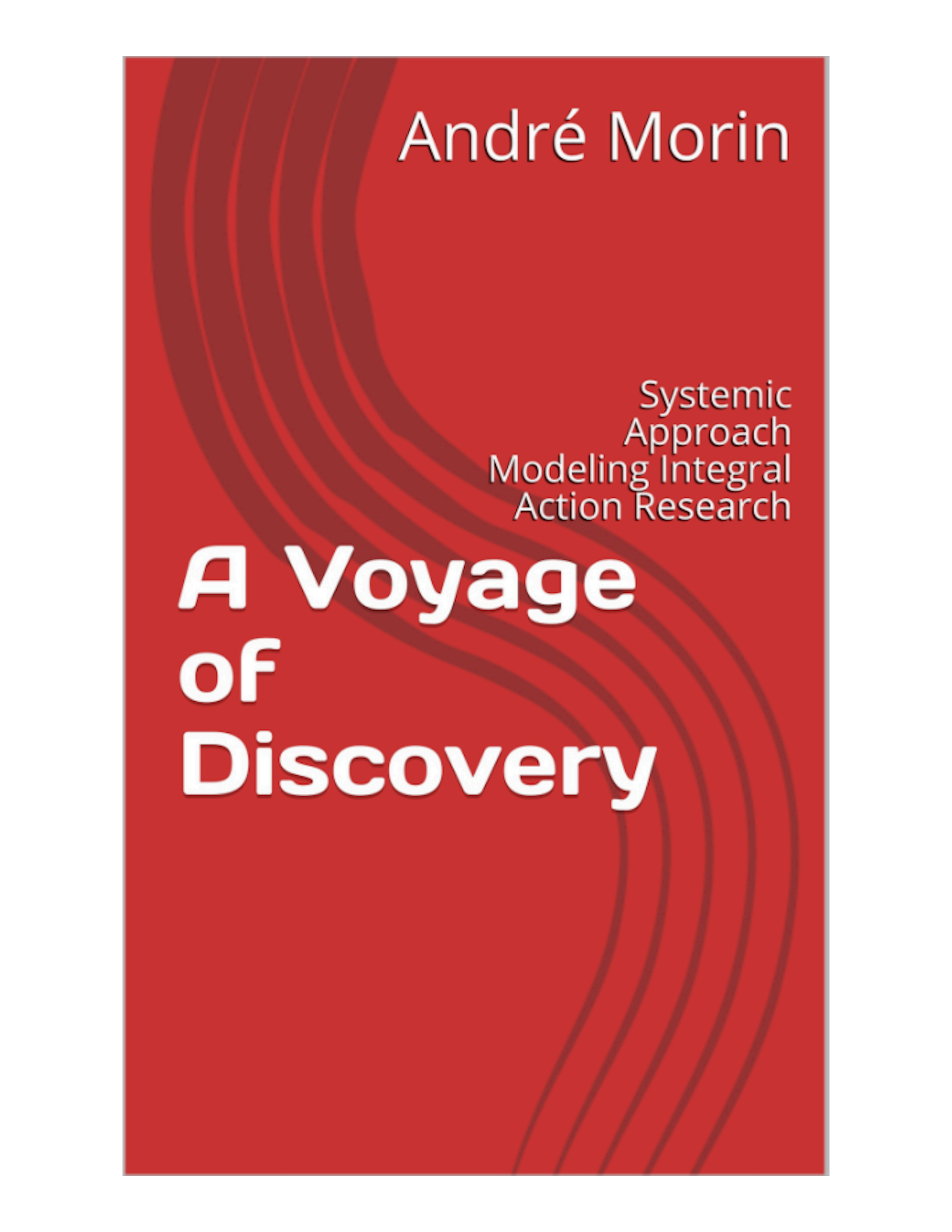


The background of the cover is a solid red color. Overlaid on this are several thin, white, curved lines that sweep from the upper left towards the lower right, creating a sense of movement and depth.

André Morin

Systemic
Approach
Modeling Integral
Action Research

***A Voyage
of
Discovery***

A VOYAGE OF DISCOVERY

**Systemic Approach Modeling
Integral Action Research**

(SAMIAR)

André Morin

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Edited by Ovide Bastien

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Foreword

This book serves as a bridge connecting Canada's 'two solitudes', appropriately facilitated by Faculté St-Jean where Franco-Anglo dialogue has been in place for over a century. One 'solitude' is the rich Francophone action research tradition exemplified by the global experience of André Morin published in French and Portuguese internationally. The other is the rich participatory action research (PAR) tradition in Alberta universities commencing with the 1989 Congress at the University of Calgary and reflected in on-going inquiry at the Faculty of Nursing at the University of Alberta, the Faculties of Social Work at Mount Royal University and the University of Calgary. There are action researchers at Athabasca University, Grant MacEwan University and the University of Lethbridge. The 1989 Calgary Congress was the third international gathering of PAR academic scholars and activists, but only the first university to host such a gathering. These traditions are not widely known, and this book serves to remind Canadians of the good work we do. This book is about unities rather than solitudes – walking together, *cheminer ensemble*.

Over the years it took André to write this book, I tagged along to help with English grammar. As a lifelong advocate of PAR, especially as it evolved out of the global South and Aboriginal experience, I knew something of the context. My reward was learning the deep similarities within *La recherche-action intégrale et systémique (RAIS)* and the global voices captured in a vast Anglo literature. While puzzling over terminology, I acquired an under-

standing of the subtleties of meaning and the value of writing with an accent. This was hard work. The result is rewarding and continuous. As you read this English book, look to your own language for the subtleties of the sort that PAR/RAIS celebrates and you will experience the collective essence of this approach to democratizing knowledge making.

André writes of the importance of ‘common language’ in RAIS in that researchers and researched must engage equally in knowledge-making processes through transdisciplinary inquiry. His story is an honest and compelling search for intellectual clarity, including all the setbacks and challenges of his learning journey.

In the end, this book moves beyond ‘two solitudes’ into a uniquely Canadian blending of twentieth century efforts to craft democratic practices in social science research. André’s investigative journey has urgent contemporary value. PAR scholar and activist Orlando Fals Borda told us to ‘investigate reality in order to transform it’. ‘Investigation’ is a core value in the historian Timothy Snyder’s (2017) effort to combat looming political tyranny. André’s lifelong journey shows us how investigation can function as a democratic way of life. It is an antidote to the forces of tyranny.

Timothy Pynch
University of Calgary

Introduction

To have or to be

When asked more than forty years ago to examine and evaluate the pedagogical value of an open system in education, I immediately started searching for the most rigorous and appropriate methodology for this task. As I had not found participant observation completely satisfying, I was led to seek clarity in the concept of action research, which was emerging from field studies.

Many years later (1992), I wrote a manual on integral action research (IAR) where participation is present at all steps of the investigative process. Recognizing that complexity is ever growing in education and social work, I sought to harmonize IAR with systemic approach modeling (SAM).

Later, the task of coordinating an issue of *Questions Vives*, a French periodical (2004) in educational sciences, led me to revisit my understanding of these two approaches. More specifically, I examined the concept of knowledge (savoir) in relation to both science and action, and this just before publishing in Brazil the same year a manual titled *Pesquisa-ação e sistêmica. Uma anthropo-pedagogia renovada* (Action - Research and Systems: A Renewed Anthropopedagogy).

In 2010, upon receiving an invitation to publish an updated version of the above manual in France, I undertook a literature review of both the IAR and SAM approaches, and whether these were used separately or together. In this review I covered the research experiences in Europe, North America,

India, and some countries in Latin America and Africa, integrating what I was finding with research done in Quebec and France.

Since I encountered studies from England and the United States and other countries in publications written in English, essays and field researches on both methods, IAR and SAM, I considered writing a book in English that would allow Anglophone readers to discover a vision typical of France and Quebec, and that I have also found in other parts of the world where I have traveled or in research literature.

I wrote this book respecting other trends and well-established thinking on experimental methods that I utilized for my own PhD dissertation.

Without the help of a competent researcher, professor Tim Pirch, a specialist in participatory action research, I am not sure I would have been capable of maturing and producing this book. He deserves all my respect and gratitude for meticulously correcting my manuscript, chapter after chapter and word by word, in the last two years. Thank you very much Tim!

While pursuing my research I was literally taken aback by two articles; one dealing with the fundamental orientation of action research (Carr, 2006) and the other with systemic endeavors (Bawden and al., 2007). Carr seemed to suggest that one should opt for a non-methodology approach while Bawden seemed to suggest that one should opt for a holistic view.

What does Wilfred Carr say? He shows that the concept of action research, born in the twentieth century, emerges from the pre-modernist tradition of practical philosophy. Relying on Gadamer (1981), he thus proposes as a personal principal task a “non-methodological” vision of action research in which the priority becomes developing a personal conscience, essential to the development of practice. Action research, born in the United States with Kurt Lewin, would come from a positivist methodology defined as an iterative process of constant correction of hypotheses, considering the effective results of action taken. Carr recommends considering a new tradition, of British origin this time, that rejects positivism as a methodology and proposes instead qualitative approaches that are ever more utilized in social sciences and case studies. Action research should be centered on the practitioner as a researcher or as an actor who allows time for reflection. Research by Elliott and Alderman in the 1970s only aimed, in the end, to test the efficiency of involved educational practices, which would subsequently become the object of action research in education. If action research has evolved from being that of an external researcher to that of one who becomes involved, why, asks Carr, must it limit itself to methodology to define itself? And he suggests another way of conceiving it, either as philosophical practice or as actual practice. Methodology thus becomes secondary and should only emerge during the research process.

On the other hand, what does Bawden and his colleagues say about the systems approach? With an open vision, Bawden et al. (2007) expose the theory elaborated by their Systemic Development Institute, which was born in Hawksbury, Australia

at the University of Western Sydney. This theory, developed as of 1973, reflects partially Checkland's approach on soft systems thinking and practice, a conception that presents a rigorous assemblage of pedagogical practice aiming for systemic praxis. Bawden's theory reflects a holistic paradigm of systemic development (p. 130). He talks of a developing "holon" that unites different organization systems, soft, hard or critical investigation processes, and comes to fruition in the learning evolution of the researcher. The institute is a place for action research in a development unit of the university. Learning systems must of course help solve problems in agriculture and favor rural development, something not feasible unless change occurs in the thinking and action of those involved. Though not very explicitly shown, one finds such change in the *persistent experiential challenge*. Bawden thinks that if one develops an understanding of learning systems, well understood practice almost infallibly emerges. For him, university pedagogy is central and the system where it is practiced should be flexible. Since university structures do not seem, in his opinion, sufficiently soft or open, he created an independent institute to promote action in keeping with that systemic vision.

Carr's article on philosophy, methodology and action research challenged me profoundly. Bawden's article also, and even more concretely.

I wondered whether it was worthwhile revising my 2004 text, which was quite methodological, and that dealt with action research and systems analysis. Should I abandon all methodology? Should I go back to the past and resituate action research in an Aristotelian mindset? Should I forget the lucid and

profound reflections of Blondel who more than a century ago (1873, republished in 1950), while basing his discoveries on the positive sciences, showed their limits and surpassed them? On the other hand, should the preoccupations of researchers/ practitioners who are calling into question the scientific character of integral research action and systems analysis not oblige me to revisit this matter for those who, with good reason, are seeking institutional recognition for their work? This is a question that was raised in a seminar in Amazonia in Brazil, and that led me to initiate a debate on the scientific character of my previous work (Morin et al. 2007). Keeping in mind the above remarks, am I still really in an impasse or a dead end?

Yes and No

Yes, it is an impasse if one does not want to include his or her experiences in a methodological mold that is frightening, and which threatens to do away with the spontaneity and the richness that come with these experiences. Yes, it is an impasse if one is adamant about defining science according to the pre-modernist meaning of the word “praxis” borrowed from Aristotle. Yes, it is an impasse if one can prove that any methodology is useless and only serves to contradict one’s experience of life and action. Yes, it is an impasse if it is not necessary to study theories or the way to act or use methods and show their foundations, relevancy and possible progressions. Should action-research be nothing but a philosophy, would it not make sense to simply keep silence and leave to moral philosophers the task of helping those who are fighting for a better world and want to deliberate and reflect on the paths to be taken to foster change? Then my task would consist in not writing anything at all, except

perhaps to argue in favor of a non-methodological approach.

No, it is not an impasse if non-methodology means a broad approach, if the absence of methodology is not total and absolute and does not suffice; if an enlightened methodology can still help some practitioners to cope with the inherent difficulties one faces when promoting change, difficulties often resulting from communication problems when trying to understand a reality that is complex. No, it is not an impasse if techniques, even the simplest ones, appear as manifestations of a practice that is pertinent in dealing with a problem, and if these allow researchers to improve their observations and analyses, and to benefit from their fieldwork experiences. No, it is not an impasse if a methodology, whether based on a pre-modernist, post-modernist, or contemporary philosophy, fosters not only reflection, but also a knowledge that flows from action research, and that is integral, participatory, and hopefully systemic, while remaining open to all other types of methodology favoring an outcome desired by a group. Whether one situates action research and systems analysis in modernism or post-modernism, there will always be someone to suggest a “technique” that may help a group of researchers or practitioners to adjust themselves to new tasks, to actions aiming for some change. Today, one cannot live in an ivory tower, shunning technologies such as the Internet that surround us and bring new rules of communication. Acknowledging the notion of modern science with its rigorous methods could even lead us to come up with a broader notion of science in this post-modernist period. The term science would then have two meanings, donned by the larger hat of knowledge.

Blondel (1893) would always be relevant because as a philosopher, he would be restoring the creative intelligence of human beings, capable of conceiving broad research projects involving both positive sciences and human and social sciences. These are abundant reasons to perfect our methodologies by basing them on philosophical and human thought.

While in the process of reflecting on the accuracy of a chapter on methodology that I had published (Morin et al. 2007, pp. 57-75), I started wondering whether its content reflected the spirit of non-methodology, given that I agree and accept, precisely because of the complexity of reality, the dialogue of paradigms leading to a complementarity of approaches. In so doing am I not, for all intents and purposes, reflecting the practical philosophy of Carr, this without banishing all methodology? For me, “non-methodology” means an openness to any approach aiming at processing the resolution of action problems. On the other hand, a pure “non-methodology” without reference to a mode of action, is certainly an interesting thesis that focuses on what is essential, on those principles directing a practice, but it remains insufficient because it places concrete action on the backburner, even reducing it to passivity, nay to inaction. I believe, as Blondel wrote more than a century ago (1893), that action is a must, and I reject Habermas’ assertion (1987) according to which one must stop all action in order to reflect. I think that Shön (1983) is more realistic in putting an emphasis on the practitioner who thinks while acting.

What to retain in this book

Forreman-Peck and Murray (2008) summarize well the tendencies of action research and of a strategic

policy for education, presenting them under four axes.

The first axis is the teacher who tries to innovate in his own discipline by creating a teaching model that incites, stimulates, and deeply motivates his students. Afterwards, he may describe his experience and transmit it to colleagues through narration or otherwise, while suggesting that they should create their own model, or adopt his while improving and adapting it to their own teaching style. If this is called action research, it is most likely in the broad sense of an action requiring both reflection and testing. One should obviously analyze the experience and see if participation of the *concerned* known persons was integral or partial. As a teacher, I have often tried to be innovative. However, in so doing I never imagined that I was doing action research; I thought of it more as active pedagogy, conceived, planned and applied systematically in a classroom. Of course, I welcomed suggestions, and progress was evaluated mainly through revising student work. *Participation consists in distributing themes to students making them responsible for presenting part of the subject matter.* This first trend **in my teaching** lasted until 1992 when I was asked to teach a course on research methods in education as explained in chapter 6.

In the meantime, I explored a participant observation method in an open pedagogy course developed by my colleague Fotinas. After developing pedagogical tools, I made myself one of the two participant observers for a full three hours meeting once a week during 15 meetings reporting to GÉSOÉ, the research group, what was observed. We had spent one year for preparation, one year discussing before

and after each session of the course. Afterwards I came with an elaborate two volumes report in 1979, helped by two assistants. This research led me to search if action research methods might not have been better if harmonized to the open pedagogy inspired by von Bertalanffy open system theory.

The second axis lasted from 1980 to 1992

I decided to study action research as a worthwhile value, find paradigms that justify it and demonstrate lessons for future action or development. I started by a survey of researchers in Quebec, the United States, and Europe and prepared a summary based on different experiences. This led me to extract an operational definition of action research as essentially a complete participation that might be experienced if students agree to become authors and actors participating with the professor as animator and a resource on research methodology. The action research methodology had to grow from reflection and learning through visiting and reading on experiences tried elsewhere. I did not yet employ the method in teaching regular courses on other topics like Models of Teaching, Advanced educational technology and so on. However, when directing master's theses and doctoral dissertations during the following twelve years, we often took action research as an involved qualitative inquiry method, even if it sometimes appeared only tolerated by researchers or a jury.

From collaboration to integral participation as author and actor

In England I had retained the works of Lawrence Stenhouse (1970s) who encouraged the teacher to become a researcher. This trend was formalized through research experiences of a team directed by

John Elliott at the University of East Anglia (Morin A., 1986). It was the fruit of cooperation between high school teachers and professors of that university to evaluate this innovative program of investigation and discovery for teaching sciences in a high school network. The first step consisted in reaching an agreement, through discussion, about a common vocabulary and a more open pedagogical method to be used in the high schools. Then, ethnographic tools, including participant observation, were used to observe the process. This type of approach later appeared to us as a form of action research, rather experimental and inspired by Kurt Lewin. For Forreman-Peck and Murray (2008), this approach is inspired by a practical philosophy. Analysis is done ordinarily through triangulation of data and a policy of change established to solve pedagogical difficulties. At that time, I was sharing this investigation method but with an interrogation on a lack of total participation. I recognized research done in North America in education where objectivity was a must. However, student participation appeared to depend on values decided by a defined theory, which, though respecting students, did not allow their participation to go as far as questioning the teaching method itself.

I decided also to make an internship training with international social workers at the Institut œcuménique au service du développement des peuples ([INODEP](#)) in Paris partly founded on the philosophy of Paulo Freire. I realized that authentic and transformative action research should prioritize the personal involvement of individuals. During a discussion with my mentor, Michel Séguier, I noted that participation appeared too well controlled by field work questionnaires and asked him if there

was more openness about participation somewhere in France. Michel suggested that I should meet Professor Henri Desroche who might be able to help me in this respect. So, I met with Professor Desroche and discovered what I was searching for. He convinced me to come with him for the inauguration of one of his antenna, a Cooperative college at the “Université de Rennes” so that I could see for myself a situation in which the personal experience of individuals is prioritized. Later, he also suggested that I should consult Jean Dubost who had just defended his PhD on his field research as a social worker. I met with Dubost and he lent me his manuscript in which I discovered that, in the controversies regarding water reservoirs in Switzerland, people as actors of change were being given total attention. These considerations helped and guided me in my analysis and criteria of integral action research, explained in chapter 1.

From there, encounters with researchers in Belgium at the Université de Bruxelles completed a vision of action research as a transformation of the mind through an action that becomes meaningful. These exchanges with Pirson and J. Pirson-De Clercq (Morin, 1982) were making action research, if freely accepted, a participatory research method apt to transform people and groups.

A colloquium with popular educators in a variety of fields

Finding that social workers might enlighten us if we learn from them, on my return our research group organized in 1982 a Colloquium on Popular Education with diversified groups to come and write on a theme of their choice. Popular educators would become authors if they accepted our invita-

tion and challenge. A publication of written texts came out 14 months later. It was a rather difficult task that made us realize certain difficult social relations we were not expecting. Seven lessons emerged notably from that experience in a timed action research:

- 1) Negotiation is a must if one wants to favor involvement and participation.
- 2) Action research requires an open contract.
- 3) Such a contract encourages a mutual quest for meaning.
- 4) Priority should be given to finding the meaning of actions, and not a pure application of theory.
- 5) When discussing during meetings it is important to avoid falling in an aggressive mode.
- 6) Exchanges must be open to the experience of others.
- 7) The process requires that the researcher should be able to live in uncertainty, recognizing the uniqueness of each situation.

In the meantime, nevertheless, as responsible to the GÉSOÉ, we managed to publish a full report in a book titled: *L'écriture collective. Un modèle de recherche-action* in 1986 credited as first writers to "Groupes d'éducation populaire", and I in second place as a collaborator. Much later Ruhina Dhalla (1989) wrote her master's thesis on this collective writing (1982-1984) compared to a group knowing themselves before and devoted to a similar task.

Besides the preceding experience I was able to analyze the six participatory experiences in a book (1986) with the help from some GÉSOÉ members under the title: "*La recherche-action en éducation: de la pratique à la théorie.*" Later (1992), I wrote a manual in two volumes on Integral Action Re-

search and Cooperative Participation, the first one on methodology and case studies and the second one on theory and the writing of a report.

A **third axis** is suggested with the writing of Carr and Stephen Kemmis (1986) with their social critical theory, which, in their opinion, is essential to action research. Some authors talk of *critical action research*. They reject a positivist epistemology towards generalizations, which in their view is too technocratic, and suggest “critical action research” that must lead to an emancipatory knowledge permitting the discovery of false beliefs concerning practice. This vision draws in great part from Habermasian thinking and is interpretative; one searches for meaning and signification underlying the actions of actors. When we, at the GÉSOÉ,¹ defined integral action research, we knew little about the works of Carr and Kemmis. We had grounded our writings primarily on Paulo Freire, specifically on his pedagogy of oppressed people, and his discourse on “conscientisation” and involvement in education and social fields. We were introduced to globality and integrality through Barbier (1977), Henri Desroche (1982) and Jean Dubost (1983) as explained in chapter 1. This venture stimulated us to engage in an action that may transform researchers as actors or vice versa if we were looking for lasting significant changes.

We have reached finally the **fourth axis** of Forreman-Peck and Murray when we integrated the systemic approach (Cardinal and Morin 1993, 1994, 2004) with involvement, experience, tech-

¹ GÉSOÉ means « Groupe d’études sur les systèmes ouverts en éducation » founded by C. Fotinas and A. Morin in 1975 in the Sciences of Education at University of Montreal.

nology and a global aspect responding to the complexity of our world. A Systems approach interested me more than the rather closed approach I had followed during my PhD studies. I did not know von Bertalanffy theories about open systems. I discovered it when I studied his application in the Fotinas course (first axis) in educational filming, being a participant observer. My personal conclusion at the end of our evaluation was that maybe the student might become more a researcher in his filming adventure. This reflection led me to search for a more involved research method. Action research appeared to be relevant to students or teams, as it invited them to participate in this open system adventure of learning. My research on action research, initiated formally in 1980, was beneficial but not yet fully developed. We had to integrate other methods. The systems approach may respond to the complexity of the teaching world. Our vision had also to be open. An open systemic approach was necessary, and the action research method textbook of 1992 was not enough. Since that time, I have been learning, with the help of other researchers, the systems approach, encouraging PhD students to adopt that vision which will be explained in chapters 3 and 4 while letting von Bertalanffy describe his vision of the world. It was the beginning that brought us to the possibility of SAMIAR as a systemic approach modeling integral action research suggesting open application in numerous fields. The whole book however looks at action research as much as to the vision of an open systemic approach. It considers also narrative methods as worthwhile investigations on motivations. SAMIAR aims to help actors become authors of change in the complexity of the real world.

SAMIAR is an excellent tool to stimulate participation at every level of explanation, application and implication that is not always obvious for Integral action research alone. We also draw upon participatory action research that appeared to be used in the Anglo-Saxon world and in South and North America for Portuguese or Spanish language speakers. There is a growing inquiry in the United States while in English Canada researchers were a source of inspiration.

Chapters 1 and 2 are mostly devoted to IAR integral action research (or participatory). Chapters 3 and 4 explore SAM systemic approach modeling. Chapter 5 considers how IAR and SAM complete one another. Chapter 6 is an example of how SAMIAR may be applied in studying qualitative research methodologies in education and be extended to people from other fields, such as social workers, health researchers and management teams.

Chapter 1 - Characteristics of Integral Action Research

When attempting to explain two research methods, it is important to provide the characteristics of each, so as to be able to then illustrate how these can support one another in a complex situation to promote significant change in different fields of practice. Chapter 1 discusses Integral Action Research.

The first part of this chapter pinpoints the importance of the fundamental concept of participation in **integral action research (IAR)** within an historical background. The second part explains each of the **five components of IAR and their interdependency** expressed in an operational definition. Chapter 2 reveals corollary lessons to enrich this grid in reporting educational, social, health and management research practices by applying participatory action research (PAR) concepts.

1.1 Importance of participation in an historical context

Action research is usually attributed to Kurt Lewin as the father of this specific research methodology by presenting it as democratic and aiming at change in its outcome (McTaggart R, 1991; Guénard, 1992, Lemay, 1997). It is considered a technique aiming towards comprehension and explanation of practice for social groups when researchers are preoccupied with improving group practice. Action research, emancipatory and transformational in its discourse, plus social relationships bring the AR conception a step further than the Lewin approach because it requires people to include themselves as actors throughout the research process. Their actions precede or encompass all operations grounded in an historical background.

