2013). La transversalidad curricular y su papel en la formación profesional de administradores de empresas. *Revista de Universidad La Salle*, 61, 199-211.
- Saunders, L., Kurbanoglu, S., Boustany, J., Dogan, G., Becker, P., Blumer, E., Chowdhury, S., Dobрева, M., Gendina, N., Hebrang, I., Haddow, G., Koltay, T., Kortelainen, T., Krakowska, M., Majid, S., Mezhova, M., Repanovici, A., Rudžioniene, J., Schneider, R., Terra, A., & Todorova, T. (2015). Information behaviors and information literacy skills of LIS students: An international perspective. *Journal of Education for Library and Information Science*, 56(1), 80-99.
- Tiscareño, M., Tarango, J., & Cortés-Vera, J. (2016). Desarrollo de competencias informacionales en universidades hispanoamericanas: Fundamentos teóricos para un modelo integral de evaluación. *e-Ciencias de la Información*, 6(1), 1-33
- Uribe-Tirado, A. (2010). La alfabetización informacional en la universidad: Descripción y categorización según los niveles de integración de ALFIN: Caso Universidad de Antioquia. *Revista Interamericana de Bibliotecología*, 33(1), 31-83.
- VanderPol, D., & Swanson, E. (2013). Rethinking roles: Librarians and faculty collaborate to develop students' information literacy. *Journal of Library Innovation*, 4(2), 134-148.
- Vega, G., & Quijano, Á. (2010). Comunidades de práctica y alfabetización informacional. In *Congreso IBERSID*, Zaragoza. Retrieved from <http://www.ibersid.eu/ojs/index.php/ibersid/article/view/3878/3598>
- Vezzosi, M. (2006). Information literacy and action research: An overview and some reflections. *New Library World*, 107(1226/1227), 286-301.
- Zeichner, K. (2004). Investigación-acción y el mejoramiento de la docencia en la educación superior. *Unipluri/versidad*, 4(1), 61-72.