Lewin elaborated the concept of group dynamics after a period of questioning that followed his immigration to the United States in 1934. To develop the science in and by action, he founded the Research Center for Group Dynamics at MIT in 1945. Not only did he describe action research as a continual cycle between the process, the planning, the action and the collection of data in relation to a group and its context, but he also insisted on the importance of the social field. The latter should encompass all components of a group as variables: sub groups, members, constraints, norms and channels of communication. Thus, a social group is made up of interdependent individuals. It shows all conditions of “non-change”, strengths that favor conservation of equilibrium. To understand the change process, it is important to pay attention to group decisions, noting the degree of actors’ involvement, the expression of their motivations, the norms to initiate change and above all, the personality of the animator and his or her aptitude in efficient interventions.

Numerous authors retained the Lewin viewpoint, either perpetuating its standpoint or incorporating it into new paradigms. These authors include the clinical and humanistic vision of Lawrence Stenhouse, the evaluative dimensions of Elliott and Alderman (1973) and the version on critical thinking (Carr and Kemmis, 1986). The French stream has explored avenues in educational institutions such as a trans-disciplinary approach with René Barbier (1976, 1996, 2004) and a cooperative movement in the international foundation of ‘Collèges coopératifs’ by Henri Desroche (1984).

The term ‘action research’ is considered in general to be a methodology aiming at strategic action requiring participation from the actors. It is identified as a new form of knowledge making in which theory and practice, or research and action are constantly interacting. Action re-

search gives the actors tools to construct theories and strategies emerging from the field to be validated, confronted, compared, and even rejected in the accomplishment of desirable changes in a problematic situation. The method is similar to a spiral of intervening processes: planning and action combining in a constant selection of informational data on the group and its specific context.

Inspired by Roger Bastide (1971) Henri Desroche (1982) classifies action research under three categories: the first as *exploratory*, the second as *applied* and the third as *involved*. During a symposium in Quebec (GRIR, 1981, p. 39), he qualified AR as research in which researchers as authors and social workers are mutually involved: actors in the research and authors in the action.

TABLE 1 - Action Researches and Typology of Participation

RESEARCH ON			
EXPLANATION	APPLICATION	IMPLICATION	TYPE OF PARTICIPATION
ON	FOR	BY	
Action and its actors	Action and its actors	Action and its actors	
+	+	+	INTEGRAL
+	+	-	APPLIED
+	-	+	DISTANCED
+	-	-	INFORMATIVE
-	-	+	SPONTANEOUS
-	+	-	USEFUL
-	+	+	MILITARY
-	-	-	WANDERING

The table² above (1982, p. 52) could enlighten characteristics for achieving an integral action research (IAR). One might suggest that IAR could be compared to PAR, well

² Desroche, 1982. p. 52.

known in the Anglo-Saxon world and in South America, with third world social scientists like Orlando Fals-Borda and Muhammad Anisur Rahman (1991).

It is the degree of involvement or the diversity of participations that characterizes the kinds of AR: it is *integral, applied, distanced, informational, spontaneous, useful, military and wandering*.

Being *on* action, *for* action and *by* action make it *integral* because the researcher is an actor and the actor a researcher.

It is *applied* when the persons concerned are not researchers and the research is done *for* them. They are beneficiaries (or not) from a theoretical approach. They are not actors in the research itself.

Distanced is not done as a priority for authors/actors themselves even though it may concern them. A collective publication does not by necessity expose authors' lives and their actions.

Informative research touches the field of reports, written by actors/authors looking for explanations on behavioral actions but does not require written reflections of concerned actors, except interviews obtained by those willing to participate. Very often actors feel manipulated or superficially considered because this type of research does not bring immediate changes or applications for concerned groups.

Spontaneous research appeals to actors trying to clarify a situation but not necessarily searching for a thorough understanding to take future decisions. Action is a priority, complementary to cognitive explanation for a future change that would show more reflection.

Useful research is utilitarian for people using a product (economic or cultural); it sometimes becomes propaganda. Actors do not participate in the conception (explanation or

explication) or production of objects that concerned them.

Militant research is sometimes associated with action research, but authentic AR should not be satisfied with a narrow explanation without questioning its foundations. The risk is to make it narrow, dogmatic and self-legitimized. Involvement could be admirable, the desire to change remarkable, but it often lacks critical judgment and could easily lead to illegal action.

Wandering research does not possess any of the expressed characteristics of AR by, for and with actors of change. It is situated between adventure, ingenuity and fantasia as H. Desroche (1982) writes saying that an author/actor does not choose this research process, but it is the research that chooses the person. The latter does not look at 'what, nor for or by'; he searches haphazardly by chance. It happens, however, that he finds a solution to a problem while doing something different (p. 53).

It is useful to remember that IAR and PAR researchers insist on participation at each step of the research process. IAR implies action but it is not militant or dogmatic because it searches for explanation in a constant evaluation loop throughout. It is not a pure applied research or an experimental one in the traditional meaning because the latter does not depend on the actions of actors but first of all on fundamental research or plans expected, for example, by some engineering fields. IAR is an ideal to reach but accepts a formative methodology fostering growing participation at all levels of the research process in a project. We might compare IAR to developmental action research as suggested by Anne-Marie Hochet and N'gar Aliba (1995) for their rural expansion project in Africa. The Foundation Joseph Ki-Zerbo (Enda Graf Sahel) (1996) suggested going further in their principles with an up to date strategic compass on change and involvement to answer the failures of development during the last 30 years in African coun-

tries with studies on Gender and Development, Cultural Industries, Decentralization and Environment with researchers and consultants from Burkinabé.

As we have seen in types of research other than IAR, there is at least a lack of one important element that might be explication, finality, or participation for identifying it as integral action research.

1.2 The five dimensions of Integral Action Research and a definition

Following studies in the fields of education and social work, including some from French and English authors, we have come to retain five major components that operationally define Integral Action Research (IAR) (Morin, A. 1986, chapter 9). A *contract*, for example, is a necessary condition while *participation* is essential at all levels; *change* is the outcome (aim) while the *discourse* shows growing nuances and understanding toward the reality of the situation, effectively permitting a more critical and relevant *action*. In the following grid, the steps are indicative of a possible growing way as to perform with an acceptable level but not necessarily as an ideal one. For example, action should be collective, efficient and incentive but not necessarily a *communitarian one* although it may be achieved in some ideal circumstances or later in the process.

Inspired by the involvement dimension or the implication perspective for IAR that actors should do research and are authors of action, our research group (GÉSOÉ) studied in the 80s a variety of fields presumably doing action research. In 1986 (Morin A. p. 180), and also in 1992 (V. II, p. 21) we published the following operational definition after an analysis of a variety of action research fields. It has been slightly modified for clarity in the English version.

Integral Action Research aims at change that transforms action and discourse: individual actions become collective and practical while discourses evolve from spontaneous to critical and committed ones. Participation remains essential throughout the process and leads to cooperation and even co-management. It is necessary to reach an open but formal contract or agreement allowing continual adjustments.

This definition draws upon a socio-constructivist paradigm putting emphasis on exchange as a means for the actor/author to counteract the impossibility of being totally objective when humans are involved. Socio-constructivists doing field research mostly use qualitative methods imbedded in grounded theory while reintroducing new knowledge in the research process. Creativity is also introduced in the search for solving problems; sharing and understanding the situation and people are essential in the quest for truthfulness (Habermas, 1987). The group is apt to live in an active communication spiral without thinking that truth is obtained once and for all. Each component presented in Table 2 below (in Morin, 1986, p. 170, as First grid) maintains its relationship to other components in their interrelated and interdependent dimension.

Table - 2 Processing Steps in Integral Action Research

1- Contract		structured
	• open	formal
		informal
	• closed	formal
informal		
2- PARTICIPATION	unstructured (x)	
	unstructured	
3- CHANGE	• representation	
	• cooperation (x)	
	• co-management	
	• applying a theory	
4- DISCOURSE	• development	
	• transformation (x)	
	• spontaneous	
	• enlightened (x)	
5- ACTION	• involved	
	• individual	
	efficient	
	settled	
	• collective	
	non-efficient	
	incentive (x)	
	• community	

An analysis, necessary to understand the essential nature of integral action research, cannot however be fully put into life and interpreted without the interrelation of each and all the components. Processing steps in IAR (Table 2 above) are nevertheless useful to understand the dynamics of the method. Each component is explained briefly.

The five major components we observed in our previous research on IAR are not considered to be at the same level of function and influence. For example, a *contract* is a necessary condition while *participation* is essential at all levels; *change* is the aim while the *discourse* shows growing nuances and understanding towards the reality situation effectively permitting a more critical and relevant *action*. In the above grid, the steps are indicative of a possible

evolving way of performing at an acceptable IAR level but not necessarily an ideal one. For example, *action* should be collective, efficient and incentive but not necessarily a *community* one which may be achieved later in some ideal circumstances.

1.2.1 Contract

A contract signifies an agreement, an alliance between participants in the research process, authors/actors or actors/authors. Various combinations could be considered: a researcher and a group, a group and a researcher, or members of a group, each one looking or calling upon competent persons to carry out an integral action research.

The contract as shown above must be **open, formal and unstructured**. If it is too **structured**, there is a chance that subsequent discussions could be shortened or eliminated. A closed contract or arrangement, despite the form, does not really have a place in integral action research because it stops questioning actions or theories. Openness must appear in the discussion of the problem in needs analysis, during description of difficulties or problems to be dealt with, research questions, planning, data collection, interpretation, and revision of information and meanings.

Jean Dubost (1983, p 516; 1985) with 25 years of experience appears to be an expert on negotiation. Accordingly, he insists on the necessity for a common point of view that links the researcher and social workers for example with actors. People must be motivated to work together because talking about assistance and consultation does not suffice. Action or intervention is not defined by a request, or an order, but by negotiation amongst different concerned parties.

What is an open contract?

An open contract is the opposite of a traditional one. In the latter, the customer brings a dependent attitude towards the

professional, searching for some security. There must be mutual trustfulness between people. The customer is expecting to be helped by the best possible expert but remains passive.

In an open contract, the customer becomes an active person. He or she is a real partner who participates in an active way, discusses the case and exercises control on the action, on the situation in sharing responsibilities. Personal experiences and subsequent information are parts of the dialogue between parties (Shön, 1983).

A deliberate and intentional contract with clarified aims and roles

The contract must be embedded in an atmosphere of dialogue as Paulo Freire (1977) illustrates so well. Dialogue liberates, frees and is opposite to command. It is characterized by an effort to come to a global diagnostic through a search for solutions or a learning of knowhow. An initial request from a researcher or preferably of a leader in a group or a group to a researcher must be the fruit of a free exchange of ideas on expected outcomes from one another, especially in the degree of sharing or participating in the action research process. The researcher is a delegate, a butler, an officer or even better, an actor but **never** the only responsible person of the research.

The role of people is often the most obscure part of an entente or contract. In our opinion, an Integral Action Research (IAR) should ask social actors, decision managers, professionals, teachers, and health providers who request an action research to become authors and actors in the research process that implies work organization. IAR is done in a context. It means that a researcher, from a university for example, should distinguish his personal research and a demand for his expertise. The role of the researcher is to be defined in its essential tasks, leaving the process to be corrected when necessary.

A contract in harmony with ideology and values

A few authors (Pirson, 1981; Grell P. 1981; A. Wery, 1981) are preoccupied with the coherence of a contract and a common ideology. It seems important that a contract reflects a worldview shared by a society and considers the characteristics of the actors' culture. Denis Monière (1974) writes that ideology helps rationalizing the world, legitimizing structures, mystifying and permitting efficiency. He appears to be oriented towards action. However, there are ideologies that are acceptable and others that are not because they do not respect principles of democracy. Reboul (1980. p. 122) affirms that an ideology is acceptable in so far as everyone may object to it without destroying it or destroying himself or herself.

A contract defining the idea of democracy versus a military tendency

As shown above in Table 1 classifying action research, military research is not usually concerned with explanation because proselytes do not easily question the ideology behind action. For us, dialogue concerning values is essential in action research. At the other extreme some specialists, in some professions and even in action research, refuse to be actors in order to preserve their neutrality and their freedom of interpretation. Their position is clear concerning their role as action research actors, but this standpoint excludes that type of action research from being integral in the absence of open critical reasoning for everyone. Their approach appears as a hierarchical structure and a type of professional expertise.

A contract requiring a common language

Very few authors have addressed the necessity of working on a common language. This seems evident but nevertheless this aspect is too often neglected. Two experiences and many pedagogical experiences in action research have confirmed this condition as essential in a contract or entente,

because it unites points of views and mutual understanding.

A contract permitting future structuration

Although the contract must be open and at the same time sufficiently formal to come to terms of engagement and acceptance, the formal aspect of action research itself requires that continuing evaluation of the process must permit change in decisions and adjustment to the reality of the field study. This is the reason for formal but unstructured aspects during the phases of the study. Defining the problem remains constant as the methodology evolves.

The contract is more than sheer representations because authors as actors and actors as authors accept conditions on essential aims, but remain open to alternate problematic situations, means or strategies, and leave interpretation open for conclusion during the process or when the process ends.

Summary in three statements: corollaries

- a) Terms of the contract or entente should be expressed clearly and explicitly.
- b) The richness of the contract depends on a common language.
- c) The contract must be coherent within an ideology

The contract is defined as a negotiation and a deliberately accepted entente between concerned parties. Terms should be sufficiently formal while maintaining an unstructured dimension for problem definitions and methods imposed by life's reality during the research.

1.2.2 Participation

Objectivity is an important issue to consider in research methodology and must be discussed in action research because the participation of researchers as actors does in fact challenge it. In the discourse dimension this important is-

sue will be addressed. The different levels and notions of participation explained in this section help clarify issues of objectivity or subjectivity of participation in action research.

In **Table 2** above, there are three degrees of participation:

- **Representation**
- **Cooperation**
- **Co-management**

Representation can be looked upon as delegation of someone from an association where one pays a fee and votes occasionally in a general meeting making this form of participation rather rigid. Another meaning is participation in a traditional investigation where a person responds to a questionnaire as representative of a determined class of people by age, sex, social class, etc. The efforts furnished are often limited to answering a questionnaire without formulating the problem. Sometimes interviews go further, or discussions are held in focus groups on topics such as searching for meaning of problems or their solutions.

At a more demanding level of participation, there is **cooperation** or collaboration. It is an **essential** level. Each person takes part in the action and reflection of a common task from the beginning to the end.

Before reaching **co-management**, a research group diagnoses and defines problems taking into account the motivation of group members.

IAR should aim at sharing management in a cooperative way (Rosavallon, 1967). It is at the level of co-management where all decisive tasks from the beginning to the end occur. Before reaching that level, a research group must learn to diagnose problems taking into account the motivation of the different individuals in the group. Live

situations (Lobrot, 1980) or familiarity with each person in a field of activities helps prepare oneself to make decisions. In co-management it is important to go beyond group diagnosis in order to achieve a nondirective action or significant joint management. For each group of integral action research, (or participatory action research), co-management is an ideal to be defined in according to the will of each actor/author. Ulburghs (1980) wrote that it is a pedagogy that must be developed. At the same time, co-management should avoid involving everyone in minor decisions on a daily basis.

What really is participation?

Participation demands personal involvement and openness to human activity but without dependency; in other words, it demands a situation where dialogue and cooperative or collaborative relations are prioritized.

Participation is primarily a personal commitment

There is a way to take “part” which has a passive connotation and denotes what men and women perceive or receive from society: a distribution, a salary, social benefits. We are beneficiaries writes Viau (1965, quoted by St-Pierre, 1975 p 28-29). Participation in the more positive and authentic sense means going beyond merely being a cog in an organization; it means being conscious, committing oneself, and being responsible. If one is looking for a type of commitment that is total, intentional and fully aware, one may choose co-management as a form of management of a research process.

Saint-Pierre (1975, p. 32) describes participation as a personal commitment: it is a state of mind and behavior or it does not exist. Participation exists in action and triggers action. Moving to action is asserting oneself and asserting oneself is liberating. The link between participation and action exists; acting is liberating because it is responsible.

Participation is openness to human activity

It does not suffice to carry out a task to be a part of an action; participating means carrying out a task while being fully aware of one's role in the activity as a whole. Nothing is more human than conscious participation. In this sense, IAR (integral action research) renders research profoundly human and assumes an authentic humanistic role relative to social actors.

Participation reduces subordination of oneself to others

The relationship of researcher in **IAR** to community practitioners is essential and crucial. Dubost (1983) reminds us that choosing to engage must avoid hierarchical dependency, paternalistic attitudes, a mercantile way of offering a service, or the symbolic aggression of an educational teaching activity (p. 683). This is the reason why participation emerges more from knitted cooperation between participants or actors than from a hierarchical structure. Authorities may want participation and promote it, but never should they impose it because participation does not exist without the action of an actor who gives it light and can decide and accomplish real change. Some educational institutions do not have as a major objective to make financial gain and can support pedagogical reforms and participation for everyone in their programs. Cooperation in social work, in health care or enterprises may also be an answer to encourage growing participation.

Participation makes dialogical exchange a major preoccupation

To dialogue is to exchange ideas, to talk or have a conversation with someone. There is no suggestion of violence in a conversation but much more an openness in dialoguing. Exchanging facts and ideas may show enthusiasm, exhilaration and conviction but must avoid polemics, dispute and aggressiveness. Dialoguing is part of discourse studied

below.

The search for a group or a person in a group, or the relationship between researchers and practitioners, must come from a global conception of action research looked upon as a whole. All parts are in interaction and each one must discover his role, his standing and his stature. Factors at the beginning of a research process mitigate a researcher's initiation of full participation: his stature and his standing, his competency and his experience in field research, his theoretical orientation, his personality and so on. It is strongly tempting for him or her to do research **on** action only instead of **with** the group. The role of the research initiator is one of a 'préposé' or an attendant or one in charge, a role that could be held by one person of the group if possible. Participation goes further than *participant observation* claimed by ethnographers or anthropologists because in **IAR**, the researcher is a practitioner or an actor that involves oneself in the questioning when searching for solutions to various issues. He or she must be active.

Integral action research is participatory and appears to correspond to specific ends regarding long term change, especially in the field of education, and more and more in social work, health services and management with relevant applications suiting them. Participation by pure representation, as in a democratic election, is not sufficiently demanding; it is necessary to have more intense cooperation suggested ideally by co-management.

Summarizing in three statements: corollaries

a) Participation takes more from its origin in cooperation between participants than from a hierarchical structure

When hierarchy is too strong, demotivation may occur because enthusiasm from within is lacking and conflict from power struggles may arise. It is important to note that

practitioners or actors must be conscious of their essential role in action as well as in research. They must become actors/authors.

b) Participation demands that actors also involve themselves in the creation of mechanisms of cooperation

Inventing participatory tools may help actors to understand that forms of communication are not imposed upon them. Practitioners/actors must know that their reflections should extend if possible to an exposé or a publication of experiences and results. One must remember that it is difficult in general to conceive participatory action research of this type with a large group of people because participation is essential at all steps of the research process. In larger groups, forms or inventions of participation procedures must be used or invented such as focus groups, or through e-mail procedures or discussion groups for writing about social actions in popular education. We experienced this in a Colloquium with “popular educators” held in 1982 with 200 people in a collective writing experience on topics suggested by a variety of groups and resulting in a publication of seven lessons “On modes of communication” explicating what was said about essential conditions of integral action research

3) Participation is a function of the ideology underlying the research

It is necessary that debates be held from time to time on the ideology of active roles in the research. Without precautions, ambiguities may surge and incoherent methodologies applied to integral action research. Individual interests contrary to democratic principles could be hampering action.

1.2.3 Change

To the question: can change remain the aim of action research? One could answer that change or transformation takes place not only in action but also through critical dis-

course. Change is the aim of action research; it is also the result of reflective action as well as critical thinking. Action research transforms and calls upon a spiral design full of revision loops in action and thoughts enriching practical learning.

What is change?

What is the nature of change? Change means passing from one state to another. It is synonymous with modification, mutation, or transformation. The term “change” is preferable to improvement because it implies the possibility of complete transformation.

It is important to note that the importance of the process that interplays in the transition from one state to another to produce transformations distinguishes integral action research from other types of action research. In IAR, change is the global finality. Action and discourse are interdependent in their transformation cycle when an action is accomplished, and a new reflection occurred, or a reflection followed by an action or both simultaneously.

Change is the aim and impulse of integral action research

Applied research focuses on change but the proposed grids do not often go beyond **an application of scientific theory**. Experimental research, for example, produces effects depending on independent variables. It is a cause and effect relationship; its end is, at least in education, the confirmation of hypotheses often emerging from theories. Consideration of a constant reciprocal influence or the return of the effect on the cause is not constant though this influence is becoming more and more important with the systems approaches and field observations. Change is also looked upon differently in a **systematic development design** emerging usually from engineering conceptions without always requiring users' thought in the transformation. The product of an idea, coming from an engineer or an artist,

includes formative evaluation but not usually the revision of the initial definition of the problem or of the procedure itself. In **IAR**, interaction between action and reflection is essential and may move in all directions: from action to reflection, from reflection to action, from a well thought out reflection to a revised one or a refined action and so on. Change is perpetually present, very often unfinished, and always exploring other avenues for betterment, and correcting or adjusting necessary actions or interventions. Change is at the heart of the process in integral action research.

Change reflects the values of participants

Change acquires different significance depending upon contextual diversity. Some people would call it biological growth. Others recognize technological progress as valued in institutions and in some spheres of society. A few others qualify the phenomenon simply as a human and social adjustment to a diversity of technical inventions. Others would talk of change only if applied to a person or group, for example educators in open pedagogy.

In integral action research, actors or researchers involve themselves in the process by committing their personal and collective values. In other types of research, the researcher tries to remain neutral or objective. One could say that IAR requires that the actors/authors commit themselves in the definition of the problem situation and go beyond a rigorous scientific traditional understanding so as to adopt social constructivist thinking.

Change calls for a spiral of revisions of action and thought

Dubost (1983) writes that action research is present when the problem is understood as one of knowledge-making and one of conducting the research process to draw consequences from the definition of the object (p. 256). It is a revision spiral for action and thought. Then, how to deter-

mine the research plan? There is a double requirement to study an action problem situation and achieve theoretical knowledge. This is not produced in a linear way from cause to effect but with interactive comings and goings. This spiral procedure does not put aside experiential knowledge even if it is not always overtly claimed.

Change as an aim is introduced in the process of action and discourse

Placing action as a priority in relation to production of knowledge, J. Pirson-Declercq (1981) explains these comings and goings: action research does not aim as a priority at the production of knowledge. It contributes to activate the change process in an institution for example when provoking one or more dynamic sequences, that is to say in forcing an institution to give itself space and time to think about problems, impediments and tensions. In other words, the action research procedure moves deeply, even shatters institutional formalism and permits explanation of what is left unsaid. And from there, the process of action research gets underway, action starts, and then produces immediately its corollary, research, by the fact of permanent questioning that actors applied to knowledge in order to use it in their own practice (p. 32). It creates new knowledge, according to Fals Borda, an expression I use when referring to lessons from the field.

Change underlies a clinical approach smoothing away difficulties

In a clinical approach, researchers (authors/actors) and practitioners (actors/authors) must adjust to each case, avoiding reductionism that retains a predetermined model as an example of a way drawn from a theory of functionalist organization. They may be forgetting to work or write on strategies to be observed or changes surging in groups because of the complexity of individual freedoms. Authors claiming voluntary changes or planned ones have intro-

duced a clinical orientation that seems essential in the complex process of integral action research claiming participation, facilitating the elucidation of significant effects or symbolical actions.

Change will also meet difficulties, including one of language calling on actors to accept a vocabulary understood by all (see Contract). In a group, it is possible to be afraid of being criticized because of the ideology, or the social rank of a researcher in office or of the time it takes to bring results. However, it is important for a group of people to live up to difficulties, retaining and sharing them with all IAR actors in order to create an atmosphere of confidence and trust favoring a search for solutions resistant to change.

Summarizing in three statements: corollaries

Change is the aim of Integral Action Research (IAR). The purpose is the transformation of action and discourse while engaging participant values. Change is not the mere and pure application of a theory, nor a systematic development research design but the inspiration of a process of transformation due to its spiral revision or evaluation translated through action and thinking. Change requires a clinical approach capable of smoothing out impediments in the process. Three characteristics conclude that **change**:

a) Requires the will to make action and discourse complementary

Transformation is not always at the level of the discourse but often at the time of the solution to the problem situation. Reflected actions enrich the discourse.

A scientific method normally requires the researcher to stay away or not involve his or her self in the experiment. It suggests keeping facts in isolation in order not to judge them with personal systems of value; results are then applied to reality. In integral action research, the process is

different because there are no algorithms to dictate a way of conduct. Complexities of problems are rarely reduced to a phenomenon or to a class of facts well conceptualized. The situation of actors in IAR describes in a certain way the constraints and possibilities of possible actions difficult to plan ahead of time.

b) Change starts when practitioners, actors or authors, exercise a concrete action

There is no doubt that change in thinking could start to happen without real concrete action. Neto's dissertation (1989) makes clear that a change in the mind of actors is essential for them before they exercise any action in the field. Change in their thinking seems to appear when they have exhausted the discussion of the scientific nature of action research: they were now preoccupied to produce educational radio broadcasting to satisfy the requirements of the course. It is also observed that these same actors were rapidly evolving when they undertook a collective action in the field (Morin A, 1990, p 98-99). The neuralgic point is to stimulate attitudes to confront and solve problems at the beginning of action research despite more traditional processes.

Letting actors carry out actions in harmony with their needs becomes an occasion for real change and helps cast critical consciousness or "conscientização" as expressed by Freire. In 1973 quoting Pinto (1961) Freire writes that "Critical consciousness represents "things and facts as they exist empirically in their causal and circumstantial correlations '...' naïve consciousness considers itself superior to facts, in control of facts, and thus free to understand them as it pleases" (p 44). We may add that an open pedagogy stimulating concrete actions and energy in a pedagogical project involving an action for actors/authors seems to reveal the range of choices they have.

This practical lesson finds theoretical reflections in the theory of significant learning (Bédard, 1987) or from those who investigated life stories linked to adult education as suggested by Pineau and Marie Michelle (1983) or Le Gall (1985). An English translation of Dubost's (1983) words renders our thought: "The recourse to action in order to bring and experience it, though minimally, helps to pinpoint vertical or horizontal difficulties of coordination between levels and sectors. It needs to associate users and develop local autonomous expertise' (p 38)³.

c) Change stimulates a strategy focusing on exploration as much as verification

If one accepts that integral action research goes beyond putting into practice a theory and beyond classical development and experimental approaches, then it is necessary to recognize that the guiding paradigm demonstrates that conventional knowledge is not in opposition to problem solving if undertaken by a research group. On the contrary, learning is profiting from this going back and forth of action-reflection. This induction method has been called an exploration for some, a discovery pedagogy and non-scientific because the concept of science appears too large and implies the control of the researcher in the process. One wonders if it is possible to be scientific without a personal observation of some sort? Action research is an applied science but affirms clearly that its involvement may enrich knowledge in an original way in fields impossible to reach by classical and strict conceptions of science. AR creates new knowledge, new insights on theory and practical life lessons for future actions. It even means more than a directed change as suggested by Crozier and Frieberg (1977 p. 339) when they describe the creation and acquisition by actors of new reasoning modes resulting in practi-

³ Translation: A. Morin

cal knowledge. It is a personal and group consciousness with the learning loop of action-reflection-action. AR could even humanize and indicate new avenues of research for pure and applied sciences to tenants of a scientific school.

1.2.4 Discourse

Giving priority to problem solving does not mean putting aside knowledge making, diminishing its importance. Any research aims at enrichment of knowledge. Integral action research gives more attention to practical knowledge emerging in laws or regularities as Bastide (1971, p. 194) suggested for applied anthropology. Is integral action research a science? Is it an action science?

Discourse that makes people authors of their history. A discourse implies an understanding that is philosophical rather than merely intuitive. It processes through reasoning; there is a gradation from **spontaneous reasoning** to a more inspired discourse, one that is “**conscientious**”, **enlightened**, and **involved**. It is a discourse that makes men and women authors of their history. Discourse in this book relies on different steps of awareness or “consciousness” borrowed from Colette Humbert (1978) and expanding on Freire’s conception of education. The educational revolutionary project calls into question “banking pedagogical systems” which do not consider sufficiently the participation of men and women in building the world. A person, being the subject of his own history, when dialoguing with his own human partners, is capable of attaining a high degree of critical consciousness that brings light for transforming his or her environmental society. To achieve this end, oppressed people are not only those physically enslaved since those who hold power are very oppressed by their own servitudes, greed, cupidity of all kinds, or by fears that undermine them (Freire, 1971, 1977, p. 28-27; Soler, 1980).

Discourse that transforms the world. There is a process of critical consciousness or “conscientização” not only for understanding but also complementing the urgent need to transform reality. It is also a collective project in the sense that it takes place amongst other men, men united by their action and reflection on that action and on the world. An individual attains consciousness at the same time that a sociocultural society structures life and its capacities to change this environmental reality (Freire p. 1977, p. 28-29). Transformation is essential to reflective participation. Models of awareness or ‘growing consciousness’ permit to see how far they may influence education, health services, social or cultural actions. Characteristics of discourse may be growing from spontaneity to an enlightened and involved one.

Does discourse interrupt action or not?

The notion of discourse from Habermas, and more precisely from Moser who first wrote on the relation of discourse and action research (Grandbois, 1984) claims that when utilizing a significant dialogue, social communication alienated by work and technique would become liberating. Habermas affirms that the emerging questions following interpretations and justifications may be satisfied only by discourse, meaning when we interrupt interaction (Fingers, 1981, p. 18; Kemmis, 1985, p. 39-40).

A discourse emerges as an instrument of a new scientific character in Habermas’ hermeneutical conception suggesting a certain distance from activity. However, the first place given to knowledge making, in stopping interaction in a certain way, obliges us to suggest that one may disagree with such a position. This perspective relegates interactive action to second place and takes away its characteristic priority. If one pushes this logic further, one could affirm with Gauthier (1984) that action research could be done as well in an office than in the field, which of course must be rejected.

Discourse must imply action explicitly

One must think of research in such a way that discourse is referring to action explicitly, making it possible to interpret results obtained by action in a context corresponding to its questioning (Dubost, 1983, p. 363).

In our opinion, not only does dialogue make reflection expansive but action also stimulates reflection and must be impregnated by it. It is hard to think that practitioners do not keep thinking when operating in a field, even if they give the impression of acting intuitively. Why would not such an action be the fruit of multiple experiences integrated in practice from previous actions and reflections observed in similar circumstances? If there is a place where one should see the necessity of a link between theory and practice, it is in action research where this link is essential. Some authors like Bolle de Bal (1981) write about this “reliance”.

Discourse must be critical in action research

For Kemmis (2006), action research, well known in education since his publication with Carr in 1986, does not show a sufficient critical spirit or enough consciousness to discuss necessary transformations in education and in the teaching system. Action research appears rather as a tool to domesticate students and teachers to retain conventional models. Does it not show that discourse is too separated from practice or concrete action? Is it really integral action research? We will see later that sociologists who criticize society are less prone to act upon change, while social or community psychologists are more apt, by being active, to produce improvements in social structure.

How can we explain such a contrast between thinking and action? Are there enough action researches initiated in the true sense of the word? It is difficult to understand why action research would not induce more formal critical reflections on their teaching seemingly inspired by discipline

and not by the emergence of human development in their students making them actors in the process of learning.

On the other hand, Schön (1983) explains that the human mind of a practitioner may be one that reflects in action. One could think action-reflection-action as much as reflection-action-reflection. We make the road by walking as Antonio Machado says. Actions could be taken or decided through deduction or induction regarding a social critical theory as has been shown by Fisher et al. (2008). They explain that community psychologists in two different countries have the same ambition for social justice to defend indigenous rights despite the fact that their approaches are rooted in two different trends of thinking. One trend, from New Zealand and initiated by researchers and teachers, tries to adapt to community needs. The other comes from two sources in Australia, one from academics and the second from practitioners, both wanting to create an adaptive educational discipline.

Discourse encourages interdisciplinary or trans-disciplinary approaches

To understand reality, **IAR** cannot accept the complete exteriority of the researcher and the exclusivity of scientific methods said to be objective. Moreover, IAR does not constitute a discipline having an autonomy attested by the specificity and exclusivity of the field, of the object, or of the method acknowledged by neighboring disciplines (Dubost, 1983 p. 685), for the simple reason that it tends to involve various approaches when finding solutions to complex problems. The character of its affirmations or terms that are induced from an action research is conjectural or, in our opinion, are life lessons or practical directives or principles. IAR rejects competition between theories or refutability as in the way an internal dynamism of objective knowledge sometimes claims. IAR favors an interdisciplinary discourse essential to solving problems or

asking relevant questions regarding the complexity of reality.

Summarizing in three statements: corollaries

Integral action research discourse analyses the passage from spontaneity to enlightenment that promotes involvement. IAR makes men and women authors of their history capable of transforming the world. Its discourse must consider that action favors interdisciplinary approaches because of the complexities of reality. Corollaries emerge either from exposed theory above or as life lessons drawn from previous field studies in action research (Morin A, 1982, 1985, 1986 and 1992). In fact,

a) Discourse becoming conscious and rationalized must be expressed in its dynamic form to be understood

Discourse should be presented using the actors' terms of language rather than a scientific one. In this way, it is important to discover adapted strategies to wording. A form of journalistic language might be a relevant alternative like any method that searches signification. A too complex systematic form of research may restrain live exposés. When discussing vocabulary to come to term in the "entente" or contract we noted the necessity of having a common language and also of finding strategies reflecting the richness of lived experiences. Fals Borda (1991 p. 9) suggests that in PAR "Four levels of communication are thus established, depending on whether the message and systematized knowledge are addressed to pre-literate peoples, cadres or intellectuals".

In our literature review, there were very few statements according to which discourse, when becoming rationalized, must keep its spontaneity in its form of expression. It is the logic of what was said above that suggests this lesson. In this way any approach inspired by clinical sciences should keep the link with the reality and the freshness of field

studies. Any work like transactional analysis establishing links between necessary conditions of psychosocial work in presenting live facts from the rupture experience between those two states (Dubost, 1983, p. 134) must necessarily demand spontaneity. In fact, all interactional movements and others searching to free creativity should not destroy images of life when analyzing and theorizing. The American ethnographic movement in its study on education works in that direction (Morin, A. 1981). Is it not what the article on the sights and sounds of indigenous knowledge is telling us through T. Pyrch and M. T. Castillo (2001, p. 384) when they mention seven practical lessons from Participatory Action Research. These lessons enlighten discourse noted above making the second and the seventh, most useful to our purpose: “that PAR honors all forms of knowledge” and “that, at all times and at all points, we are required to translate knowledge into action”.

b) Discourse must be linked to lived experience to favor awareness or the process of critical consciousness

A discourse linked to life experiences is more prone to stimulate involvement. A methodology inspired by ethnography favors meaning and consequently more consciousness. Integral Action Research requires a step beyond anthropological methods because actors taking part in the search for consensus in discourse require growing involvement.

Discourse discussions may mean starting to be implied in the solution of a problem. In education, in social practice, health services or management, intervention is constantly recognized as sealed by “taking part”. Practitioners or actors/authors will most probably put on the table their values linked to day-to-day experiences. If integral action research intends to establish a locus of convergences between planning, theory and practical knowledge, and action and existence as suggested by Dubost (1983, p. 686)

or a new research action paradigm similar to critical theory in social sciences, it would make an enormous contribution.

c) The quality of discourse depends on its capacity to be challenged

Integral action research is a methodology of continual revision of its questioning and its process. A spiral or concentric progression indicates its development. In this way, one may say that an exploratory approach is a characteristic of the discourse transformation. This does not exclude verification; on the contrary, it is constantly present. Obviously, the quality of the dialogue will qualify or enrich the discourse.

1.2.5 Action

Action is essential in the definition of action research. To study action is to enter a labyrinth. Action studied here is linked to research and not just any action without a willing connotation of intervention, of improvement, and enrichment of knowledge or solution of problems. Referring to the above grid of gradation of attributes, action is to be seen as **integral** showing an action passing from **individual** to **collective and incentive** and hopefully to a **community** one.

Action is almost never totally planned and pre-determined

Is it possible to characterize action even more? What does the word “action” mean? This is a major question to clarify. According to Dubost (1983, p. 369) action possesses a degree of anticipation: actions totally clarified, or elaborated in major directions, or defined, or incentive to carry out new innovative actions. In our opinion, an action totally planned, very systematized (a problem, causes, hypotheses, experimentation, evaluation) as done by some curriculum developers would not define action in IAR. Integral action research is characterized by its richness to maintain contin-

ual questioning which may at the end succeed in asking and defining the real problem (Taba and Noël, 1957).

An action coming from an agency, an outside expert to the research team, would not qualify as IAR though it may provide an excellent verification of hypotheses in concrete cases. Such an approach could become hierarchical because it specifies participant action for each step of the research. If action is defined in its major orientations by actors/researchers of a group, it becomes an incentive and leaves space for practitioners who eventually will reorient their attitudes, leaving space for responsibilities to themselves making a full participatory commitment to action research.

Action is more collective than individual

Action is more collective than individual because exchanges in discussion and discourse are essential and are major characteristics calling for participation. It may pass from a few collaborators to a growing number of people. If it develops with the participation of a community it could even become a cooperative enterprise. At the very least it could inspire projects that might be adapted and adopted by other institutions in education, health services, social institutions or group management.

Action is conceived as a global conduct requiring intervention

One can think of action as a global concept beyond cause-effect relations. There are, says Dubost (1983, pp. 369-370), logics of action that place actions from those without action to those without research. Between the two axes, there are all kinds of action research covering life experiences, social experiences, militant interventions, or socio-pedagogical ones, development organization, action studies, psycho sociological decision, interventions, analytical interventions, demonstratives interventions and interventions in the field (Dubost, 1983, p. 493). We do not retain

psychic actions when an exterior action is suspended. This latter is too abstract. It may abandon too easily what makes the very essence of action research - its necessity to act in a field while retaining reflexive thinking. Actions that qualify as research must leave a place in the process for consciousness, reflection, analysis, correction, verification and knowledge growth. Each of these action researches are not necessarily integral but are characterized by a relationship more or less close to practice and theory.

Action is integrated in a process that is an act of reflection

Action alone is different from action research which is preoccupied with processes including interventions within organizations or other recipients of the action. This process theory covers the method, the retained procedures and the person who realizes them. It is also preoccupied by representations and hypotheses in relation to its efficacy and how to observe desired effects due to collaboration (Dubost, 1983, pp. 487-488). Thinking this way, action could precede, accompany or follow reflection. If one thinks only of object production, it is hard to see how action research is different from other research. For example, it produces principles, organizes and criticizes new information, reduces even a certain number of variables to progress towards reaching the solution of problems, judging its effects and drawing new learning. Until then, any research acts in the same way, doing the same thing. But since **IAR** explores further, proceeds often by trial and error, like bricklayers, ingenious and creative, it is more a process that resembles supporters of open pedagogy like Fotinas' (1974) systems in education. It is not always easy to distinguish between an open pedagogy and a learning cooperative and action research. But what interests us is mainly the simultaneity of knowledge making and action. Is it not in that sense that Schön writes about the practitioner who reflects or the reflection in action, which is a

reflection during action? Why may we not go a step further and suggest an action science having an experimental texture of its own like the one suggested by the philosopher, Maurice Blondel (1893, 1993) in his book on *Action* (Morin & al., 2007, p. 23-31.)?

Action questions discourse heuristically in a concrete action system

It is important to pay attention to the dynamics of the group, to recognize it and integrate it because interveners are concrete actors, practitioners implied in real actions. The researcher becoming a practitioner does not have to bring the intervener into its laboratory but may help the actor construct his own theories or express his own practical lessons. Thus, the clinical specificity of an action research approach may establish a certain number of generalizations that it would be more accurate to call “practical principles” or “life lessons”. Producing knowledge in this way may find application in the world of education as well as that of professional disciplines despite the possible loss of its label as a traditional scientific experiment. We agree with Dubost (1983, p. 337) that when choosing to adopt a clinical approach, sociology must recognize itself in the seal of implication, accept another mode of relationship for the actor, recognize another status in the production of knowledge, assume a non-absolute positivist label and a renewed definition or ideology of science.

It might be interesting to say a word on Crozier and Friedberg about their concrete action systems susceptible to include an ensemble of games more or less integrated and identified in a situation based on the regulation of the whole. One must however avoid aiming only at the knowledge of organization forgetting to theorize on the process (Dubost, 1983, p. 472; p. 480-481). We do not claim to have said everything on action because we have identified the systems where action research may be found.

Action places itself in the relationship between intervention and systems

The process theory is preoccupied by what happens during the rapport between intervention and systems in order to find the origin of the difficulties or problem arisen. The action should look at the commitment of work conducting, according to Dubost (1983, p. 526) with fewer explanation statements than to the experience, having effects modifying a certain number of characteristics of the situation. It is however easily understood that a situational analysis and its contextual factors are complex. The efficiency of the action as a formative one depends as much on the psychosociological aspect than on an educational adventure, on the change in attitudes and the change in the systems. If both factors are combined, the results are spectacular, says Dubost (1983, p. 178). This efficiency perspective opens the parenthesis of our theoretical reflections in reminding us that action must be seen globally as much as in its immediate relations as in its remote ones.

Action distinguishes research on action from action research

For researchers or practitioners or authors/actors, it is known that distance appears necessary in relation to action. This might be a reason why adults return to university in order to systematize practices to help conceptualizations. These studies are not really action research but research *on* action that may help similar actions on account of their history and practical lessons.

In action research the distance necessary to act accurately and intelligently is taken into account in discussions between actors/authors as we have explained above in the characteristic of IAR on discourse.

Action leads towards an incentive and community action

We retained certain aspects of action in Table 2, presented as **individual, collective and community**. It is difficult to consider IAR as individual action research because in the contract or entente, participation requires that the researcher/practitioner be involved with the actors/researchers with whom he or she works. It seems that collegial aspects and community ones as much as efficiency of one or more actions appear to be important. An “*incentive*” dimension is named “*transferability*” by F. Gauthier and C. Baribeau (1984, p. 306). One may prefer, and with reason, the word “*incitation*” because it may put forward the relativity of results and the idea of life or practical lessons. Incitation, if it carries the connotation of multiplying actions of the same kind, requires autonomous forces to realize them. This means giving importance to the notion of value or shared “*values*” when Gauthier and Baribeau write on criteria. As written in the “contract” or entente, this value dimension is a major condition of IAR. Sharing does not always demand a total adhesion to the values privileged by the research group, but it seems necessary that the overall process be recognized as relevant and valuable.

Summarizing in three statements: corollaries

As action is a characteristic of action research, the grid suggests a reflection on its efficiency. It is not an action without reflection but essentially linked to it. When referring to revision, one should ask if this action could be transferred, or could have better incentives, if it is a community one or at least a collective one. The corollaries below should help respect theory analyses.

a) Action should correspond to participant capacities

Action should be adapted to the capacities or aptitudes of actors/researchers in order not to discourage them. In this respect it is important that action should correspond to

their life experiences. It is a common-sense statement but did not appear often in our investigations. Also, a certain amount of organization appears to be important to practitioners. It might mean planning actions indicating favorable conditions for successful completion. It might be difficult for an inexperienced animator to adopt the trial and error skill, although practical experiences may demonstrate this lesson to the newcomer.

b) Action must be reflective in directing attention to the complexity of reality

In action research, it is important to take sufficient time to let the lived forces of participants be expressed to the maximum. It is recommended to invite actors/researchers to find procedures of participation, to take time to consider all elements, endogenous or exogenous, of a problem. In this manner, the rhythm of activities and the complexity of events are taken into account and respected. Too rapid an action would impede consensus of all actor/authors.

Complexities of the reality must be given enough attention. This lesson is confirmed by explanations on the theory of process demonstration and shows that contextual factors must be considered in the statement and resolution of the problem. The complexity of decisions must be clear if the researcher or a person coming from the outside decides to maintain his authority or if it is the group of actors/researchers who takes over the research. In the first case, rebellion or lack of cooperation might occur while in the other, more democratic and more reflective action would be mostly in line with integral action research.

c) Action is more efficient if it obtains the consensus of all participants

It is important that the animator or researcher/actor makes sure that all actors/researchers are able to be on the same wavelength regarding values and willingness to participate.

If needs are not felt by everyone, there is a risk of impairing participation. Moreover, it is important not to predict results too rapidly because action research is fundamentally exploratory. Action may be efficient if it achieves consensus of all or a majority according to the participation characteristics treated above. It is important to remember that the concept of consensus includes nuances and does not require absolute unanimity. Consensus could mean accepting nuances without leveling down or up in considering a mosaic of opinions, or multi-disciplinary discourses on actions. The emergence of a partial action or any other agreement should help finding compromise in the group for the majority of actors concerned.

Conclusion

An operational definition of Integral Action Research given earlier does in fact synthesize **Integral Action Research** explained above. It reads:

Integral Action Research aims at change that transforms action and discourse: individual actions become collective and practical while discourses evolve from spontaneous to critical and committed ones. Participation remains essential throughout the process and leads to cooperation and even co-management. It is necessary to reach an open but formal contract or agreement allowing continual adjustments.

Chapter 1 was an overview of the five dimensions of IAR as expressed in this operational definition of integral action research. These five dimensions are essentially the same as those of participatory action research. Together, they provide a universal vision of determinants that emerge from earlier field analyses and multiple theories on action research as described in a different chapter of this book. The concepts remain operational, interdependent, and in a *potentially* systemic vision. They provide directions to achieve growing participation in action research; they are

beyond cultures and may be applied 'mutatis mutandis' to all. Their operationalization or any adaptation to another culture should be linked to cases held by tenants of integral action research.

Chapter 2 will focus specifically on an investigation of field research that appeared to use action research in different fields of education, social work, health services and management. Most of the conclusions from the field research are open to a wider view and potentially leading to a systems approach modeling of Integral Action research or SAMIAR.

Chapter 2 - A Literature Review on Action Research

The following reviews are from different domains of scientific literature aiming at reflections and experiences on the methodology of integral action research or IAR, though the term “integral” is rarely used, except by Desroche in 1982 for the first time, and by followers like our group GÉSOÉ⁴ the same year. However, the term “participatory” is often mentioned, as well as the term “discourse” with some dimensions like “conscientização” studied in Chapter 1, but not as explicitly as in IAR for action, and entente or contract. This chapter investigates experiences and reflections in and on education, social work and theory, health services and management.

2.1 Educational sciences

In education, action research is an inspiring source in teaching, nursing, other fields of professional training and certain types of workshop learning activities. As a group, the GÉSOÉ considers Henri Desroche as a mentor, for teachers as field researchers as well as for students as co-agents; his contribution is fundamental in helping one define, describe and explain action research as integral, and understand practitioners in their efforts to apply action research and promote change in their fieldwork. While teaching adults mainly at the masters and doctorate program with contributing assistants, we kept creating new channels of communication and dialogue by organizing workshops, cooperative seminars and so on. Sharing became a must, and computer technology a convivial tool, not only for

⁴ Groupe d'études sur les systems ouverts en education (GÉSOÉ) is a study group on open systems in education directed by A. Morin and C. Fotinas.

access to references, but also to foster dialogue, broaden vision and points of view between peers in a group, between groups, and with animators.

Integral Action Research and the training of practitioners

As we have said in the previous chapter, Henri Desroche deeply marks as of 1958 university teaching in France, by insisting on linking adult professional experience to higher education. He proposes an original program helping social workers become involved as researchers in their own practice. Social workers are asked to write a reflective autobiography (autobiographie raisonnée) that represents a solid and rigorous theoretical research, and in which they revisit their practice or past professional activity. As Director of research at the “École pratique des hautes études”, Desroche considers action research as the nerve (or the knot) of his direction conducting practice or lived experience to be enlightened by theory to enrich or change it eventually. The reflections are translated by each practitioner researcher in a dissertation of approximately 200 pages explaining their action research presented to a university jury. In 1982, he defines the landmarks of integral action research (see Chapter 1). However, it was not until 2002 after his death (1994) that a new Master 2 on collective action research was created at the University of Paris III, directed by P.M. Mesnier and P. Missotte. This program is open to practitioners who need to extend their competencies in **collective action research**. The curriculum, explained in a book by Hermelin (2009), refers to his own practices and reflections since 1990 in ACORA (Atelier coopératif de recherche-action). His book relates 20 years of experiences with diversified groups implied in action and reflection leading to improving their actual social practice.

Action research in teaching and in teachers' training

Considering action research mainly as a collective enterprise, our literature review extends also to other countries in the world including our own. With a team of three teachers in the field of Greek minority education, Magos (2007) finds a growing empathy for minority pupils when applying an action research (AR) project as a teaching method. Teachers and pupils are considered as actual researchers in the AR cycle of planning, acting and evaluating. Enriching themselves from different intercultural backgrounds, school successes, changes of attitude and development of critical judgment are observed. In two other groups, working independently from the AR project, failures are blamed on the ethnic cultural identity of the students.

While the latter paper is linked to teachers in actual school settings, McIntire's (2006) education training program at the Hellenic College in Connecticut (USA) describes a joint ecology project with her students and young adolescents from an inner-city school living at a low socioeconomic level. Both groups experience "the benefits of student agency within a collaborative, participatory research process (p. 630-31)". It is a rare opportunity for these teenagers to develop community commitment. These on-the-ground experiences contribute greatly to understanding how individual and collective agency energize the teaching and research process. Both groups have opportunities to take action in issues relevant to their lives, constructing knowledge together and acquiring confidence as doers and thinkers. University students add the benefit of rethinking urban education and the role of teachers (p. 642-3). Howard-Jones et al. (2008) add another experience of sixteen teachers and a psychologist using action research reflective thinking to design a teaching model on creativity in dramatic art, concluding that collaborative workshops includ-

ing co-construction bring new comprehension to related cognitive concepts.

Action research and oral assessment for situated learning and meaning

A qualitative study by Singh (2011) emerges from a two-parts action research project on oral assessment of learners in South Africa in the first year, and a second part for learners after nine months, serving a community of practice in health services. The project grew out of previous action research with colleagues impressed by the action research methodology for enriching the quality of their teaching and their desire to take oral assessment a step further. Supportive theory is based on Schön's (1983) approaches, reflection-in-action and on action. After working with professors, collaboration is requested from the learners concerning their understanding of the whole and long process of consultation that helps pass from situated learning "to situated meanings through which learners can recognize and act on the world in specific ways" (p. 251). An impressive total of "288 second year undergraduates and ten assessors in the Faculty of Health Science from two tertiary institutions in Durban formed the sample ..." adds Singh. "Live discussions" say the educators "were definitely a good platform for us all to learn from each other". It is concluded that meaning "is always situated in specific social practices and experiences" and that it is important "to participate in the community of discourse" in order to grasp it (p. 252).

In a less glamorous but nevertheless efficient participatory action research project, teachers as researchers find on their own ground with students that oral assessment of teaching English as a secondary language method is more efficient than written tests because in the latter students are only regurgitating their class-notes (Singh, 2008). Padilla et al (2008), referring to Whitehead and McNiff (2006), in

their book *Action Research Living Theory*, write that the time has come to recognize educators using action research as theoreticians for the benefit of the profession with a paradigm that liberates, is collaborative and multidisciplinary.

Written annotations to foster and improve positive reflection

Ball (2009) asks if annotation introduced in a U.K university school of Nursing is a good way to provide feedback? Following an action research project by five members of the staff, it was found that annotation is open to interpretation more than suspected. Awareness of subjectivity in annotation is understood as encouraging students to deepen their personal reflection as a means of developing the topic; insisting on positive aspects without hiding weaknesses by putting them into a questioning form. Annotation should be clear, precise and transparent explaining the grade in such a manner that it fosters confidence building, thus making criticism part of the assessment process. In the future, it is recommended trying a group feedback process in the classroom that might largely eliminate reading comments in isolation (p. 122) while continuing the action research process of participation already undertaken by teachers.

Practical training and other fields of study

In a traditional nursing program, Blum (2009) develops a practical education partnership using participatory action research (PAR) with nurses as preceptors or tutors. With faculty advisors from the Nursing School, nurses are cooperating in developing and introducing mentorship into practice. The article does not mention the role of students, but one may assume it is because of their intimate relationship with preceptors.

In pharmacy, Sørensen and Haugbølle (2008) from Denmark describe a three-year development project study for Cognitive Pharmaceutical Services in drug stores. The au-

thors maintain that actual problems must be discussed and resolved with those using a scientific approach. The contextual complexity of organizational factors must be considered to take into account relationships between employees. This innovation appears partly systemic on account of interrelation between persons pinpointing critical thinking, but also linear if one considers steps (diagnosis, action, decision, evaluation) to introduce this project. This is an example of a worthwhile plurality of methods.

In companies training after a ten-year longitudinal action research project, Munro and Cook (2008) observe that small enterprises provide an authentic environment, relevant to learning and development of complete entrepreneurship. Beyond the practical situation, the work place relies on a necessary exchange or dialogue between students, the personnel or staff and the community. This training is in harmony with participation and cooperation called action research. Is it also open to discussion to make it “integral”? Is the theory of Kolb’s learning cycle questioned at times by the students? It is not reported if students are consulted; maybe the training process is not questioned for the time being in this systemic approach because of the school enthusiasm with their learners’ successes.

Action research in the development of curriculum

In reviewing change in education, two studies are useful: one by Xu (2009) and the other by Bai (2009) clarifying for the reader the complexity of action research as a multimodal concept. Xu’s article is part of a Chinese study devoted to the development of curriculum based on a school originating from a new curriculum reform program in 1999. The reform is partly successful with its hierarchical approach. Thus, a new action research project takes life in a university and in many schools in a Beijing district. It is sustained by a questionnaire called SWOT - meaning strengths, weaknesses, opportunities and threats.

The animators target their interventions on the educator and his practice. The teacher has to live with the school context including the curriculum; his rapport with pupils applying reflective thinking on action and reflection over “reflection on action”. At all levels, applied curricula are transformed through critical reviews on internal and external school activities that may improve its preparation. Learners’ contributions lead as far as doing some corrections and even rewriting some school manuals, and when necessary, with helping students.

More extensively, BAI (2009) retains three kinds of action research in education, reminding us of the difficulty of classifying them according to tendencies on account of a lack of information on the process and the definition of concepts. Most of the writings are dependent on curriculum reform like the one by Xu designed to adapt basic education in a changing society. Of 812 articles, only 6.12% deserved the name of action research. The first trend (or case) is the experimental education of Qingpu aiming at a mathematical teaching reform believed to make action research more scientific and less evasive. A mechanism for experimental scientific discovery (hypothesis and evaluation) named screening experience is conceived to generalize results and rational reflection. The second trend (or case) is one on cooperative action research, reflection and cooperation (VGER or Volunteers’ Group of Educational Research) grouping university faculty and teachers. Based on school, teachers are considered main researchers accepting modernity and change in their teaching method and their personal attitudes. Action research is free because no financing is attached to it and can adjust continually its design to local needs according to critical reflection. University professors are considered learners exploring school reality. Xu’s case is seen as belonging to that category. The third trend (or case) is the new basic education not defined however as an action research; it is in opposition, insisting

on the need for a theory before any action is to be taken. Invention of systemic concepts and new schools that would come to life from critical reflections spread in the human changing society; then new school prototypes would emerge. To summarize, the last tendency appears as practice based on theoretical research to innovate far beyond personal experience that could give birth to a creative teaching practice. Is it a utopia? One may think so. Of the three trends, the cooperative action research (or PAR), in our opinion, has the determinants of integral action research while the two others take a critical position from the beginning opposed to the participatory approach. Even if it is not mentioned, the cooperative action research may become an example of action research working in a systemic approach; it implies a whole system of education: university researchers, teachers as researchers and students as evaluators working together with a holistic vision for a human and social community in a modern changing world.

Integrating innovation and other models of participation

A study by Capobianco (2007) in Massachusetts (USA) investigates three science teachers “attempting to transform their practice by conducting action research on feminist science teaching” (p. 1) and join eight other colleagues (including three men) to expand their critical thinking. This study is “guided by the perspectives of both action research and narrative inquiry” (p. 3) “on integrating their understanding of feminist pedagogies within their own science classrooms” (p. 11). One major result is the evidence that no uniform approach exists to implement education practices because attention is dependent on contextual factors like tensions, daily schedule, and course assignments on which decisions are taken. Feminist teaching appears to be a process and not an ideal to be attained. The three teachers’ reports relate links to their personal values when transforming actions. Action research becomes an excellent way to use critical thinking and reflection in taking practical

decisions when a complex reality responds to the systems approach finality.

Writing on mutual help between consultants, Elias and Margolis (2007) dedicate their article to Joseph L Zins (1996). Innovation is implied by looking for collaborative action research from their peers aiming at transforming schools and adjusting them to kid's needs; help or mutual aid from consultants are achieved between professional members. Another example of mutual support between peers by Mathews (2008) shows an effort to give freedom of expression to teenagers. He designs a teaching method for the art of photography inspired dialectically between the free will (Sartre) of a teenager involvement in an autonomous project and his personal encounter (Foucault) within the structures of power and knowledge. It is basically action research adding contemporary viewpoints (Bragg) and pragmatism (Dewey). Thanks to a partnership with an artist, the workshops reach a high point in free expression with these young photographers; their comments indicate how they manage despite prejudices against the free translation of their autonomy and their critical thinking in art expression. In an extension of the previous article, Horn (2008) shows how the Art Department (Trinity Catholic School) contracts a partnership with artists in residence by offering a cooperative annual production of installations for people of different ages to participate in a project called Ethos. The latter aims at exploring contemporary issues in order to pinpoint links between art and science. Beyond all participation, there is a systemic global view in the display giving each item a relative place but not a hierarchical one.

Action research could be using another lens like the CBAM (Concerns-based Adoption Model) to understand teacher practice in Lesotho, Africa, as reported by Khoboli and O'toole (2012). Six schools from a group of 20 near the Maseru Teachers Resource Centre in Maseru Central

were selected for participation on the basis of convenience and three practitioners persevered till the end. Data are reported in an action research participative mode through discussions during planning, lesson observations and reflection meetings for two years. Their development and change are shown in the seven levels of CBAM: awareness, information, personal concerns, management, consequences, collaboration and refocusing in a two-year action research project (p.137). The authors recognize that other experiences should be conducted with larger groups and less homogenous to enrich CBAM and ask if it will provide a planning” and “an analytical tool related to action research which has cycles within cycles” (p. 147).

On the subject of university research, Kinzie et al. (2007, p. 469) acknowledge a rich methodological diversity, but nevertheless indicate a lack of information on research group dynamics, often pertaining to many disciplinary approaches or multi-investigator and multi-institutional researches in higher education. After a long observational study, the authors identify tensions linked with methodological choices and the diffusion of results. Researchers are encouraged to help others to discuss their problems and avoid pitfalls that could endanger their research.

Extending beyond institutional curriculum change

Chang et al. (2011) show that special education teachers for students with intellectual disabilities would improve the quality of their curriculum if they agree to share adjustment and pre-service training with outsiders or communities’ agents preoccupied by the lack of perseverance of new comers in their job. Two schools applying to participate in suburban south Taiwan as members of the research project are enthusiastic to be part of forces extending across social work, public education and academia. The three forces conceive a project of escorts to enhance public education through crossover trials in an action research

spiral process of inquiry, analysis and action. Participation and outcomes are noticeable because action engagement enhances knowledge of local work practice; personal involvement stimulates emotional understanding of insiders' real problems and becomes self-motivating in action engagement, building trust and a shared sense of good intentions. Researchers and practitioners redefine their roles and develop a set of common values when involving their own expertise. It becomes the responsibility of teachers and society to identify, clarify and prioritize the problems. The project can be labeled "a boundary-blurred spiral process" and may indicate a social impact "in the professional development of individuals (p. 273)".

Computer sciences

Does computer science linked to educational workshops converge with participation, an essential characteristic in action research? In Portugal, Reis and al. (2008) describe how workshops in information technology and Internet networks are offered to 1137 elementary schools reaching 1,700 teachers and 13,000 pupils. Their narration is informed by a theory put into practice and a pedagogy animated through participation of all concerned persons including communities. This experience may not be a first-hand experience of action research, but rather a second step to an applied technology in which human pedagogical participation includes a critical appraisal of its action.

In Africa, Rohleder et al. (2008) describe an experience with students in social work and psychology in two South African universities. In a course online, they gather concepts of identity and community inspired by participatory action research. They intend to challenge students when giving space to critical reflection in a complex and new society. From another university in South Africa, their colleagues, Nel and Wilkinson (2006) explain the history of the development of a course combining face-to-face and

online technology to train their students having a segregationist heritage and living in a multicultural environment. The course has been placed on a Web page to be developed. It contains the last part of the three-year experience analysis following the design process of Zeber-Skerrit (2002). The project, starting with a linear systematic investigative action, evolves into action research, including multi-cycle revision and introducing student participation in multiple « anthropopedagogical » evaluations. The results are an exhaustive analysis, and a guide for a professor/researcher applying action research in teaching, especially in technology.

In the past we have done a similar research (Ambassa Mve and Morin, 1996) trying to integrate student dialogue through Internet and group discussions while introducing them to qualitative research methods in education. It was difficult at that time to introduce computer and Internet technology because students were not familiar with it. Nevertheless, intranet and Internet made them conscious of the numerous resources they could consult, enriching discussion in the process, and concluding an overall fruitful course development to introduce research in education at the master level.

One can also link the Nel and Wilkinson study to one by Swinglehurst and al. (2008) which is an action research done by peer observation to evaluate online teaching practices. It is also on account of computer technology that an electronic diary is introduced in a program for mentors (or tutors) to help students with learning difficulties in health and art sciences at the University of Ottawa. In an academic student service, the electronic diary becomes the locus of reflection on action and dialogue; thus, mentor training is a success permitting transfer of learning and reinforcing mentorship. As action research, the participatory dimension is present but Terrion and Phillion (2008) focus more

on operational aspects and regretfully not on examples of students' critical thinking towards their learning difficulties.

Evaluation criteria in action research and academic control

Beyond the quality of practices in action research and their epistemological characteristics, Marti and Villasante (2009) affirm the importance of defining the aim and the person or institution asking for evaluation. Criteria and strategies ought to be different for each model. The academic evaluation is an external control on learning outcomes while the action research model of evaluation is internal linked to feedback on the process. Internal evaluation could be defined as participative if actors are co-researchers. The authors remind us that John Dewey says that validity must not separate knowledge and practical experience because its assertions might be significant. In other words, criteria should be defined on developmental aspects more than on the product. The authors suggest five dimensions: **topics** or relevancy or significance and deep understanding; **participants**, diversity, relations, extensions; **consequences**, outcomes, learning and empowerment; and the **context** in which the research takes place such as institutions, power and **interests**. Above all, **meta-criterion** like values, ethics and commitments should be discussed as suggested for the dialogue's reflective components or the contract ones, discussed in Chapter 1.

Quality evaluation must be determined according to dimensions and in our view (Morin, 2010) according to criteria of integral action research as Neto (1989) does or according to the construction of a systems approach as Dugal (2004) refers in her PhD dissertation (1993) and Renaud (2004) in his master's thesis (2000). We are concerned with both processes for an internal evaluation that would be a systemic approach modeling, using integral action

research or SAMIAR. We respond to the spirit of what Marti and Villasante suggest (2009 p. 393): “The second model presented internal, participatory evaluation of AR transfers the dialogue to another field: movements, institutions and participants are the agents that define what it is and not its quality and what they want to do with it. In this regard, the theoretical and methodological knowledge that practitioners and researchers may provide is made available to local actors”.

Concluding remarks in education: lessons

The education of practitioners became more significant after Henri Desroche introduced a program in adult education directly inspired by the spirit of cooperation and action research. The program based on a description of experiences expressed in a reflective autobiography, enlightened by scientific publications and discussion, brings rational argumentations for future investment in the betterment of educational fields. The originality appears to change the top down formation of practitioners to a bottom up one, more appropriate to field workers. It respects worthwhile experiences in an effort to retain lessons from the field. Adult education has not always been respectful of such an itinerary, even when proclaimed many years ago, but this tendency appears to be brought to life especially with new technologies in which we live.

The following remarks on published experiences in the field of education are not generalizations but qualitative results that may inspire future applications in the teaching profession. They are lessons extracted from participatory or integral action research. They may challenge critical thinking when assessment of curriculum displays a need to rejuvenate or to change teaching methods. Linked to a systems approach model, the critical judgment of action research may be enriched when challenged by a global or holistic approach to be shown more explicitly in Chapters 3 and 4. In the meantime, one can retain from the above:

1. The importance of linking adult education theory to practice and training

In 1958, Desroche begins programing adult education based on professional experience confronted to scientific training reflection and action research educational philosophy. What emerges is an annotated reflective autobiography followed by discussion and direction to appear in a scientific dissertation with enriched lessons from the field to improve a practice. A second degree (Hermelin, 2009) of training for action research done in groups for social workers is developed later at the university level. The lesson regarding the philosophy of adult education explicitly proclaimed is that application to practice is not apparently always adjusted to the practitioners' needs.

2. AR in teaching and teachers' training leading to attitudinal change

A project using action research in intercultural exchanges (Magos) considers teachers and pupils as actual researchers in which school success, changes of attitudes and growing critical judgment are observed while other groups without AR blame failure on ethnic cultural identity. Another experience in AR in teacher training with teenagers from an inner-city school (McIntyre) in a project on ecology develops community commitment, growing confidence as doers and thinkers. Also, a teaching model on creativity in art (Howard-Jones) concludes that co-construction brings better understanding of cognitive concepts.

3. Oral assessment as a preference to written annotations when passing from situated learning to situated meaning

Extending an AR project in Health services to oral assessment (Singh) as a step further to understand the community of discourse, two university institutions, professors and learners discuss a way to pass from situated learning to

meanings. They conclude that meaning coming from specific social practices and experiences indicates the importance of participating in a community of discourse.

Another Nursing school (Ball) casts doubt on written annotations when open to interpretation because they may impede confidence building. Remarks should be positive, inspiring reflection without hiding weaknesses. To avoid misunderstanding, an oral feedback process with the group is recommended to eliminate ambiguities from reading comments in isolation.

One statement (Singh) lightly confirms that evaluating teaching English as a second language is better assessed in an oral form than as a written regurgitation of lecture notes.

4. Mentorship helps practical training and other fields of study to foster partnership

In an AR project within a traditional nursing program, learners cooperate if mentorship (Blum) is introduced with nurses as tutors or preceptors. A three-year project in pharmaceutical services (Sørensen) shows that problems have to be discussed with a scientific approach, but that one should not ignore the complexity of organizational factors such as the relationship between employees. In small enterprises (Munro), an authentic environment is relevant to learning and development when a total spirit of mentorship is present.

5. AR in development of curriculum as a multi model concept

To achieve change in education, the complexity of action research is seen as a multimodal concept (Bai), either in a hierarchical approach or in a field one (Xu) when appreciating needs in school life using the SWOT questionnaire. Applications of the first one being experimental, and the

second, cooperative, is considered a free action research with no financing and linked to local needs. A third one is not an action research as such but a hierarchical application of a theory.

6. Action research integrating innovation and collaboration

The feminist science teaching (Copibianco) is innovative in trying to transform their practice with a group of 8 colleagues including 3 men with the originality of uniting narrative inquiry to an action research perspective to enlarge critical thinking. It concludes that feminist teaching is a process but not an ideal and that reports are linked to the personal values in the transformation, thus making action research a fine way to use critical thinking.

Help between consultants (Elias) is considered as inspired by Zins (1996) as a collaborative action research to transform school and adjust to kids needs or to freedom of expression for teenagers in art training (photography) (Mathiews, Horn) expressing contemporary viewpoints with an artist as a coach.

AR with its participative mode can also work with other models (Khoboli), for example the CBAM seven values like awareness, personal concerns to find the richness of the model through its mode of discussions, lesson observations and reflection meetings. Research at the university level (Kinzie) in higher education pictures a rich methodological diversity, though a lack of information between researchers is observed.

7. Extending outside to communities for institutional change

It is shown that special education (Chang) for students with intellectual disabilities program could be improved if adjustment and pre-service training is shared with outsiders

or communities. The three forces, social work, public education and academia conceive a project of escorts. The forces conceive crossover trials in an action research spiral process of inquiry, analysis and actions. It may be labeled: “a boundary-blurred spiral process” preoccupied by lack of perseverance of newcomers in their job.

8. In computer sciences, participation is essential for educational workshops

In Portugal, implementation (Reis) of technology and Internet leaving a place to critical judgment in a changing society is a success. In training students (Rohleder, Nel, Zeber-Skerrit) when combining face to face to online technology, AR is applied with success, developing critical thinking through exchanges. Electronic diaries (Terrion) become instruments helping university students with difficulties in their studies and a locus of reflection on action and dialogue making mentorship a success.

9. On evaluation criteria in action research and academic control

Criteria to evaluate action research (Marti) should be seen as relevant (Neto, Dugal, Renaud, explained later) when they are not defined only by the product but through development criteria like topics such as relevancy, significance and deep understanding; participants, diversity, relations, extensions; consequences, outcomes, learning and empowerment; and the context in which the research takes place, which includes institutions, power, interests. And above all, a meta-criterion such as values for example.

Our own operational definition of Integral Action Research in Chapter 1 also provides components as criteria to judge the relevancy of a participatory action research evaluation and in Chapters 3 and 4 through the construction of a systems approach that will be suggested.

2.2 Social sciences and social work

Social sciences enlighten the world and the system we live in. There is an abundance of theories and systems to explain or suggest solutions to problems when necessary: capitalism, communism, functionalism, cooperation, heuristics and critical thinking, etc. However, not all are looking upon human freedom to participate; some of these require everyone to subscribe to a proclaimed ideology. This review does not cover all these aspects but retains theoretical and practical articles that bring light to integral action research and to systems approach as frames of reference with themes such as interactions of components, alliances in knowledge, freedom to participate, development consideration, critical thinking, partnership and openness to intercultural traits.

Action research as a frame of reference

Action research may enlighten the link between theory and practice. Are cultural traits, including critical dialogue, possible to enunciate? This is a challenge that Lévesque (1999, 2001, 2004) develops with an “anthropopedagogical” teaching model to promote reflective judgment for social workers as researchers involved in intercultural relations. Three conditions emerge: one, a transmission of information to bring reflective relativism; second, educational dialogues between students and with the professor; and third, an exercise in writing a personal journal on a weekly or a daily basis to foster critical judgment.

Many scientific papers are written on the different approaches of action research in social sciences and human sciences not forgetting health care and management. When participation passes from the academic area to action in the city, problems appear more complex than they might be usually perceived and at times considered a work of art as Elliot Eisner (1977) wrote in his article “On the uses of educational connoisseurship and criticism” in the domain of evaluation in the field of education.

In a Lausanne Seminar, Corajoud (2006) explains how action research is discussed as a process of education for the practitioners following the spirit of Desroche's first intuition. It is a process of learning and innovating presented as an alternative to traditional research teaching. It brings lived references to the concrete world of social workers with reflections on epistemic, cognitive and socio-political aspects (p. 204). Objectivity includes subjectivity of researchers/actors to penetrate competently and reflect on actions and the surrounding world in requiring actors to become researchers. If shared reflections cast a doubt on actions appearing too restrictive, then it becomes necessary to open reflection to wider and possibly new considerations. Corajoud adds that this learning signifies also an "inter categorical" alternative instead of an interdisciplinary one, a concept to be discussed later in the systemic aspect of SAMIAR. This endeavor is seen as *collective* action research which brings new configurations, leaving space for listening, debating, questioning the social world, in multiple living areas. According to this trend, everyone learns and integrates himself within a social change atmosphere, dialoguing and carrying out concrete social activities.

The eight researches reported in Dujarier's book (2010) on "Travailleurs sociaux en recherche-action" do not always explain the procedure these social workers used; however, they bring a reflection on possible actions for a real change in future collective research action. Reflecting on their excuses to withdraw from social action in their work, the social workers as learners explain the conditions toward success or failure in abandoning a case in action research. Interesting examples are: situations in which they risk getting hurt; blaming a mechanical technical difficulty; developing skills to avoid relations with the public or their colleagues. These reflections on past actions offer some wisdom to direct action, such as legislative evolution, ex-

changes with their peers, getting training, giving advice to financial sources, and reflections before withdrawing from an activity (p. 33-34).

The topics of *selected* papers written in French from these eight participants are: social problems such as adoption and the quest to find one's origin (Cécile Villeneuve); questioning social models in charge of infancy in relation with the family's role (Martine Guillemin); suggesting professional training for services to young children like day-care-centers (Silvia Valentin); protecting cases submitted to court with better codification to avoid to signal it uniquely through interpretation of texts and informal exchanges with peers (Céline Fleuret-Celle); school drop-outs for the 16-18 years becoming deviants; and the necessity to construct a life project (François Le Clère) while another social assistant (worker) hypothesizes that these persons have developed competencies to be tried and used for their insertion in society (Sandra Louis). In another context of hospital health care for political asylum persons, it is suggested to use an anthropological insight, more specifically that migrant persons should primarily be treated as persons and not as refugees (Frédéric Ballière); and the last researcher brings the reader to cooperative electronic practices for popular education as power games in an organization, but requiring animation and regulation (Jean-Marie Sanchez). In the preceding reflections, the reader is referred to field action as a trigger to promote specific theoretical reflections towards a collective or cooperative action research.

Cooperative action research workshops for social workers

In France, Hermelin (2009), following the inspiration of Henri Desroche's action research movement, develops an educational program for practitioners and moves a step further with an ACORA (atelier coopératif de recherche-action) as a collective or cooperative action research meth-

odology. His long and enriching 20-year reflection has resulted in three kinds of ACORA: 1) cooperative action research workshops, 2) an ACORA that consists in a “chantier” or a coordination of workshops for a vast number of actors interested in getting together to discuss similar social problems, and 3) a forum on action research, a colloquium or congress open to actors as researchers interested in communicating results for discussion or debate. Open to other perspectives, Hermelin does not exclude forms of organizations that the Internet makes possible for regrouping searchers (pp. 21-29) and the extension of their experience to the international scene, notably in French Africa.

It is with a precise minutes’ journal of the groups that the author bases his comments, considering the minutes as being the memory of social workers reporting their AR cooperative activities, local learning knowledge that favors discovery and new questionings. The journal or diary, says the author, is a mirror of the group progress and an important communicative instrument to write the final report. It includes life stories, numerous questionings, words and concepts, theories and models, and collective investigations. According to Hermelin, autobiographies stimulate the group for searching an operational questioning; discussion and reflection help the coming of a significant title as Desroche used to suggest strongly when defining a research problem. From there the group decides on an “entente” that reconciles differences and accepts complementarities in statements. Theory building grows with the process or the itinerary. It is even enlightened when time comes to modeling. Any new question should surge when practicing, otherwise they are rejected or put to the test (p. 198). The group should accept complexity. It appears that personal questioning is essential and is confronted by each other’s reactions. There is reflection, discussion and action to work on collectively. Significantly, Hermelin’s first an-

imation in 1989 is with a group of women of UFCS (Union féminine civique et sociale); he coordinates a workshop on historical writing, in which they write about their association since 1925. The latter experience, though not an action research in itself, demonstrates his longing for collective writing. In 1991, two years later, the launching of ACORA starts at the “Collège coopératif de Paris”. In 2002, it becomes, as mentioned above, a regular course at the Sorbonne III University in Paris.

Though Hermelin does not end with a unique collective action research model, the reader might conclude that the variety of these successful workshops are examples of cooperation in action research to be taken as suggestions to modify one's own path in a research process with the possibility of inventing new procedures. Chapter 12, the culminating point of his book, explains not only significations and itineraries but also details the life that needs to be taken into account when a global or systemic vision (not necessarily as a departure point) is the target for a better understanding of human and social meanings for modeling collective action research.

What is the real meaning of an ACORA? It is a trajectory, an itinerary, or a path that is revealed in time between an intended change and its achievement by actors as researchers. It is not limited to social workers but may extend to other practitioners in health services, urban development and migration agents. The success depends on the autonomy of the group and freedom to act. (Hermelin, 2009, p. 289-292).

As previously mentioned, in 1982 the GÉSOÉ organized a collective writing experience for popular educators working in different fields. This experience was explained in the Introduction; the seven lessons that emerged from it remain pertinent, even decades later, if one wishes to understand what makes successful workshops.

Values influencing action research

Turina (2007) affirms that action is neutral but can be influenced by doctrines or values, characteristic of dogmatic, activist and military behaviors, and which are contrary to integral or participatory action research. Seeing action as neutral may be effective in critical thinking “providing a richer description of religion-society interactions than that permitted by theories of secularization as a long-term process of the overall decline of religion” (p. 169). Reese and Vera (2007) consider cultural traits as essential, cultural relevance and competence as central for each phase of development, implementation and evaluation in community-based programs. Cultural competence is “the ability to balance culture specific (i.e. emic) and culture-general (i.e. etic) norms. Cultural relevance refers to the extent to which interventions are consistent with the values, beliefs, and desired outcomes of a particular community” (p. 765-6). However, the comparative research results do not reveal sufficiently the meaning of intervention processes. If the action research loop ought to be critical, then reflection would probably make intervention sufficiently eloquent to reflect the participant’s cultural experience. For Reese and Vera, community-based participatory research is well suited to the Lewin tradition of action research. If the welfare of a group is taken into consideration, it should consider participants as actors and researchers from the very beginning of a project. Then, there would be integration considering effective the multi systemic therapy intervention program and culturally relevant for prevention (p. 772-3).

A good example (Perregaux, 2006) of successful action research in the region of Geneva concerns the rights for public education of immigrant children living with their father who, though holding a legal job, could not send his children to public schools because the family had not yet received the legal papers. The children thus had to be bussed to a nearby French region until the family was con-

sidered legal. This interdiction and the bussing becoming intolerable, some people acting as social actors decided to open a small school (*La petite école*) in the Geneva area following a similar gesture in Neuchâtel and La Chaux de Fonds. Parishes from different denominations cooperated in helping repair the harm suffered by children as the families legalized their status. Another research in documentation described that in certain areas in France immigrant children were also refused education in Paris and at Montfemeil but the Government blamed the authorities of school.

A similar problem was noted in Texas where the Supreme Court in U.S condemned such a practice for kids even when considered illegal in the country. In Geneva other actions like studying the Federal legislation indicate that from 1848 to 1874, the federal constitution is clear on the subject of immigration: primary education is obligatory and must be free. Then in 1989, the United Nations adopts a Convention for the rights of children to be educated no matter what their political status is. The contestant group in Geneva was not dissolved until 1991. It had to wait until the public-school proclamation of the rights of schooling for all children without discrimination announced during a celebration at the United Nations by the chief of public Instruction of the Geneva Canton. The value of education for all children is the motivation of this action research done by people from different classes of society being involved. Change is achieved; the production of knowledge and the aptitude of reflection on the social context making “*La petite école*” a symbol of collective action research clarifying a complex issue concerning human rights in Confederation Government had shown that there is a limit to the sovereignty of the Cantons to control the right of children for public education.

Action research as a participatory method for knowledge alliances

Action research promotes a growth in know-how and theoretical learning. Alliances with different classes of communities in popular education, with aboriginal people for example, bring emergent significances if there is participation from the different entities.

Development and participation can be difficult when working hand in hand, but if the challenge is overcome, Puri (2008) writes that knowledge alliances requiring participation in India bring a consensus that silences community resistance. A study by King and al. (2007) adds that in Africa, people of different cultural backgrounds would easily share their knowledge if not preoccupied by political power battles. In Arizona, Government historical intervention failures caused by a lack of respect of autochthonous people social rules does not attain participation and causes resentment. With this in mind, Arnold and al (2007) undertake participatory research to create “power-sharing relationships between researchers and communities”. They develop, implement and evaluate with success a curriculum on ecology and its management. Already in 1994, two universities (Guelph, Canada) and (Western in Sydney, Australia) inspired by a systems approach framework undertake a participatory action research (PAR) to acquire competencies in rural development (Jiggins and Roling, 1994). It is interesting to note that Systems Thinking requires a participatory method for investigation while action research may suggest a systemic or global view to be efficient. Alliances may not be easier when Fraenkel (2006) establishes a professional partnership with families as experts and initiates a program generating new knowledge. Any family requiring help has an expertise of its own showing resilience for finding means to solve difficulties. Referring to participatory action research, Pynch and Castillo (2007) insisted that PAR is not only valuing popular

knowledge, but that “new knowledge could be created through a dynamic relationship “between popular and ‘scientific’ knowledge” (p.209).

Chang et al. (2012) show that action research could be a working force when social workers in Taiwan use it to discuss curricular changes in an educational system. From this specific requirement, action research becomes a strength that extends benefits to a range of other social necessities and progress. “The change was not a linear process of requirement analysis, design, implementation and assessment but rather a continuous, boundary-blurred spiral process (p. 279)” similar to action research’s characteristic loops of action, reflection and action. Chang et al. demonstrate (2010) how action research bridges two worlds or two horizons - NGOs and humanitarian agencies - in their adaptation of technology to their needs. Program’s combining social inclusion for future electrical and computer engineering is a good example of Chang et al. (2011) to enlarge professional development with a sense of responsibility to their community.

Action research as an evolutionary concept of participative development

The concept of participation breaks the gap between top down and bottom up development. From a number of experiences, four articles illustrate this transformation: a rural development in Europe, an employment creation program in Kenya, a health needs study in Ontario and a research dance for family well-being programed in Australia. Finally, a concluding remark on poverty notes that development should be under people’s decisions.

Murray et al. (2009) discuss a planned project concerning rural development in Northern Ireland, one of four concerned regions, others being Dublin, Wallonia in Belgium and Champagne-Ardenne in France. The authors explain the growing tension between government developers and

local associations of citizens concerned with local economic, social, cultural and environmental challenges. To bridge the two tendencies, marked footpaths in collective and co-operative discussions are necessary to acknowledge community preference before coming to a reasonable action. In Kitale, Kenya, Majale (2008) demonstrates that employment creation is possible through participation at all levels in urban planning, partnership building, working, and slum upgrading. All levels mean the private and public stakeholders of a territory and imply National context, Local environment and a complex project interface if one would consider the table of Do's and Don'ts of slum policy (p. 274-5).

In the Wikmikong Unceded Indian Reserve (Ontario, Canada), a health needs study (Jacklin and Knoshamég, 2008) is based on critical theories, indigenous teachings and participatory action research (PAR). It elucidates eight key principles for developing a significant project: partnership, empowerment, community control, mutual benefit, (holism, action, communication and respect). One should understand that health needs are dependent on a social approach when listening to the aboriginal communities in this case. In a symbolic title, "the research dance", Mayo and al. (2009) in a Family Well Being program and Indigenous Men's Support Groups (Yarrabah, Australia) reflect data derived from workshops, in-depth interviews with community and university-based researchers. A major criticism of social research "has been a lack of consultation with communities regarding their needs and priorities..." leading to mistrust and antipathy to research (p. 134). The research dance is "one of inclusion in which researchers act for the benefit of the community" and gain access to their richness in return showing "trust and beneficial relationships" (p. 140).

Reflecting on poverty and development, Cliche (2003, 256-257) remarks that development should be put into historical perspective when pondering situations and interventionism set aside and replaced by sovereignties, cultural control and people's decisions. The latter remark should be well considered in international aid from Quebec, since partnership has been a trademark in general when dealing with projects, particularly in nongovernmental organizations (Cliche, 2014).

Action research for awareness in participating with environmental issues and sustainable urban communities

Enhancing action research for learning and awareness of environmental issues for students and community at large is the topic reported by Singh (2013) as an "engagement within action research students" because they have "to work with insiders from the community to identify, formulate action or intervention plans and find solutions to problem situations in the community" (p. 299). This action research project helps students gain confidence in their practical learning, gives more time to reading on the topic of environment issues and, as one educator says, "this kind of teaching approach promises great returns not only in terms of learning but also in terms of added benefit of promoting intercultural communication, camaraderie, teamwork and reinforcing knowledge of content" (p. 311). It is good to remember that Singh (2010) had encouraged a few years before intercultural communication in a large classroom at the Faculty of Science, in a South African university, to ensure integration through a Communication course using an action research approach building from one lesson to another the planning of the next intervention phase.

Wang and al. (2010) analyze the construction of Chung-Sheng Community in Taoyuan City (Taiwan) becoming a sustainable urban community by placing at the core participatory action research to eventually trace a holistic model

of reconstructing an urban human society from bottom up activities to respond to an awareness of the environment and social human responsibilities. A very precise plan of action is developed through an action process using specific forms of data collection starting with focus groups, public hearings, in depth interviews and learning programs. Those latter first steps require a sustainable development, an expertise search into semi and public social aspects leading to conclusions. The authors do not accept as “constant” the trial and error pedagogy, but one may think it may diminish in action research due to AR loops of reflection on action; a no-fail planning appears impossible due to the complexities of the real world. Nevertheless, this research is worth noting as an example to be tried elsewhere because it corresponds to a good draft of action research becoming participatory and aiming ideally at tracing a model for sustainable urban communities. The latter is another example of the necessity of a plural approach to solutions in complex situations.

A few years later, the group of Lee et al. (2013) “examines cultural living circle theory” and how “local figures identified cultural characteristics and the factors shaping daily behaviors related to cultural living circles.” They conduct a field study “using action research to construct the local cultural living circle process and identify the dynamic composition” (p. 243) that requires a “living cultural space” (p. 239) illustrated by a Sanyi Woodcarving Village, Miaoli, Taiwan. This research is also an analysis through in-depth interviews (40) of how the actor interconnects “to find an appropriate position” “... realizing a more holistic and distinguished cultural living circle composition” (p. 243). It brings a framework of the environmental analysis putting side by side the cultural living circle and the action research process (245) conducting to a core-satellite model (p. 248) that should enlighten the next chapters of systems approach modeling.

Concluding remarks in sociology and social work: lessons

The following remarks are lessons for the field when working in an open community systems transforming for example adult education. Communities at large may profit even more from a research process like participatory or integral action research, referring their reflection to their daily life and activities.

1. Action research as a frame of reference in university teaching

An “anthropopedagogical” teaching model including more information, dialogues between parties, and journal writings is a good canvas for developing critical thinking for social workers according to Lévesque’s doctoral dissertation. The spirit of action research as a model of adult education (Corajoud, Desroche) for social workers brings eight life experiences and wisdom to direct action such as legislative evolutions, exchanges with their peers, getting training, giving advice to financial sources, and more reflections before withdrawing from an activity.

2. Action research as a cooperative workshop open to a wider vision

Three levels of cooperation in workshops (ACORA) are suggested: 1) the basic workshop, 2) a coordination of workshops (chantiers) on similar social problems and 3) a forum (congress) on action research. All have significations and itineraries that open to a global vision for better understanding. A minutes’ journal as the memory of the group may become a must for description of actions and discussions; some levels deserve a form of publication (Hermelin).

On the other hand, a Colloquium with popular adult educators brings 7 lessons from the field after a forum of workshops on varied themes in a collective writing experience

(Groupes & Morin) and an inspiration for the operational definition of Integral action research (Chapter 1).

3. Action as such is neutral but influenced by values

Action as such must be considered neutral, but often influenced by a doctrine, values, and demonstrations (Turina). Though cultural traits are essential, it seems important to distinguish cultural relevance and competence (Reese & Vera) in community programs; a social worker or psychologist should not be only culturally competent but above all culturally relevant because cultural traits characterize any human being or social group. Education for all children in Switzerland for immigrants is a successful action research by communities illustrating pacific resistance and worthwhile initiatives (Perregaux).

4. Open dialogue is necessary for critical and human development

With community-based participation, action research opens to dialogue and critical reflection while a dogmatic approach or a military one should be avoided. Alliances of knowledge require participation and bring a consensus that silences community resistance (Puri) and promote power-sharing relationships (Arnold). Becoming critical in social practice interventions requires action researchers to sustain dialogue and participation to enrich professionals in their practice like rural development (Jiggins and Roling). Systems thinking may require action research to open up to a global view. Alliances that consider families as experts to solve their problems show resilience and respect in expertise (Fraenkel) valuing not only popular knowledge but also creating new knowledge between popular and scientific knowledge (Pyrch). Not only is AR a working force for curricular change but a strength of benefits for other necessities, as was seen earlier in social inclusion of electrical and computer Engineering students (Chang).

5. Participation in AR as an evolutionary concept for development

Discourse and knowledge are essential for worthwhile action research. It gives to action meaning, justification, reason and relevancy. Knowledge alliances such as a rural development in Europe (Murray), employment in Kenya (Majale) and a research dance and relevant symbolic language (Jacklin and Knoshameg) may probably share the same principles: partnership, empowerment, community control, mutual benefit, holism, action, communication and respect. Action research promotes dialogue between social workers and curriculum development in education and even educational program in social inclusion as seen earlier (Chang). Development in its definition must acknowledge that interventionism should be replaced by sovereignties, cultural control, people's decisions (Cliche) and the creation of a new language (Pyrch and Castillo).

6. Awareness of environmental issues and sustainable urban communities through AR

Working with communities at large helps students gain confidence (Singh) in their practice as much as encouraging intercultural communications in a large classroom in South Africa.

Helping communities in Taiwan refers to sustainable works if participatory action research traces a holistic model of reconstructing an urban human society. The plan tracing a systematic direction is open however to a systems approach (Wang) but avoids constant trial and error pedagogy, although this may appear contrary to the reflection loops on activities essential to participatory or integral action research. Another study of cultural living circles for a living cultural space brings a model of a multiple research approach bringing analysis and action research modeling together (Lee). Both experiences are lessons for plural approaches in a complex society.

2.3 Health sciences and services

In health sciences, articles reporting action research or interdisciplinary fields of knowledge are impressive in number. Both approaches are complex and require cooperation at every level of the process. Research content deals in great part with the prevention of diseases and above all with the organization of services and treatments. The positive results seem liable to inspire persons or groups namely in community health centers to rethink their own organization, using either action research or interdisciplinary cooperation.

Prevention through participatory action research

In the Amazon region of Northern Brazil, a frontier zone considered unpredictable and tormented by “a prostitution setting”, Laperrière (2007) engages nurses in participative action research to evaluate a health promotion program encouraging them in the front line to become researchers. Occupying a key position in intervention as main actors in the research protocol, the nurses observe the political and cultural issues of the sexually transmitted diseases prevention of HIV program. This research is characterized as “an incorporation of popular, social and professional experiential learning and skill acquisition in embedded knowledge production” and establishes “a close relationship between scientific research settings and socio political and sociocultural aspects of nursing practice » (p. 42). The evaluation suggests *savoir-faire* to public and community health in bringing awareness of concrete practices.

Another study from Fongkaew and Suchaxaya (2007) completing the latter and preoccupied by HIV prevention demonstrates an application of participatory action research with Thai teenagers from 10 schools in partnership with adults; it aims at enhancing youth leaders’ capacities creating confidence and an atmosphere of trust and respect

in various social roles. Also, in Thailand, Mallick (2007) shows that adult cooperation is successful when education confronts drug abuse with a participatory action research in communication between parents and youth not known to them. For the prevention of heart sicknesses, Haalboom and his group (2006) may be pinpointed for succeeding in uniting six Canadian provinces' researchers, practitioners and communities. In another study on preventive measures from lead poisoning in the American South West, Rajaram (2007) asserts that the university three functions of service, education and research are well served by a research based on action.

Extending participation prevention, a key to general strategies

Apparently similar to the previous cited researches, Campbell et al. (2007) suggest a social environment conception enabling management of health and strategies' services regarding VIH problems in South Africa. The six essential and preliminary strategies of this project for training health workers, partnership, rallying youth to the cause are: "Building knowledge and skills; creating safe social spaces; promoting ownership and responsibility; building confidence in local strengths, and agency to mobilize solidarity ('bonding' relationships), partnerships ('bridging' relationships) (p. 352)". Change in the systems would occur deeply only if all levels of participation exist with partners and stakeholders. The group could profit from an action research (participatory or integral) methodology more explicitly as ways of progress in a systems transformation in achieving reflection on action and in sharing knowledge. Systems strategies, mutual interdependencies, and path generation, for example, are not yet developed as essential dimensions while participation remains general in its conception.

Action research for prevention of ill treatment

Preventing mistreatment of old people in socio medical establishments has been the object of action research to promote change. D. Roulet Schwab (2006), reporting to UNIGER⁵ (Lausanne) and to the FCHO,⁶ had the mandate for professionals to search for solutions through reflection to avoid ill treatment and risk situations of old people. It aimed at valuing knowhow and winning strategies, to analyze processes and experiments, and to propose a frame of reference and avenues for exploration. The conclusions to this action research include: 1. Ill-treatment being a complex phenomenon to be prevented should be seen globally, efficiently and constructively. 2. Ill-treatment is not unilateral but comes from both caregivers and old people. 3. An external professional is a must to keep some distance between diverse interpretations. 4. Accent on competencies and systems resources diminishes negative reaction and favors change. 5. The intervention proposed creates conditions for each one to function adequately. 6. The punctual intervention suggests that professionals adopt a pro-active position. Finally, action research has been a vector or a carrier toward a global change in preventing ill treatments for old people.

Participation in research is not conceivable without action by communities and persons

Following a participatory action research project in a working oncology milieu, Sale (2006) remarks that the presence of managers in meetings is inadequate despite their role remaining important; the composition of a committee is complex and should go beyond pure representation. He adds that a participatory research without action is not conceivable and full participation in all phases of a project is

⁵ UNIGER Unité de recherche en gérontologie de l'Université de Lausanne.

⁶ FCHO Fondation Charlotte Olivier.

difficult to achieve. In addition to health workers, Blanjee and al. (2008) indicate that the community has a real role to accomplish when using an evaluative qualitative test on competencies and participant observation in the African community of Zimbabwe. The latter has proven progress from 2004 to 2007 in their responsibility to diagnose AIDS in affected persons and help improvement in their health behavior.

Concerning community inclusion, Milner and Kelly (2009), reported on a narrative participatory action research project in New Zealand with 28 persons suffering from various disabilities and experiencing exclusion from the spaces of the social and economic majority. Five characteristics emerge from a thorough analysis regarding their belonging and their community participation: personal determination, social identity, possible reciprocity or a significant contribution, anticipated participation and self-confidence. The authors add, "that people with disabilities can support the policy objective of effecting a transformation from disabling to inclusive communities" (p. 47). *Mutatis mutandis*, one could believe that the same human and social qualities are pre-requisite in people's participation and are necessary conditions in integral or participatory action research.

Du Toit and Kilkinson (2010) explain how occupational therapy students develop their professional abilities through reflection in action with elderlies of community service in South Africa. The idea of anticipated reflection, in and on action and retrospective, appears very systematized but brings lessons for the new therapists toward the reality of their future fieldwork. It develops skills, generates field research and ways to learn from experiences. Further studies, they conclude, should be on the role of the educator as researcher and the students concerning freedom to emancipatory Cycles. Maybe students might be

considered equal researchers as it is suggested by Integral Action Research theory (Desroche, 1982).

Participatory (or Integral) action research lessons for inclusion

The importance of patients taking responsibility for their own health implies modifications in nursing practice. Robinson et al. (2008) explain the way nurses from four areas in Tasmania (Australia) are introduced to motivation techniques to promote patients taking charge in their own care to fight their chronic pulmonary obstruction. Within a participatory action research design, discussions are planned for nurses with their experienced tutors. After a year of intervention, they managed to transform their practice and facilitate patients' responsibilities for their own welfare. This philosophy of responsibility could be extended to patients eager to achieve social inclusion.

Co-production with PAR or IAR to develop a model of community aged care

Ottmann et al. (2011) report an enriching example of efforts towards a model using action research participation devices in a complex collaboration or co-production project in order to promote a community Aged Care with complex health issues. Well documented, the paper describes at least four groups, namely the old people and their caregivers, government representatives, industry partners or non-government stakeholders, and a research team on cooperative approaches. Grounded in historical theory of co-production and participation, the research hosts two mid-sized community care agencies illustrating the complexity of such an enterprise in its first phase in Australia. The article describes key events for the 12 months' action research co-production process. Phase one puts older people, care providers and associates as the People at Center Stage (PACS) followed by all stakeholders. While phase 1 reports the development in the formation of the working

group, phase 2 is reserved for group interactions, recording and reporting life experiences. Phase 3 is a reflection on proposals regarding lived experiences and phase 4 concerns deliberation on the initial proposal referring to their practices and developing a counter proposal. The research is shown in a diagram with three steps: a literature review, 6 focus groups discussions, and action research cycles for all groups involved in the co-production. Finally, a draft model emerges. The research analysis is done through data and theory driven codes put together bringing insight as a departure to data derived codes from re-shaped experience and “on occasions theory-derived codes” (419). Conclusions or Lessons (15) from the field emerge and are enumerated like those regarding older people: the necessity to build trust, make appropriate arrangements, outline the context, fill gaps, use practical examples and test role playing if acceptable, and provide advocacy support (p. 419). Other lessons are related to service providers, government stakeholders, and co-producing with agencies. All these are explained in greater detail in a four pages’ résumé (pp. 420-424). The discussion concludes that co-production brings actors together, “within and across institutional boundaries, to engage in a collaborative problem-solving process” as an approach to solve problems. It unites actors with the intent of bringing systemic change. It is “not a method as such” which we may understand as readers but “one to be developed”. The success is due to the Co-operative Inquiry Method promoting co-production and a climate of “collaborative spirit”. It might not be a total achievement according to some government stakeholders (p. 424). In reality, the authors insist on the power of some partners lowering the voices of consumers, a problem which should be monitored and amplified if necessary. This action research, inspired by the co-operative inquiry method, is bringing also change in modeling the structure of society and appears to be a case commanding a reflec-

tion on the systems approach to solve complexity during the collaboration problems due to a diversity of agencies.

The qualities of participation must be open to a systems approach

An American study by Hupcey and Miller (2006) in professional care concludes that “Trust in health providers differed from interpersonal trust in the role specific attributes of the individuals” despite the fact “that competence was strongly linked to interpersonal qualities” (p.1132) of the practitioner giving treatment. On the other hand, when the loss of trust was linked to competency problems it was hard to reconstruct. To clarify the professional therapeutic relation, the study of Trop and al. (1999) sheds some light when considering inter-subjectivity and the dynamic systems theory during action and reaction in a medical situation. They argue that the analysis of the subjectivity structure suggests a reification process namely the structures of subjectivity and the organizing principles. They prefer a more radical contextual approach studying “perceived experiential patterns” and “attractive states” where new activities emerge helping the creation of solutions in the therapeutic relation with the patient, for example in psychoanalysis; if done this way, facilitating new individual or social behaviors would emerge.

Action research and a corpus of knowledge or science

Referring to the science of complexity towards an appropriate, integrated, lighter system of information on health, Braa et al. (2007) suggest assembling information or conclusions to provoke innovative solutions in the VIH/SIDA while adopting flexible standards that could be applied in emerging countries. Information would be grounded but consultation and learning at other levels of reflection would continue to enrich experiences. Going a step further, Oberman et al. (2008) think that developed countries must learn from emerging ones. After a three years action re-

search project, the authors present three factors for a corpus of knowledge: 1) A local effort in discovering solutions; 2) The utilization of an appropriate technology found in the environment; 3) A creative work including a margin of freedom to find practical solutions respecting ethical finalities. Oberman et al. seem to reaffirm the substance of Schumacher's (1978) book, *Small is Beautiful*, suggesting advice to remain open to appropriate technology.

An example of another corpus of knowledge is found in two articles from the Caledonia University of Glasgow, Scotland; one by Tolson et al. (2006) and the other by Booth et al. (2007) writing on the conception and development of a guide to nursing care grounded on experience aiming at old persons or a gerontology center. The "evidence-based nursing" is a statement of the best possible practice observed (Best Practice Statement or BPS) to design an operational model. This lengthy action research covers three nursing groups, two with 32 persons and one with 15 plus 21 members from a community. Tolson writes on the general view of the project and Booth on the essentials of practice and experience being apparently at the second cycle of this action research. This project seems to rely on systems modeling without affirming it explicitly. The task is complex making it very difficult to produce clear statements. Interactions are numerous between discussion groups, a back and forth between practice and groups. Results are transmitted to groups for evaluation and validation of the first conclusions in order to find a balance between emancipated research and technical research.

Lewis and Wilson (2008) do not agree with the BPS generalization process arguing that this practice gives merit to qualitative research, which it does not deserve and that the action research process is not explained enough. To respond to those concerns, J. Booth (2008) states that the

methodology used is participative and that the study is substantiated for viability before going through the statistical test. If one enlarges the debate, one could ask with the McDuffie and Scruggs (2008) study on special education if it is legitimate to search statistical evidence for a grounded practice in qualitative research that does not search causality as such. Decision on the appropriation or not of an obvious practice or experience belongs to teachers and parents with handicapped children. In our opinion, these comments seem to revive the unsolved paradigms' debate requiring complexity in complementarity that enriches a constructive dialogue on the limits and advantages of different research methods.

Diffusion of knowledge or innovation

The PRIDE project in the United Kingdom uses action research in an investigation and diffusion of innovation in health care (Waterman et. al. 2007). After an analysis of the strengths and limitations of the global systems approach that combined research, development and diffusion, the authors affirmed that action research is the best method for diffusing an innovation if it required a high level of adjustment for its adoption.

Before summarizing the breakthrough in health care on systems approach and action research, it is important to underline an American research by Downey et al. (2009) based on dialogue and deliberation and meant to refine the EEM model (Empowerment Education Model), a theoretical frame of reference in public health inspired by Freire. The key concept consists of leaving to communities the responsibilities for their own destinies when considering them as actors of change through dialogue, critical reflection and control over their resources. For these authors, it is advantageous to split dialogue and deliberation because the latter implies making decisions on actions for change and better health conditions in the community. Their point of

view is illustrated by the case of the Kentucky County. The procedure is systematic, and each part is interwoven with the preceding one. A slide show produced by a youth group is presented; then a list of needs (quantitative) is written followed by a period of time for searching significations (qualitative) and causes which extend into dialogue (focus groups) and followed by deliberation to take appropriate decisions. Afterwards the process continues in community forums to determine a precise action and steps towards solution. The EEM process, though keeping its appeal for clarity and orderly steps to change, does not totally respond to the reality of complexity and remains a model for managers who seem not to consider interactive relationships. The process is clear, systematic and Cartesian forgetting relationships of objects, their cohesion or conjunction. The risk is to forget significations found in the dialogue period when coming to results. To split dialogue, deliberation and action is distancing a practitioner imbued in his task and involved in participatory action research at all steps of the process. Nevertheless, EEM is probably the best design to clarify the purpose of a project, the aim, its architecture in introducing dialogue to reach the community but may not be enough to keep the enthusiasm of actors in the problem-solving task. EEM could be an interesting chart to understand SAMIAR before, and or after a project if a group necessitates a summative evaluation of its results. In that sense systematic approach and systems approach may complete one another in enriching the paradigm dialogue.

Computer simulation and action research improving healthcare delivery

Healthcare delivery cannot be improved in time consuming or length of stay (LOS) for patients of an emergency department (ED) unless the autonomy of healthcare professionals can be envisioned, and a will to participate from different stakeholders in a common objective of mutual

cooperation. Rosmulder et al. (2011) challenge this task with computer simulations in an action research context. The simulation model is the actual healthcare delivery process of an emergency department (ED) of a 1,000-bed university hospital in the Netherlands receiving 32,000 patients per year. The increasing visits, the long waiting times and availability of ward beds led the medical director to ask for the conduct of a scientific analysis and theory for a more efficient care process (p. 399). One concerned group, the physicians, refuses to participate because the project appears outside their main scope of interest considering that the division of tasks in healthcare is strictly separated between professionals. “The physicians manage the cure, the nurses manage the care and the administrators manage the control in the hospital” (p. 398). Nevertheless, an AR experiment is carried out with a team of researchers and the medical director of the ED designing a computer simulation model with local data and “straight-forward observations and assumptions” (p. 408). All decisions are shared by the medical and nursing staff and seen as a valid picture of their work situation. To reduce the length of a long stay for the patients, the action team implements a scenario over a number of experimental shifts and finds a reduction of LOS while maintaining the quality of care.

A sudden shift of collaboration between researchers and practitioners appears when the task division is felt as an issue, namely the staff physicians feeling challenged in their professional position and refusing to participate. However, the experiment is sufficiently tried by the single action team during several years to come with positive results and present them to the medical and nursing staff who give their support while a number of the medical staff partly change their opinions. They become supportive of the idea that the nurse initiates some diagnostics making possible discussion meetings and collaboration. The implementation becomes a high priority because time can be

saved for the patient, teamwork and efficiency may be improved without any sacrifice to the quality of health care. Other advantages include the importance of dividing the responsibility of the modeler and the role of the action researcher. The model has the advantage of a communication channel instead of the usual professional knowledge and experience exchanges. The authors insist: “the process of consensus-building toward feasible action proved essential in the experiment,” adding that it “nicely fits the Dutch cultural characteristics” (p. 409). This research can be labeled as operational research enriched with a participatory aspect of action research; it is a mixed model integrating a plurality of approaches put together like modeling, observation and participation. The process illustrates the division of tasks between the modeler and the action researchers that ideally should include all “stakeholders” as the authors call them.

Concluding remarks on health services: lessons

Our action research in health services has not covered teaching in the medical sciences for future physicians but rather innovations in the nursing professions and other health agents. There are however educational reforms in some universities in Quebec making case studies an important pedagogical step in the curriculum and considering complexities of case studies when favoring a bottom up pedagogy claiming or discovering theories to enlighten a situation or finding the insufficiency of present knowledge to solve a complex human case. Nevertheless, many action research experiences have been developed, searching co-operation or wider participation in different health services with agents who grant patients an ever more important first-hand role in their health betterment, for example in social inclusion. Prevention of disease with the philosophy of responsibility has emerged in the literature.

1. Prevention of treatments through actors becoming researchers

Nurses become researchers in program evaluation (Laperrière) on prevention of HIV in Brazil in the front line through action research and bring light to embedded knowledge linked with scientific research. A PAR completes the latter HIV with Thailand (Fongkaew) teenagers and parents in 10 schools helping youth in social roles to prevent the disease. Adding cooperation of adults (Mallick) not known to youth and communicating with them brings success with an education program facing drugs.

2. Extending prevention of mistreatment through a global vision

Prevention of mistreatment in Lausanne (Roulet Schwab) suggests avoidance or prevention of worsening risk situations through reflection, search for solutions with professionals and consideration of steps for a global vision due to the complexities of the phenomenon.

More extensively in six Canadian provinces, PAR unites them in the prevention of heart sicknesses implying researchers, practitioners and communities (Haalboom). In prevention, research based on action serves well the three functions of a university: service, education and research (Rajaram).

3. Strategies for action research

Six strategies are suggested (Campbell) for VIH problems:

1. Sharing knowledge that helps critical thinking.
2. Creating social spaces for critical thinking dialogues.
3. Promoting a community sharing of responsibilities toward the problem and acting for solutions.
4. Leaning on local resources and strengths.
5. Mobilizing formal and informal networks.
6. Building partnership with communities and external powers from local, national and international agencies.

4. Participation and reflection are not conceivable without action by communities and persons

If participation requiring action and full participation is difficult to achieve (Sale), the community has a role in realizing a project after an evaluation (Blanjee) is done. A nurse's program for motivating patients towards their health responsibilities can be extended to achieve social inclusion. A community (Milner and Kelly) supports effecting transformation from work towards inclusive communities for disabled persons. Another community service in South Africa helps students in occupational therapy, applying a program of experiential learning and diverse kinds of reflection when developing their skills to learn through experience (Du Toit and Wilkinson). However, this field study does not permit action research cycles to be emancipatory because of the power structure. A need for follow-up studies is acknowledged.

To have fostered patients to take care of their health implies that nursing practice is modified (Robinson) like initiating them to motivation techniques promoting patients to take care of fighting their chronic pulmonary obstruction, promoting their welfare and eventually inclusion for those eager to go further in improvement.

5. Co-production and PAR foster health preoccupation

Co-production can be a method of co-operation and an ongoing action research to include all persons as important stakeholders in a health preoccupation like community aged persons with complex health difficulties. To start with the most concerned people to build a model does not necessarily engage all the groups of actors who are preoccupied by their influence like political ones or authoritarian dominance in society (Ottman). Process and Lessons can be inspiring for action researchers who can adjust phases in the development operations and lessons in a community project.

6. Participation must be open to a contextual or systems approach

Professional trust by patients, though linked to competency as an essential professional trait, (Hupcey and Miller) is also linked to interpersonal qualities; however, the loss of trust due to competency problems makes confidence difficult to reconstruct. This may be clarified (Trop et al.) when studying a more radical contextual approach with “perceived experiential patterns” and “attractive states” letting solutions and more activities emerge. Action research can bring a corpus of practical knowledge, like a lighter system of information on health (Brass), suggesting to developed countries to learn from emerging ones, and showing that “small is beautiful” (Schumacher).

An example of a corpus of knowledge is the Caledonia University of Glasgow best practice statements (BPS) (Tolson, Booth) appearing rich in descriptive lessons if it does not envision experimental science or statistical test (Lewis and Wilson) in an absolute way. The same remark is applied to special education rich in practical knowledge (McDuffy and Scruggs).

7. Action research for the diffusion of knowledge

If one requires investigation and innovation, action research (Waterman) is the best method for diffusing innovation with a high level of adjustment for adoption. An EEM process (Downey et al.) is not necessarily systemic enough when splitting dialogue and deliberation because it becomes too systematic and overlooks its complexity. However, EEM would be excellent for clarity in an oral presentation. The essential consideration remains leaving to communities the responsibilities of their destinies as actors of change, free to decide and deliberate on decisions.

8. Combining computer simulation and action research for healthcare

The lesson in a Netherlands' hospital (Rosmulder) is that simulation is an instrument to foster discussion and helps to locate opponent arguments to action research necessitating cooperation of all concerned persons in an emergency department of a university hospital receiving 32,000 persons a year. This successful experiment helps placing the major consideration on what is important to the patient, i.e. diminishing the time consumed by the patient to be cared for, rather than prioritizing prestige for the medical profession itself. Finally, to work with a systematic chart process and action research shows efficiency even when taking time in repeated applications to change mentalities.

2.4 Management Sciences

In management sciences, action research is widely used when administrating funds to satisfy customers and adjusting service to community needs and analyzing the dynamism of management networks. It stimulates dialogue, participation, and cooperation in the development of human and social qualities when there is support from management to achieve action research programs based on participation of the people responsible in one way or another for the success of an enterprise devoted to human development and welfare.

Action research in the working-out of a management system

In the distribution of funds intended to children with difficulties, Murchland and Wake-Dyster (2006) undertook action research to draw a model for the distribution of funds in podiatry services namely physiotherapy, psychology and language pathology. Action research is then considered a structured framework stimulating dialogue during the 18 months' period necessary to construct a statistical data base grid to the satisfaction of these professionals.

Action research can be recognized as a process of management in a pluralistic approach as Mischen and Sinclair (2009) suggest in the implementation of discoveries for a more democratic process. It requires the customers' consent to develop democratic values when applying innovations.

One interesting example of an administrative exchange network for instructional materials and learning tools appears to be the Terradata University Network (TUN) as reported by Winter et al. (2008). It explains a service provider for the "state-of-the art commercial software" describing an actual course on management information systems taught by the authors. TUN is very encouraged by their results for adoption and feedback (p. 113). The network intends to be a data base source aiming at sharing ideas, experiences and resources with the international community and suggests linking theory and practice. Action research is implied rather than explained through participation either in the students' evaluations or in the cooperation of personnel from universities or enterprises. It can inspire exchanges through Internet in teaching or in businesses that would construct databases to build practical principles for field researchers in participatory (integral) action research systems modeling or in other complementary research methods.

Pesamaa and Hair (2007) examine two tourist networks out of fifteen successful ones modeled from a theoretical construct and explicating the human values underlying six variables influencing cooperative relations and strategic development. After surveying 254 members from small and medium-sized enterprises, they discovered that "a long-term orientation has a positive effect on friendship, loyalty, trust and commitment. Friendship is related to loyalty and commitment, loyalty is related to trust. Ultimately, trust and commitment engender successful cooperation" (p.

615); cooperative participation could be an asset in modeling strategic hierarchical development. This research is an example of complementary inputs from an intelligent use of qualitative and quantitative research methods.

One could add to the above factors that Smith (2009) hypothesized that if institutions are stable and well governed, relevant behaviors and abilities of public administrators will facilitate citizens' cooperation. This quantitative empirical research provides guidelines but does not investigate ways to simulate participation or to understand its meaning. From other sources we learn that development of cooperative behaviors cannot easily grow during political unrest or war. Taveira (2008) in another context, one of teamwork, acknowledges that management support is necessary for cooperation or participation in a team; members should be competent or educated for involvement and negotiation in the limits of the mission to be accomplished. With reference to the literature on the subject, he pinpoints that an animator must have leadership to motivate team workers. If we apply these reflections to action research where negotiation and dialogue are essential, one cannot declare himself a researcher but could become one through practice training and good coaching.

Ethical issues in the role duality of insider action research

Role duality (Holian and Coghlan, 2013) occurs when a member of an organization undertakes an explicit action research role in a project in addition to his or her functional role in an organization; the researcher then is not an outsider, but lives a role duality, one of authority and one of action researcher. It is also a challenge for action research degree programs if the insider is working on a master or PHD. Literature on this topic has not been abundant, it is true, but rather implicit and one probably could take for granted that during the phase of an entente with a group,

that question, if not openly discussed, is normally understood by actors becoming researchers. Holian and Coghlan explain at greater length the problematic which puts limits to an action research discussion within the aims of a well-structured organization: tension between closeness or distance, the role duality, and the politics of organizational managing (p. 400). These problems ought to be discussed in what we called (in Chapter 1) the “contract or entente” part, not only at the beginning of the research process but also during the research including the nuances to bring forth in the published report. The latter affirmation occurs when they conclude that: “There is no simple, one-size-fits all solution to the issues raised in this paper. The way forward in dealing with these challenges is found in the action research process itself” where “ethical questions are not extraneous but integral to the process of insider action research” (p. 413). For academic supervision, the insider action researcher may raise problems of objectivity that might cause harm, the issue of protecting the reputation of the Institution and obviously actions that could hurt any researcher or co-researchers (p. 411). Nevertheless, Holian and Coghlan based on experience affirm that: “Role duality, and role conflict can have an impact on the researcher, personally and professionally, in both positive and negative ways, and this can too easily be overlooked” (p. 413). They therefore oblige the insider action researcher to inquire intelligently, to make judgements that are reasonable and to be responsible in making decisions and taking actions (p. 415).

The distinction between an external researcher who acts as a specialist and an action researcher is that the specialist does not become an action researcher if he is not engaged in the process of change and participation required by action research. We define an integral action research as a participatory one. The distinction between insider and outsider is interesting in an organization or management situa-

tion, but as such a real action researcher in IAR is an insider adopting a role in a group sharing his talents to find solutions during the tasks to be accomplished. Inspired by Galuppo et al. (2011), he is part of a “we” and should respect the sources of power or leadership such as the bureaucratic, technocratic, charismatic, strategically with ability, fostering cooperative leadership (p. 148). He is an insider espousing and respecting the dissymmetry in participating to types of authority and knowledge of actors ready to share or cooperate in the phases of action research (p. 149-150) in a collective situational action. He helps bringing a “we” in the group’s decision aiming at a consensus if necessary after action-reflection loops. He searches for nuances in strategies thus refining and coming to a well thought out action. The action researcher if he comes from outside, becomes an insider and is invited to help a group transform dissymmetric competencies to functional specific forces and discover new ways of reflection and action that could bring significant changes in operations of an enterprise. These theories are illustrated by the authors with two cases of action research: 1: To support the inter-generation transition in family business, and 2: To promote life sustainability at work in a Health and Social Service Organization.

PAR or IAR as a method for transforming consumers’ investigation

Concerning action research, Ozanne and Saatcioglu (2008) write about participatory action research (PAR) as a methodology questioning the research process paradigm and its developed theories. In their explanation, PAR helps researchers to implement non-traditional methods for transforming investigation on consumers’ goods when examining obstacles and advantages. In the same way, Ataov (2008) began with a Turkey project aiming answers for people’s needs in Kocaeli and introducing PAR as a means of co-generating processes with due respect to a democrat-

ic philosophy in urban city-wide decisions. In his exposé, action research introduced research, theory and action; it is open to management for change in its participatory process, promoting a democratic dialogue during a structural transformation. To fulfill a lack of informative procedures, Atoav develops a five-step model in relation to: 1) the context, 2) the research strategy, 3) the principles, 4) the results and 5) the lessons from the field.

Incorporating forms of dialogue for critical reflection aiming change

It might be helpful to remember that in systems modeling, actors are free to construct a model of their choice; they are constructivists, but with dialogue incorporated in the design, they expose their point of view for discussions and nuances. Considering premises for decisions that may appear too superficial or incomplete for change, Skordoulis and Dawson (2007) from the United Kingdom propose the Socratic dialogue destined to a lengthy critical reflection, especially in complex processes. They present a practical instrument for participation in a concentric circle in which the core or heart is reflective change (p. 991 and p. 1001). In a report, Kakabadse et al. (2011) develop deliberative inquiry through sensitive dialogue to bring about organizational change in children services in a London borough. It is a Socratic mode of inquiry with penetrative questioning, *elenchus* and finding knowledge in working through confusion, *aporia*. This process “facilitates individuals to speak their concerns” and “prompts ‘consensually accepted beliefs’” (p. 67); thus, attention is paid to the motivation of participants and needed contextual demands.

Emerging creativity in enterprise from participatory methods.

If one looks at creativity in entrepreneurship, Collins, Smith and Hannon (2007) from the United Kingdom demonstrate how salesmen might have utilized industrial

participatory methods to make each one and all actors or workers co-learners in an environment characterized by peer teaching and learning. They suggest an ‘andragogy’ or adult learning action research in which all participants as actors would become researchers without questioning if they were beginners (16), professional contractors (6) or facilitators (11). Action research would intend not primarily to solve a problem, but to discover new avenues to make possible this creative adventure linked to personal profile, life experience and practice. In the same creative breath, some organizations according to Lushcher, Lewis and Ingram (2006, p. 491) plan to utilize paradoxes, common food in organizational complexity and in ambiguity caused by change. The authors also develop a frame of reference on most frequent paradoxes appearing in communication. It is illustrated with an action research produced at Lego. This exploration of the paradox creates reflective cycles opened to new possibilities especially if more time is allotted to a better understanding of complexity. Fletcher et al. (2010) on the other hand suggest a meta-action research on leadership development program i.e. theorization of reflections, processes, and methods conducting to the highest level of abstraction (p. 491). The aim is to “transform understandings of ways to improve professional practice in future applications.” It is intended “to help leaders design their team projects on poverty reduction through action research methods in six African countries” (p. 487). One could think that it is another way to express what Desroche notes on “permanent education” in his program based on the philosophy of action research explained in Part 1 on action research in education.

Taking into account regional tradition toward ingredients for success

Strand and Skogseid (2013) insist on taking into account the regional tradition when introducing new collaboration patterns. The project consists of “carrying out an action

research (AR) based on the Norwegian Model for work life” (p. 54). The authors explore two employees’ collaboration companies with the same owners, out of 18 others in development projects; one that succeeds in implementing direct managerial-employee participation and the other which fails in great part. They ask themselves if the Norwegian work life model of cooperation is good for all? The authors consider the importance of taking into account the regional traditions when seeking for collaboration between managers, union and employees in a company. The results are that one succeeds because of having traditions of owners, managers, and collaboration of unions and employees. The other does not have that tradition. Suggestions are made on creating an environment for broad collaboration for those with no cooperation tradition.

The ingredients for success are: informality, that is quality restraint, flat hierarchies, consensual participation for successful industry, a tradition of reasonable and quiet persuasion rather than charismatic dominance and aptitude to focus on customers to coordinate mechanisms across hierarchies. The union is a shop steward. These features may be called a path dependency tradition that will be explained in a systems approach when considering the concept of “change”. An unsuccessful case for change shows reaction patterns resistance, a BOHICA or come again, a passive loyalty but may accept however a constructive change implementation. This last cultural pattern seems to be inherited from a French tradition model dividing the work force as perceived into two classes, the workers (we) and the management (them).

Concluding remarks on action research in management: lessons

Action researches in reviews on management do not appear as an independent method but more or less as the distribution of funds, for spreading knowledge, developing loyalty,

trust or hierarchical development. It is rather implied when cooperation is needed like adapting practitioners to community expectations. However, it suggests actors as researchers regardless of their ranks or calling for a Socratic dialogue in an Australian experiment. In the 'chaordic' systems approach, it is however taken for granted because participation might appear as essential.

1. Working-out management systems through participatory processes

In distributing funds (Murschland) and implementing innovative discoveries (Michen), action research helps the working out of a model for stimulating dialogue or a more democratic process. The Terradata Network (Winter) illustrates a service provider of data basis seeking participation in exchanges with students' evaluation or in universities and enterprises, thus insinuating action research or a modeling system. Cooperative relations, influenced by friendship, relate to loyalty and commitment to trust (Pesamaa). While stable institutions and abilities of administrators facilitate cooperation from citizens (Smith), it is also learned that support from management is necessary to team cooperation (Taveira), and being a researcher needs training and good coaching.

In brief, cooperation depends on qualities stimulating democratic managers essentially preoccupied by dialogue and research through participation.

2. Ethical issues in the role duality of insider action research

The role reality of an action researcher in an organization when using PAR is a challenge to participants especially when for a researcher writing a dissertation (Holian) because he or she is not seen as an outsider (Galuppi); consequently, it may engender functional dissymmetry. The re-

searcher should manage a distribution of types of authority and sharing of knowledge. The researcher role could be to distribute authorities according to new ways of knowing, acting, working together in dissymmetry and discuss roles in a continuous entente.

3. PAR or IAR as a method for transforming investigation of consumers

PAR transforms the research process paradigm (Ozanne) engendering new theories open to non-traditional methods for research on consumers' goods and tries to answer people's needs (Ataov) with respect to a democratic philosophy expressed in a five-step model: context, strategy, principles, results and lessons.

4. PAR or IAR forms of dialogue for critical reflection for change

Premises for decision-making may be advantageously replaced by a Socratic dialogue destined to a lengthy critical reflection namely in complex processes (Skoudoulis). A concentric circle could be the heart of the reflective change. Sensitive dialogue is the Socratic and Deliberative Inquiry methods aiming at organizational change in children services.

5. Creativity emerging in enterprise from participation

Participatory methods help creativity in entrepreneurship (Collins) showing all actors or workers as co-learners in which all participants become actors suggesting andragogy or adult learning through action research without questioning their social rank. PAR or IAR is meant to be a creative adventure like the utilization of paradoxes (Lushcher). Others suggest a meta-action research on leadership (Fletcher); another way of expressing what Desroche sustains on the spirit of "permanent education" as a scientific reflection on practice being the inspiring source of a re-

newed future involvement in social responsibilities.

6. Cultural cooperation tradition as a work life model for all

It seems clear that a company with a cooperative background in its culture is more prone to develop better participatory alliances than one with another tradition like managerial-employee participation (Strand). The success contributors appear to be informality, flat hierarchies, consensual participation to industry success and a tradition of reasonable persuasion to coordinate mechanisms across hierarchies.

The features may be called a path dependency tradition while the other is BOHICA, come again as a pattern of resistance.

The next chapters consider the different theories concerning the systems approach literature open to integral action research. They will retain major authors, applications and principles that can be associated to the characteristic of Integral Action Research to form a systemic approach model venture.

Chapter 3 – Systems Approach Modeling

This chapter is an essay exploring theory and practice on systemic approach modeling and explaining its epistemology open to a link with Integral or participatory Action Research methods intending to answer the human complexity defined through the research done on systems approach modeling. Explorations done by PhD or master's degree students will try to show its necessity from diverse methods, ethnographic, anthropo-pedagogical, action researches and systemic ones.

Human complexity

Inspired mainly by writers and researchers like Barbier, Desroche, Dubost, Kemmis, we have developed an integral action research theory called IAR (Morin A. 1986, 1992) grounded in multiple case studies. It was designed for educational, social, health and administration actors so that they could negotiate, participate and reflect on their actions to achieve transformative change. Parallel to this study, a preoccupation with a more global understanding of reality has stimulated us to consider the enrichment of our IAR model with systems thinking in an effort to deal with greater complexity. Authors like Von Bertalanffy, Le Moigne, Edgar Morin, De Rosnay, Lerbet, Varela, Lazlo, Prigogine and Stengers, Avenier et al. have provided some of the high marks of our reflections. More recently, we have written manuals (Morin, A. 2004, 2010), one in Portuguese and one in French including the dimension of systemic approach modeling.

Human complexity of reality (E. Morin, 1994) is the name of the game when considering *systems approach* as a tentative consideration for issues in human sciences and practice like education, social services, health services and administration. In the 70s we studied how to evaluate an open systems model in pedagogy developed by Fotinas (1976) and based on Von Bertalanffy's *General Systems Theory* (1968) and the development of the person inspired by Carl Rogers (1975). The course was intended for future technologists and teachers pre-occupied by media education. With the GÉSOÉ⁷ members, we tried to help evaluate the model process and its results using an appropriate 'anthropopedagogical' approach. We found later that action research, an inductive way of investigation linked with empirical experience, could be reconciled with a rationalistic, analytical, or systemic way of seeing reality as exemplified by an open systems approach educational learning model (Morin A., 1979).

In the early 80's, we asked one student to do some research on reconciliation of systemic modeling with action research, but the effort resulted in an avenue to be studied later. Systems model was not new since a systemic design approach was developed by Professor Finn, founder of the Instructional technology department at USC for the school of Education where I completed my doctorate in the 70's. It was however a view that expanded an experimental method responding to an engineering type of development. The whole vision was enlarged with precautions loops added from one step

⁷ GÉSOÉ for Groupe d'études sur les systèmes ouverts en éducation or Study group on open systems in education.

to the other but in a systematized way not concerned totally with complexities and wholeness, but more for precise instructional targets.

A new pedagogic approach in workshops done in 1970-72 with young black couples in the neighborhood of the USC University made me conscious of the complexity of the endeavor. But at that time, it appeared impossible to adopt this fieldwork as a dissertation topic. The process would last for years, I was told. Teaching on my return at a University level working on open pedagogy left me with no other choice than calling on qualitative research and anthropological tools not often utilized in education but relevant when considering the evaluation in an open mode of instruction. We designed and published (Morin, 1979) an ‘anthropopedagogical’ survey research granted for three years.

In the meantime, I had received subsidies to investigate action researches in education. Participant observation had to be better understood if it could be associated to forms of action research. The question was to find out if action research could be called applied anthropology. I decided to investigate first in universities in the United States. An article by Magoon (1977) on constructivism stimulated me to study the relation between sense and meaning of cultural anthropology and find if it could lead to the study of action research and discover its laws, processes and limits. Professor Magoon from Delaware accepted to guide me on that issue and suggested that I follow a course given by John Ogbu (from Berkeley U.) invited to give a course on cultural anthropology in Fall 1980. Later Ogbu asked me to be the field respondent for his student coming to Montreal, Quebec to investigate social change and

schooling. The anthropological study of L. Kahn (1985) was a worthwhile dissertation when I evaluated it as member of the jury (1985). Ethnography and participatory approach served well her anthropological research.

After reflections on the qualitative results, we thought that we might have been better using a more participatory action research or PAR approach. In the early 1980s, we explored different types of action researches starting with Kurt Lewin's experimentation.

At the same time, we were exploring a systems approach reinforced with a three days' workshop with Checkland at the University of Rimouski in 1983 using soft systems methodology (SSM). He was introducing the spirit of concepts from action research reflecting in a way his chemical engineering education.

3.1 Field studies and exploration of the systems approach

Considering samples from some major theories, it became stimulating to explore research designs of PhD and Master researchers in ethnography, action researches and systems approaches. Also retaining that worthwhile researches like Pineau's findings with narrative researches on life stories help to see the complexity of research in humanities. A systems approach model grew from our reflections on the real world using the concept of communicative action taken from Habermas (1987, Tome 1) despite his hesitation about systems theory.

Exploring theory or complex concepts

Amed Meftouf (1984) in his PhD research studies the cultural cognitive value of fiction film to illustrate the complexity of the term "culture" differing

from one film to another. The author calls upon a *conceptual systems* tool to show interactive components without the deconstruction of concepts as done in analytical methods. He argues that the cognitive cultural value is composed of esthetical, didactic and ethical components. If one respects the complexity of fiction film in education, one should look upon it as an informative, narrative and cultural system dimension to appreciate its educational and virtual components. The process indicating possible relationships between dependent complex objects cannot as one may think avoid all analytical explanation as sustained by the author quoting Le Moigne's (1984) expression in the act of conception or modeling. Analytical explanations of concepts are necessarily dependent on the intimate essence of words, or on the clarity of concepts expressed with the Cartesian paradigm. Both approaches are complementary as shown by De Rosnay (1975 p. 108). Is there really another way to distinguish interrelation concepts from essential ones when defining an object or a personal interaction? Nevertheless, Meftouf's process of modeling systems and expressing relationships remains valid because responding to complexities of interrelationships between points of view in a search for cognitive cultural values of a fictional film. References to a plurality of methods may complete if necessary this adequate approach in the process of modeling when studying interactive relationships between esthetical, artistic and ethical points of view of a fiction film if one wants to evaluate in education this interesting breakthrough.

Frank McMahon (1986) using an ethnographic methodology in his dissertation for his PH. D. in a High School in Cornwall Ontario tried to find out

how a French High School may help adolescents to learn and keep their French language to express themselves fluently since French was their native original culture. He showed that this endeavor was complex and difficult to achieve. The researcher continued an influential work for French language people in Alberta with social groups and claimed that action research has to be the name of the game for consciousness (or conscientization according to Freire) and participation in schools and social activities.

Another PH student **Lucie Gélneau (2001)** did try an action research device founded on the theory of Integral Action Research (Morin, 1992) after finding out that PAR in countries like Costa Rica and other similar ones had great needs but were not ready for an in-depth research on a Freire's approach to conscientisation. The author decided instead to start with animators guiding students in a cooperative action in demanding countries of Central America. In this venture, she adopted the methodology explained briefly in the present Chapter One referring to Morin A (1992). The experience turned out to be positive preparing educators to help the student openness to other cultures when helping in specific areas in assigned country. This research shows indirectly the concept of frontiers so important in a systemic view even if it is not explained in those terms.

A research specifically on systems approach in education done by **Pierre Gosselin** for his PhD. dissertation (1991, 1994) reflects clarity and deep reflection on systemic modeling. The researcher aims to be able to understand the dynamics of a student self-projection in a visual arts course at the secondary

level. He uses stimulation regarding the student's creativity and self-confidence. Referring to systemic approaches like Boulding, Laszlo, de Rosnay and Durand, Gosselin retains however the three dimensions of Le Moigne (1977), structural, functional and evolving in an attempt for modeling. He, however, privileges the functional one that takes more time and effort while keeping interaction with the other two dimensions. In fact, the functional one appears more appropriate for understanding the development of visual arts expertise at a secondary school level. To understand the teaching functionalities and its complexities, he developed a protocol that required 150 meetings spread over six years of writing observations, followed by discussion with the dissertation director (Potvin G. 1994). The result helped him to pinpoint complex educator interventions when animating workshops in teaching and facilitating the development of pupil creation in visual arts. The resulting model illustrates a scheme of reference in educational practice influencing the modeling person in his practice with students or in continued education for teachers. The author presents his results as a geographic map of a successful experience of arts teaching that may suggest general ways of helping a learner to actualize his talents. Educational practices may also inspire teacher-facilitators in other disciplines to give more attention to a student as a person through external symbolizations.

Exploring live stories and narrative research

G. Pineau (1980, 2004) in connection with our group and influencing us summarizes forty years of research starting with the foundation of university Educational Sciences Faculties in 1967 and 1971 in France. Later he became an orientation guide for

adults in Nancy, then a researcher at Montreal University in a service labeled “Éducation permanente” where he explored R.G. Havelock’s 1973 systems reference applying it to a lifelong education service or faculty. In the 80s as a university professor and researcher in Tours (France), he expanded his research results to adult education in a variety of professional fields. He considered that paradigmatic epistemological modeling shows that the systems approach and action research express a social and interactive methodology essentially conjunctive and not disjunctive. From there, new researches emerged such as life stories, integrating them in continued or permanent education. As an expert in *life stories*, Pineau argues that education should be a personal anthropologic exercise logically stimulated in continued educational studies. His theory emerges from practice and completes what Desroche names “reasoned autobiography” for each candidate in his cooperative college. Pineau extended the practical experience in space and time of the day showing that this process is a guide for human beings willing to understand their day and night life for example and accept to work on narration beyond institutions toward a lifelong reflection through their life span. He has published recently a book on the importance of dead persons’ influence on people life stories. His reflections permeated in many of the following researches where the GÉSOÉ was implied.

Monique Dugal (1993, 2004) applied a systems approach to model efficient interactive educational media integration with elementary school teachers for her PhD dissertation. She explores and narrates her intellectual life story through an insight reflection from Barthes, “La chambre blanche” (1980)

explaining the “punctum” or the disturbing effect that photography may have on someone, stimulating insight or thoughtful thinking. Applying this intuition to her own apprenticeship, Dugal recommended this process theory of a “*punctum*” to her student teachers preparing media production for their learning media communication with children. Pedagogy becomes a work of art, which should be felt by each teacher and each student, moving or opening their mind to a learning path, rich in stimulating motivations. This practice normally produces a catharsis occurring often in a group discussion producing an emergent “*punctum*” point that is transmitted to the “*studium*” making a subject matter more significant. This transforming technique in a learning project requires efforts to communicate the illuminating events or “punctums” that stimulate attention of learners and help them passing from a “*punctum*” rich media to a “*studium*” worth acquiring. It becomes a challenge in pedagogical projects for active learners as confirmed through reflections from schoolteachers. This technique was also utilized with success seven times in our own research methods teaching at the Faculty of Education where groups or individuals were encouraged to remember “punctum” communicated by their teachers when studying and making their learning an event to remember. Together they were asked to produce a systemic model project introducing “punctum” and “studium” concerning their own teaching or according to their own preoccupation for a better school.

Luc Renaud (2000, 2001, 2004), referring to Pineau and partly to Dugal (1993) created a model of educational communication in a pedagogical informational environment (EPC) to help stimulate the passage of *emigration* to *immigration* for new-

comers learning French, the official language in Quebec. Based on life stories and searching for insights (through significant events) in his own learning life that opens to others, Renaud invents for his master's degree thesis an ontological, historical and functional systems model for teaching the COFI⁸ *emigrants* extending in interpersonal relationships while integrating technology in French language communication. The results help *emigrants* acquire cross-cultural, human and citizenship behaviors implying themselves and others in an open new cultural environment. They realize in a way their *immigration* in their new country when learning to express themselves in French with other immigrants using Internet devices.

Jo Ann Levesque (1999, 2001, 2004) elaborated her PhD dissertation on an education systems model to stimulate the development of critical thinking judgment in a university course for students in social work facing intercultural realities due to a large proportion of emigrants or immigrants people in the Ottawa valley. The reflection over the course *Interactive realities and social intervention* helped her experiment with a formal anthropopedagogical participant observation research in an open living systems teaching model during the sixth-year development. The live structure revives Ausubel's Advance Organizers Model of teaching and the Jurisprudencial Inquiry Model of Oliver and Shaver (in Joyce B. et al. 1992) for the transmission of information. The course design was enriched and deepened by other essential key points, the educa-

⁸ COFI « Centre d'orientation de formation d'intégration des immigrants ». These centers were replaced on July 2000 by « Carrefours d'intégration linguistique » or CIF.

tional conversation in small groups and by a third axis called pivotal exercises requiring written reflections on a regular basis to deepen and structure their critical thinking. The three axes were interwoven and presented in each momentum of the course. The same model was applied later more informally at McGill University with professors preparing worthwhile research projects where educational conversation took space and time for writing research designs in social studies.

Exploring different roles: professor, engineer and theorist

Ian Rosca (1999) allowed me to have one of the most important and creative experiences in my career when I coached his doctoral dissertation aimed at designing a pedagogical systems modeling in the definition of *explanation* for teaching instruction. He employs throughout his writings a personal narrative tool, a magnifying glass called an “introscope” or “insight introspection” to describe his points of view in “teaching, engineering, and theorizing” (systems). His efforts are meant to develop a systems vision of the *pedagogical process of explanation* regretfully finding traditional limitations when the *theorist* (himself)⁹ cannot help the *engineer* (himself) to become a scientific *pedagogue* (himself) in his conclusions due to the limits of experimental sciences.

⁹ This introspection makes “himself” another entity in this narrative research.

The research is structured in three important parts under five headings:

Pole	Method	Angle	Mechanism	Hypothesis
A) Professor ¹⁰	ethnography	introspection	superimposition	initiation
B) Engineer	development	microscope	discursive cascade	study
C) Theorist	systemic	macroscopic	guided exploration	reference

The **first** dimension, the **professor**¹⁰ or educator considers that the intimate character of explanation is not well fed through collective teaching that makes almost impossible an act of retroaction on the part of the learner; it seems to force acceptance of knowledge without screening. The insufficient character of *explanation* together with loneliness suggest that it is tempting to replace the teacher by a triangle, “expert-computer-novice (learner)” (Rosca, p. 2).

Comparing pedagogy of *explanation* to “un pas de deux”, Rosca sympathizes with those obliged to collective teaching methods that lack retroaction. He is convinced that exchanges between a master and a novice remain essential to achieve thorough learning. Good explanation requires deep comprehension, thoughtful refinement. He regrets the extension of consuming knowledge without deepness in understanding or worse with an education imposed through violence and strength.

Consciously writing as an engineer with a passion to construct optimal functional systems with computer technology and considering himself in the beginning as mastering the art of *explanation*, he finally perceives his “self” more likely as an interface facilitating communication of expert-novice

¹⁰ Or educationalist, teaching specialist, pedagogue.

until the coming or the invention of a microscopic theory on *explanation*. Facing complexities of problems impossible to resolve, he is resigned to accept “bricolage” or the do-it-yourself job, intuitive decisions, and concentration of efforts on authoring tools. For him, if *explanation* in education is accepted, it is because of the relation between the novice and his master bringing the key to a better *explanation*. The tendency to replace the teacher by a computer should preserve the triangle of expert-computer-novice (learner).

The **second** dimension, the **engineer** should be seen as a man with a passion for building tools and making systems work optimally. The narration brings the semantic-semiology theory that helps the construction of educational software to combine in one system, synchronic and a-synchronic assistances. The engineer finally decides to construct authoring devices.

The engineer studies on-line and in-line tools, finally opting for computer as an interface of communication between the novice and the expert when referring to a detailed description of his experiences. He discovers the limits of the computer because there is no microscopic theory of *explanation*. The computer appears as a facilitating interface in communication between expert and novice. This instrumental synthesis describes the virtual instrument and nourishes a desire that behavioral specifications could one day sustain an efficient design.

The **third** dimension deals with the **theorist** who refers to the philosophical and epistemological tendencies of the author that has been initiated a long time ago to systems and “wholes” theories for modeling *explanation*. Consequently, it appears

extremely complex to mix the body and the mind, like a pendulum between exactitude and ineffability, a confused problematic situation open to multiple disciplines expressed in multiple languages.

To mix observations and descriptions to reflect unity becomes an uncontrolled ambition of multidisciplinary sciences. It is a map concerned with perplexity to organize the observation space letting emerge questions and hoping for inspiration towards a unitary and global theory of *explanation*. A map of perplexity is draught to organize the space for observations and emergent questions keeping in mind his preoccupation for a unitary and global theory of *explanation*.

The trajectory is imbued by a systemic and osmotic vision of existence, a fascination for consonance and interaction, an acute perception of the temporal dimensions of things and concepts, a dialectical vision on the relation between structure and process and an epistemological prudent position accepting the value of descriptive *explanation* besides the justification ones.

The author concludes that the treatment appropriate to the *dynamic complexity of explanation* commands rigor and intuition, precision and ambiguity, planning and inspiration, deduction and observation. It is possible that it could never be reduced to a simplistic theory of science despite efforts of some theorists.

What makes this dissertation important is the effort to demonstrate the differences between systemic persons searching to find a biological or better an organic explanation of systems modeling (Rosca hoping for it; Le Moigne, et al.) in the human com-

prehension system and others (Morin A., Lerbet, Flood, et al.) who do not perceive it as a monolithic possibility. The first group seems to refuse to talk about approaches while the second accepts it recognizing the dependence on a voluntary choice of systems methods to grasp complexities of educational fields because systems are being seen as open and not easily predictable. The second group claims a new paradigm in systems sciences that helps comprehension of reality as best as possible to help changing it or making it better if necessary through other methods like participatory action research or narrative research. In effect, it pinpoints other dimensions to be explored. Are action researches or narrative ones or others a complimentary addition to systems methodology or are they inscribed in the theory of systems? For our part (Morin A., Cardinal P. 1994) it does not seem important for the organic view of systems (Rosca) to come one day to engineering precision and mathematical algorithms. Nevertheless, the narrative research of Rosca demonstrates that there is an obvious dilemma or a no exit one when reducing systems to engineering or arithmetical deductions to explain an open systems education inspired by von Bertalanffy for example, or educational practice derived from Carl Rogers' freedom of the person. Nevertheless, Rosca's dissertation appears as a fundamental research on *explanation* using the theory of systems and finding its actual limitations. It shows also the power of narrative research in systems approaches. It also demonstrates in our view that for the time being it is better to accept the paradigm dialog between research methods as reflected by Guba's book (1990) particularly in Part III, The Need for Dialog accommodation chapter 6, 7 and 8.

Lessons from the modeling field experiences

Different levels of complexity are taken into account in all the modeling research designs shown in the first part and could be seen as systems modeling applying either to a social system or to a systemic thinking point of view.

Systems modeling for cultural learning in fiction film

Meftouf (1984) calls for a **conceptual complex systems** to illustrate the complexity of the term culture in fiction film and refers to cognitive interactive components as esthetical, didactic and ethical. He studies their informative, narrative and cultural interactions responding to Le Moigne's genetic, ontological and functional poles of a systemic design as his research object. A plurality of methods for intelligence and planning might be suggested to respond to the enrichment with complementary research paradigms.

Modeling for creativity in visual art education in schools

Understanding and stimulating dynamic self-projection in visual arts education at the secondary level, **Gosselin** (1991) turns also to Le Moigne's structural, functional and evolving poles privileged the functional one to pinpoint its complexities. Demanding worthwhile observations and multiple discussions, a geographic map emerges furnishing indicative ways for a learner to actualize his or her artistic talents. The model could help a teacher-facilitator in an open learning model of education and might inspire other learning models attentive to encourage talents. The reader may see it

as an approach even if this characteristic is not mentionned too explicitly.

Exploring live stories and narration for systems modeling

Pineau (1973) extending life story to adult education is an inspiration to suggest a *narrative style approach* apparently well suited to develop systemic modeling in education. Two dissertations and one thesis resulted from this educational theory and practical standpoints.

Dugal (1993) adds to life story a personal “punctum” or a disturbing positive effect stimulating insights and thoughtful thinking. She uses the process on her own learning experience to develop a model of teaching film or media production to elementary school teachers. In the model, the punctum becomes a catharsis transformed in a “studium” or a significant stimulating subject matter for the learner. This technique was validated seven times by us in a course on research methods in education at the master’s degree with the help of assistants.

Renaud (2000), referring to Pineau and Dugal, creates a model for educational communication in a pedagogical environment intended to acquire a deeper understanding grasp for the French language learners. The purpose is symbolically helping the *emigrants* (or *migrants* we may suggest) to accomplish a conscious passage to *immigration*. From reflections on his learning apprenticeship opening to others grows a systemic model of teaching with ontological, historical and functional systems variables encouraging learners to experiment Internet devices when communicating with others.

A model for critical thinking judgment with educational conversation

Lévesque (1999) elaborates a model for the development of critical thinking judgment for social work students when encountering inter cultural realities. Helped by anthropopedagogical methods, she revives two models of teaching with educational conversation and with writing regularly reflections in a personal diary. She later uses the model at McGill University when preparing worthwhile research projects for professors in social studies.

Questioning the scientific approach to systems modeling

Finally, **Rosca (1999)** questions Systems Modeling, *thoroughly* using an “introscope” to describe his points of view as a professor, an engineer and a researcher or theorist when applied to *explanation* as a communicator. He discovers that complexity in explanation demands rigor and intuition, precision and ambiguity, planning and inspiration, deduction and observation, all things making deduction impossible when using a simplistic theory of science. It appears that the monolistic approach does not seem to serve modeling as well as a systems approach more prone to consider the marriage or the mixage with other forms of research methods.

3.2 Exploring significant theories and application

Towards a critical normative theory: Holism

An article by **Ulrich (2006)** treats critical normative theory and one by **Midgley (2008)** explains systemic intervention. **Flood (2010)** keeps a fundamental line of thinking for Systems approach and holism with an explicit vision or relation to action research.

The latter enlightens the principles for openness to integrating together relevant systems modeling and action research developed in chapter 5 and 6.

Keeping in mind that Systems thinking considers totality as essential, it remains necessary to acknowledge that our thinking would never be total when an action is undertaken. Is totality an illusion of the mind aspiring for an endless world? Or are we not constrained to come to a compromise with boundaries in our researches?

Reflecting on functional and relational criteria for the study of the whole, a first school considers emergence and interrelatedness as the fundamental ideas of *systems thinking* because the whole cannot be fully covered in terms of the properties of the constituent parts; it assumes that thinking is about the real social systems that exist in the world. The second school is *systemic thinking* considers the process as a social *construction* of the world through our mind. Flood in his article (2010, p. 270) writes that the latter is more illuminating and prone to an action research project. We think that both views, one on the social system and the other on social construction, should be considered with a realistic view because social systems do exist and can be observed and described while systemic thinking becomes an existing artifact, one among essential methods duly restricted and born from a construction of the mind to penetrate further significations.

A constructivist approach

De Rosnay (1975, p. 108)¹¹ brings a comparison between the analytical approach and the systemic and retains the following definition of a system: “a whole made of components in dynamic interaction organized towards a goal (p. 91).” On the other hand, **Le Moigne** (1977, 1984, p. 43) enlightens systemic modeling through the enunciation of four precepts that became a reference to evaluate systems models in our practice. They are the precept of relevancy, the precept of globalism, the precept of a teleological behavior and the precept of aggregation. In *systems* thinking the totality refers to the **real** social system as they exist, and *systemic* thinking is a **construction** of the mind for investigation making the object becoming a project as explained by Le Moigne, (1984, p. 64). Regretfully, Le Moigne refuses the term approach because for him it recuperates the Cartesian concept of science (op. cit. p. 81). Nevertheless, **Lerbet** (1982, p. 67) writes that the term “approach” remains the best recognizing descriptive term since it is a modest effort to respond to complexity in fields such as education or social sciences. To theorize on systems for making a general and unique theory is developing its proper systemic inertia, adds Lerbet (p. 67) and it is more modest to keep mainly methodological aspects to apprehend an object as a system without achieving the total significations (p. 67). For Le Moigne (op. cit. p. 81), a General System has the task “not to analyze but to model”. Is it not forgetting that analysis is always required as mentioned above in the case of Meftouf’s dissertation?

¹¹ De Rosnay retains this definition in French, p. 91 : « Un système est un ensemble d’éléments en interaction dynamique, organisés en fonction d’un but. »

A plea for critical holism

W. Ulrich (1993, 2006) has elaborated a plea for critical holism, a theory also put forth by Flood (1996) with systemic thinking nuances under the idea of holism and social action. Ulrich's major postulate or assumption is that the quest for comprehensiveness, a necessary epistemology, is a utopia if taken as such. From there Ulrich asks how can "we deal critically with the fact that our knowledge, designs, and action cannot be comprehensive" of all "that ought to be understood before we pass to a judgment and action?" (2006, p. 1). These considerations explain probably why so many authors refer to *an approach* in using systems because covering the totality of a situation or problem is an impossible task.

Some tentative answers to the dilemma assert that systems thinking are efforts to look at the problem as a whole while referring to all factors influencing a design not controlled obviously by the designer. For Ulrich, this view appears practically useless or impossible because the deeper problem lies "in the *concept of rationality*" and the roots are almost the same as those of the "analytical-reductionist model of science". Such an argument asks how can we "be arguably rational" and all methodologies not sitting on sands if we keep vague notions on this issue (Ulrich 2006, p. 3)?

However, there are two notions of rationality, one on science and one on the systems approach struggling for "unconditional justification (p. 4)." Instead of this latter view opposing rational to justification, Ulrich proposes that we perceive both approaches as a meaningful continuum expressing "that the conventional "monological," instrumental and functional (often utilitarian) concept of rationality needs

to be complimented by the “dialogical” (communicative) and normative (ethical) dimension of rational practice (p.4).” For that instance, “The reductionist principles of experimental control are replaced by the *principle of universalization*, a principle that is known to all of us through Kant’s (1786, 1788) categorical imperative (p. 5). Accordingly, Ulrich proposes “the “emancipatory” effort of critical heuristics to empower ordinary citizens so that they know how to deal with situations of unequal expertise and power” (op. cit. p.10). The process becomes transparent, self-critical and limited when placing frontiers in such a research. Systemic thinking is then a critical and normative way (Ulrich, p. 11).

Accordingly, heuristics and rationality must be open concepts to critical dialog with boundary partners when approaching a systemic design or model; critical thinking being a necessary character of systems design in research.

Another point to observe is the boundaries’ relationship requiring partners to bring about their competencies and come to an entente at best reflecting “informed consent of all those involved and affected”. The possible boundaries “judgments depend on the subjective interest, values and knowledge of those who judge” and should be disputed (Ulrich, p. 11). If there is a validity claim, it then “raises a genuinely systems-theoretical issue: What is the “whole system” to be considered, and what aspect of the total universe are to be treated as “environment”?” To say it more pointedly: *There are no propositions without environment*” (op. cit. p. 11). It is another reason why systems approaches give importance to the delimitation of “frontiers” as proposed explicitly by Durand in 1979.

Dealing critically with boundary judgment

Ulrich (1993, 2006) considers four groups of categories in his twelve mentioned ones “to address” “key issues of critically normative systems design”: first, expressing the value basis of a design or the *finality*, meaning, motivation, purposefulness or the measure of success. Second, making explicit the controls or the “design’s *basis of power*” or who “controls the necessary means and resources?” Thirdly, the expertise, that is to say the “design’s *basis of knowledge*” or the sources of expertise, practical, organizational, designing skills or the authors and actors. Fourth, the witness or the “the design’s *basis of legitimation*” from those not involved but giving them a chance to reflection and responsibility for answering those issues in a legitimate way. (Ulrich, *op. cit.* p. 15).

Systemic thinking in Ulrich’s mind we think goes beyond holistic thinking in bringing a structural figure. It is impregnated with a critical idea on reason bringing insights and tools to respond to the holistic problem as related to ecological thinking. The key seems the critical systemic normative treatment. There is a systemic methodology involving critical system heuristics to determine what is and what should be done. The systems idea or rational criticism is possible every day considering the conditions of imperfect rationality and structuring inequalities.

Systemic intervention and the concept of boundary

In 2008, Gerald **Midgley** proposes a methodology of systemic intervention responding to systems thinking, complexity and the philosophy of science. Intervention is seen as one type of observation in “which the situation is constructed to facilitate ob-

servation” (p. 63). In a way this paper reminds the above Ulrich approach explaining that critical systems thinking as an extension of science in adding dialog to extend vision and planning for action. If for Midgley, intervention “means ‘purposeful action by an agent to create change’ (p. 56) then intervention is also an extension of the concept of observation with more participation aiming change as a finality. Change however is not the pre-planned mechanistic instrumentation for accurate predictions. One must look at “insights from systems thinking and complexity” for his methodology of systemic intervention (p. 55).

Midgley’s (2008) concept of boundary “lies at the heart of systems thinking” and complexity because “of the fact that everything in the universe is directly or indirectly connected with everything else” (p. 65-66). It becomes necessary to pay attention to the selected boundaries of knowledge. In pursuing acknowledged comprehensiveness, the systems thinker keeps options of inclusion, or exclusion; however, in using a systemic intervention he is aiming at change in relation to reflection on boundaries and since “things change over time, boundary judgments need to be regularly reviewed as part of a learning process” (p. 66). The change aimed is for *improvement* and is sustainable as far as it could be perceived, but it should be revised when necessary. Required in Midgley’s text is also methodological pluralisms because they “embody different theoretical assumptions: choices between boundaries and theories suggest which methods might be most appropriate and conversely, choices between methods imply particular theoretical and boundary judgments” (p. 67).

The three aspects of Midgley methodology for systemic intervention are *Critique, Judgment and Action* interlinked together. *Critique* is about reflection on, choice between boundaries and associated values to come to an entente. *Judgment* covers the choice of appropriate theories and methods to a plurality of theories and varieties of strategies or ways to *Action* as a finality of implementation with methods for improvement as understood and decided by actors (p. 68).

In summary, Midgley starts with an enlarged concept of science sustaining that an observation is an intervention; then he questions instrumental science which should enlarge its vision to recognize researchers using a systemic intervention to understand and act in complex situational problems. Though interesting, the argumentation on intervention as being scientific does not appear essential if we consider different paradigms leaving this discussion to a philosophical stand as we did before¹². The vision of the whole is another paradigm with an enlarged point of view of reality and remains open to dialogue with experimental researches. We retain that systems approach modeling requires three essential qualities: critique, judgment and action. In that way Durand's (1979, 1992) stand on boundaries keeps its actuality when modeling.

Systems thinking and action research: a socio-ecological view

Investigating the relationship of systems thinking to action research, **Flood** (2010) reviews the two approaches. He defines the cybernetic theory from a

¹² Morin A., Gadoua G., Potvin G., (2007) *Saber, ciência, ação*, Cortez, São Paulo, Brasil.

dynamic mathematical representation balancing and amplifying loops in management sciences. This approach is opened up with Bateson who “broadened into psychiatry and evolution ...” and “examined all sorts of pattern and order and linked them to modes of organization and communication.” For Flood this is similar to “von Bertalanffy’s general system theory” (p. 272). Open systems theory and cybernetics become known as applied systems thinking.

With von Bertalanffy, the open system theory is functional, and its relational criteria are used to study the whole instead of simple elements so that an organism is looked upon in relation to an environment. “Its functions and structure, says Flood, diversify or are maintained by management of a continuous flow of energy and information between organism and environment.” A flow occurs through its many interrelated parts through feedback. “*Feedback* is another key idea of systems or thinking”. There is equilibrium of the system with balancing loops establishing normal conditions. Von Bertalanffy however suggested the open systems concept to other fields of study like Fotinas did in education (Morin, 1979). For Flood the impact of open systems applied to other fields “became known as systems thinking” and “was enthusiastically taken up as the basis of a new form of social theory” (p. 271).

In the above considerations of development, management action is seen as a complex systems and emergent whole, reflecting the interrelated parts of subsystems and potentially greater participation. “System oriented leadership, therefore”, concludes

Flood, “is more able to encourage people’s involvement, to enable democracy, and to provide conditions for autonomy” (271).

Cybernetics theory came from the science of communication with feedback and control in man and machine. Flood summarizes the field in saying that “Cybernetics found its home in the management sciences, for example, in the guise of control theory, systems engineering and, more recently, information theory” (271). Studying the dynamics of social relationships, Bateson and Mead “discovered cybernetic theory before its articulation” and Bateson “hypothesized” “a general theory of cybernetics as his studies broadened into psychiatry and evolution.” He examined “all sorts of pattern and order and linked them to modes of organization and communication.” He “ultimately concluded that patterns and order in nature come together in certain ways in mental activity. The human mind thus is both a part of nature and a distinct thing” (p. 272).

Flood comments that Senge, trained in system dynamics, goes a step further and argues in favor of a fifth discipline called *systems thinking* that feeds the other four being personal mastery, mental models, shared vision and team learning. The interaction is well summarized in the following paragraph by Flood on p. 273:

“Systems thinking in personal mastery may help us see our connectedness to the world and more and more of the interdependencies between our actions and our reality. Systems thinking applied to mental models exposes assumptions that we make and test if these are systemically flawed, for instance, by identifying feedback not previously accounted for.

Systems thinking promoting shared vision clarify how vision radiates through collaborative feedback processes and fades through conflictual feedback processes. Systems thinking through team learning identify both positive and negative synergy in dialogue where, respectively, the whole becomes greater or less than the sum of its parts. Senge's ideas and other more recent studies in system dynamics arguably are on the border of systems thinking and systemic thinking."

Distinguishing systems thinking and systemic thinking

The question is to clarify the difference between *systems thinking* and *systemic thinking*. 'Systems thinking' considers social organizations and their existence or life as they appear in a social system or an organization while 'systemic thinking' would look at reality as one is seeing it, helping understand the world when looking at possible changes or a better living. In a way the first one is linked to emerging reality or to an objective perception while systemic thinking assumes to be subjective, seeing reality as a creative construction of meaning or a constructivist approach. Our own systems approach modeling become systemic or constructed or patterned.

Flood states soft systems thinking and soft systems methodology of Checkland (1981) as representative of the soft systems tradition exemplified by a 7 stages process. However, SSM would neglect "certain difficulties in achieving open and meaningful debate on "knowledge-power" and "social transformation" (Flood, op. cit. p. 277). From there, one may think that it might be possible to adopt a field action research that would be well grounded, ob-

serving with the realism of constraints keeping open to creativity. It might be possible to model adequately critical actions as well as creativity of systemic thinking not cut off from the world we live in. Thus, a plurality of methods might appear complementary because acknowledging complexities.

Toward systemic design modeling with Checkland

Concretely one may retain the three anchors elaborated by Le Moigne, (1984, p. 64) bringing a canvas to achieve systemic design modeling. It suggests a view of history, persons and organizations with focusing on three poles: *to become, to be and to act* expressing a triangulation. *The definition of an object is done through triangulation (what the object does), an ontological definition (what the object is) and a genetic definition (what the object becomes)*. If we replace the word “object” by *person or persons, researchers or human organization as doers* or authors as Checkland and Desroche do with the term “actor”, this canvas may be inspiring our own design with a systemic approach associated to integral (participatory) action research. This approach will be described later in chapter 4. In this perspective, *the object of research becomes a project of persons or a group in action research*. Humanism is explicitly reintroduced in the design. Very often the description of a new model requires narrative technique of the modeling author, or group; it helps defining the frontiers of modeling systems approach with possible integral action researches of a group shown later. The accomplishment accordingly appears as being a systemic thinking adventure.

Critical systems thinking (CST) and action research

For **Flood** (op. cit. p. 279) CST or critical systems thinking “is a term established in the systems community that refers to a wide range of research and practice.” Those researchers think in terms of commitments making the first one essential to the five others: it is a commitment to the systems idea despite the numerous ways expressed in a diversity of models. Flood’s other five are critical awareness, social awareness, human emancipation, theoretical and methodological complementarities. In effect, Flood writes that “systemic thinking, when taken to its practical conclusion from a critical systemic thinking offers to action research a somewhat unique liberating praxis (p. 279)”. To keep in mind the relationship of both approaches in research, let us state a concluding remark of Flood (p. 282): “However systemic thinking is not an approach to action research, but a grounding for action research that may broaden action and deepen research”.

A researcher like Rosca (2004, p. 75) thinks that action research and narrative method might be intrinsically systemic. With Flood we would deny that assertion and would prefer the idea of grounding, but not for all action researches as shown by Desroche (chapter 2, graphic) but for one that requires **voluntary** participatory action research (PAR) or is an integral action research (IAR).

Summary and conclusions on learning systems thinking or systemic thinking

Retaining recent references, *systems* thinking would refer to the **real** social systems as they exist and *systemic* thinking as a **construction** of the mind for investigation. The latter helps making the object become a project (Le Moigne, 1977) and for Flood

(2010), it is more illuminating and more prone to be associated to an action research project.

Total systems and local systemic intervention for critical holism

Ulrich (1993, 2006) refers to *total systems* and *local systemic intervention*. Totality cannot be reached and must become a **critical heuristic system**. This conventional concept of rationality is complimented by the “dialogical and normative practice”. Experimental control is replaced by the principle of universalization. This aspect under consideration is treated as environment. The concept of frontier is dealt critically in four groups of categories: Customers’ **motivation**, the **power of decision** makers, the experts’ **knowledge** and the witnesses’ **legitimation**. The real debate is on divergence in the judgment over frontiers. The challenge is to come to symmetrical critical competence. Each party has an equal power to defend his case based on acceptable basic principles, human rights, democracy, human needs and environmental preoccupations.

Systemic intervention and the concept of boundary

Migley’s (2008) originality lies in a methodology of systemic intervention responding to systems thinking i.e. complexity and philosophy of science. He proposes an enlarged concept of science because for him observation is an intervention. He insists on intervention as a purposeful action by an agent to create change and an extension of the concept of observation with more participation. The concept of boundary implies a plurality of methods. He retains three aspects in systemic intervention: **critique, judgment and action**. Action is the finality of implementation.

The vision of the whole is however another paradigm that remains open to dialogue with other paradigms like the experimental one. The discussion on the concept of scientific justification becomes more or less necessary if knowledge grows from different methodologies and if it is enriched with time, dialogue and enlarged frontiers.

Systems thinking and action research: a socio-ecological view

Reviewing the cybernetic theory opened up with Bateson and the open system theory as more functional with von Bertalanffy, **Flood** pinpoints the latter as a flow of energy in interrelated parts and the balancing effect of the feedback. The impact of open systems becomes a new form of social theory. The cybernetics theory originating from the science of communication introduced feedback and control. This view is considered systems thinking applied to mental models permitting shared vision through conflictual feedback processes. In the latter dynamics, it appears necessary to distinguish *systems* thinking and *systemic* thinking.

Systemic or systems thinking, and Checkland

Systemic thinking is the reality of being looked, understood by someone while the systems thinking refers to social organisation as it appears in society. Examining our systems approaches modeling, they are constructed and they become systemic, patterned. For Flood soft systems methodology is in the tradition of soft systems thinking and suggests to adopt a field action research well grounded and open to creativity making it a systemic adventure.

Critical systems thinking (CST) and action research

CST covers a wide range of research in terms of a commitment to systems idea in a diversity of models. For Flood systemic thinking offers to action research a liberating praxis insisting that action research as such is not an approach to action research but a grounding possibility broadening action and deepening research.

The following chapter 4 will expose different researches using a systems or systemic approach, some not linked to action research and others emphasizing the advantages of using a multi-faceted approach to reality, with the help particularly of participatory action research or integral action research, and keeping an eye open to other research methods apt to enlarge and deepen a problematic situation with narrative methods of inquiry.

Chapter 4 – Systemic Approach

Modeling: Theory and Case Studies

This chapter exposes the systems/ic approach modeling characteristics using systemic thinking not necessarily linked to participatory or integral action research but to systems or systemic modeling. Since systemic modeling deals with complexity, it is not always clear if a field of knowledge is comprehensive enough to include educational, social, health or administrative aspects. Nevertheless, complexity compels practitioners to remain open to a variety of methods in which systemic as other types of research like the narrative, historical, and philosophical or a human vision of life may be retained.

4.1 The General Systems Theory of Ludwig von Bertalanffy

The general theory of systems

Having mentioned the general systems theory of von Bertalanffy in the first chapter, his 1967 article helps to summarize and understand our research group in educational technology suggesting the use of an open systems approach for living persons, groups and society at large.

From 1930 onwards, science as a cause and effect method is called a linear causality. The problem brought by the identification of a multiplicity of possible interactions makes life for researchers more complicated to identify real causes. Complexity in living persons reveals marvelous “organized wholes, of directedness and order of events, of in-

teraction among many variables of goal-seeking and the like.” Considerations of “wholes” or “systems” bring us to “a general systems theory” (p. 4). This vision permits us to look into organismic features of life, behavior and society; “finding conceptual tools to handle them; developing models to represent them in conceptual constructs; (...) to come to better understanding, explanation, prediction, control of what makes an organism, a psyche, or a society function (p. 4)”. For the author, it is an invitation to come to “a general theory of systems” making interaction among many variables and free dynamic order central notions (p. 5).”

In this perspective, **personality is a system** replacing the image of man as a robot making the human person regulated by “goal-seeking and learning machines”. Man as a system has “a dynamic order of parts and processes but capable of creativity” since the “...first exploratory activities ... (as a) baby whereby he “creates” the world around him – playing, being curious, creating-up to culture in general.” In the human being, a “Mental dysfunction is a system disturbance rather than a loss of disturbance of single functions” (p. 6). “The human organism is an internally active system” (p. 7) and “precedes reaction to external stimuli.” “Personality is not a robot” (p. 7); there are limits to the homeostasis scheme, because an animal like the rat runs also any which way, “explores its environment without reinforcement and gratification, even looks out for “problems” that have nothing to do with gratification of biological needs” (p.8).

Progressive mechanization to higher functions

There is a principle of “progressive mechanization” that “applies to the biological organism, as well as

to the behavior and the personality.” It is not a machine but like one. This evolution is “a prerequisite for higher development of functions. Such processes become “routine and mechanized” to permit possible “higher functions” and “consciousness thus freed for activity at a higher level.” Von Bertalanffy questions the theory and asks if “mental health should prevail under conditions of gratification of needs, satisfaction of drives, and realization of tensions”. For example, he refers to the fact that World War II did not produce but “reduced neuroses and psychosis” (p. 9).

Self-differentiation in the formation of the personality, according to von Bertalanffy, is seen as a conditioning process by psychoanalysis and behaviorism, “the first aiming the early childhood experience, the second emphasizing conditioning in its classic or operational variants” (p. 9). This last opinion might be probably partly or totally denied today as not being up to date. Nevertheless, the author favors the categories of higher mental life coming from authors like Piaget, Rogers, and Allport in suggesting general systems theoretical principles.

Regression “is not loss of meristic, higher functions and thus a return to a more primitive and infantile state” but “differentiation and disintegration”. “Normal differentiation further implies progressive organization within an integrated whole or system” (p. 10).

Centralization is described as another aspect of differentiation of “leading components” triggering influence on the behavior of the total system that has other types. The mental counterpart is the ego

formation over developmental and evolutionary stages (p. 10).

Body and Mind or the classical dualism (Descartes) of matter and consciousness is for von Bertalanffy “broken down with developments in modern physics, psychology, ... and other fields “(P.14).

Hierarchical order is “to the systems theorist the universe – that is, the totality of experience ... the inorganic, the living and the symbolic worlds”. The behavior of men and women cannot be limited to animal’s behavior, biological drives, and conditioning... To a psychiatrist, von Bertalanffy suggests establishment of new life-goals, “notherapy” as example.

Systems of various orders indicate that a person lives in an environment, that the human being is not alone and is in “various orders, from small groups such as the family to the largest, called civilizations.” (p. 12).

Symbolic value superstructure is the hierarchical level making history when taking life in sociocultural “entities as groups, classes, nations, and cultures. For example, an illness, if mental, is a disturbance of the symbolic level and is culture-bound (p. 12)”.

It is important to keep in mind this human view of man and woman when concerned with problems of a complexity not always recognized and too often simplified when suggesting improvement.

The following question is a practical one, opening human sciences for an approach to complexity in education, social work, health services and management.

4.2 What is the Systems Approach Good for?

Herrscher (2006) titles his article “What is the Systems Approach Good for?” as a practical question to help understand classical concepts and their failure to suggest the systems approach or an open system. The known definition of parts and whole must be expressed when modeling is to trace a pathway in the complexity of the real world. “If things were simple, the systemic approach would not be needed.” “...responding to complexity is one of the central attributes of the systemic approach, yet one of its main tools is modeling...” (p. 410). The author complements the model with a narration to grasp the inside behind a simplifying scheme. He proposes an integrated model (p. 412) that could inspire systemic researchers.

Two special issues of the *American Journal of Community Psychology* (2007: No. 39, 3 and 4 pp. 191-419) try to give new birth to systems approaches for community psychologists. They are encouraged to reformulate their theories and methods and direct their efforts with a systemic perspective going beyond pure context comprehension. The authors, Behrens and Foster-Fishman (2007), affirm that practitioners should join the systemic approach when suggesting operational principles: 1. To clarify the aim. 2. To identify the system as existing or to create one. 3. To conceptualize the systemic interventions as systems change. 4. To use an eclectic approach relevant to change. 5. To have change agents open to favor helping factors while keeping an analytical formal process to maximize the emergent anchor points of power. The proposed system is partly inspired by Checkland's (1981) soft systems methodology (SSM) suggesting multi-

ple visions of reality compatible with action research.

Profound and superficial structures of systems

Foster-Fishman, Nowell and Yang (2007) claim that we should be attentive to the profound or deep structures and to the apparent ones when considering systems change. The article proposes definitions, proprieties, one model of intervention, types of change and their signification. A frame for systemic transformation illustrates an operational mode well described and documented including a rich operational treatment to establish frontiers, define the problematic situation and the system, the norms (attitudes, values and beliefs), the critical recognition of parts, their interdependencies, their resources, the regulations of parts and the rules and operation of power and decision.

Complexity calling for transdisciplinarity: a turning point for professionals

In Canada and the United States, social psychologists or community ones according to Maton et al. (2006) have been preoccupied with interdisciplinary work since 1965. However, it is only when the APA (American Psychological Association) is created by the SCRA (Society of Community Research and Action) in 1989 that progress began slowly towards an open discussion in 2003 on an interdisciplinary program at Vanderbilt University. In 2004, a call for scientific articles by the SCRA brought two issues in 2006 on interdisciplinarity. A number of articles show the advantages, but also difficulties of interdisciplinary cooperation oriented toward action. In 2008, Kelly and Chang call this time on historians of community psychology to adopt a pluralist approach in applying methods of

other disciplines, like trends of historical societies, analyses, narrations and reports of cultural movements to shed light on problems through the use of cross disciplinary collaboration. The history of behavior through social and environmental lenses would bring ingredients for systems approach views without naming it.

Another review, the *Journal of Community Psychology* no. 36 later published eight articles on community psychology insisting on the importance of a pluralistic or plural approach to understand the domain (Fowler A & Toro, 2008). It is a plea for links of knowledge in a community to act in its immediate environment, its country and the world. This interdisciplinary appeal calls implicitly for a new methodological system.

4.3 Pluridisciplinarity, interdisciplinarity, transdisciplinarity and codisciplinarity¹³

The concepts of pluri-disciplinarity, inter-disciplinarity, trans-disciplinarity and co-disciplinarity help to understand the theory of systems modeling applied to complex disciplines such as education, social theories and work, health services and management. Inspired by Palmade in his publication “*Interdisciplinarité et ideologies*” (1977) the references refer mainly to human sciences. The interdisciplinary movement appears however in different forms of operational research as an extension of cybernetics, theory of systems, praxeology but also as an autonomous complex discipline like social psychology. Interdisciplinarity brings new points of view to the research object and requires studying

¹³ Palmade, Guy (1977) *Interdisciplinarité et idéologies*. Edition Anthropos, Paris, pp. 22-23, 38-40.

the means to achieve it. Some needed distinctions follow:

A **discipline** is a specific body of knowledge to learn, including its mechanisms, methods and subject matters.

Pluridisciplinarity is the juxtaposition of different disciplines more or less close to the same knowledge domain.

Multidisciplinarity is the interaction between two or more disciplines: from a simple communication of ideas to a mutual integration of major concepts of epistemology, terminology, methodology in procedural methods regarding research and teaching.

Transdisciplinarity is setting together a common axiomatic theory from a combination of disciplines.

Interdisciplinarity is a structure creating a corpus of new laws as an original discipline.

For Boissot (1972) there are three types of interdisciplinarity.

1. **Linear**: a phenomenon explained by a law of another discipline.
2. **Structural**: a corpus of new laws bringing a new discipline; e.g. electromagnetism.
3. **Restrictive**: a field of observation limited by the field of the other.

Codisciplinarity is a new understanding of a unifying knowledge coming from different disciplines maintaining the originality and the specificity of each science.¹⁴

¹⁴ The reason is that the term “codisciplinarity” was not mentioned in encountered researches.

According to Palmade (1977), **transdisciplinarity** helps to progress in the sense of codisciplinarity but the knowledge to do it is generated by each specific discipline making explicit connections to each other (p. 288-289).

For systems approach modeling, we retain **transdisciplinarity** as an inspiring achievement that results in the unification of knowledge from two or more disciplines.

Transdisciplinary integration: a plea for realism: four cases

Four articles in the second part of Volume 38 of the American Journal of Clinical Pathology (AJCP) illustrate the importance of interdisciplinarity. The **first case** is by J. Schensul et al. (2006), a medical anthropologist, who founded an independent Research Institute of partnership for interdisciplinary action research and intersectorial exchange. The purpose was to understand poor adults' depression living in private or public housings. The lesson for us is that an interdisciplinary work is possible if there is an entente on the research object, if there is a sharing of the same values, if persons have worked together before, and if they can negotiate with the group members to make decisions.

The **second case** is from S. L. Schensul et al. (2006), an anthropologist in a medical school and his co-researchers, describing the nature of the collaborative relation between Americans and Indians, anthropologists, psychologists, demographers, epidemiologists, medical doctors, and representatives of other domains and sectors. They developed a project for the prevention of AIDS among men living in poor areas of Bombay. This project “has challenged members of the participating disciplines

to develop a transdisciplinary conceptual model, to test the latter with community-based formative research and to utilize the results in the development and implementation of a multi-level (community, provider and patient) intervention (p. 95)".

The **third case or project**, an interdisciplinary community action research, is from a social psychologist Suarez-Balazar et al. (2006) with his colleagues and three community organizations, who cooperate to assure that **black working-class children** in Chicago are provided with healthy food. Theories of community development and participative evaluation of ten school disciplines guide the good food intervention; it goes as far as an evaluation of the local market. Three principles emerge from this multidisciplinary action research: to acquire aptitudes, to facilitate policies, and to encourage innovative practices. The conditions are practical considerations of cooperative demands, unfailing courageous involvement of members and the sharing of methods and resources including partnership, power and cultural competencies.

The **fourth case** is from Sutton and Kemp (2006) who explore three intensive participative workshops experiences that aim at the integration of an interdisciplinary design implying investigation on social sciences nourished by knowledge of community life or milieu. This collaborative experience of students with community members reveals through observation varied modes of instrumentation in research, especially with visualization tools helping people to understand their problems and invent new solutions. However, some difficulties are apparent for sociologists to impose themselves, invest time and evaluate interpersonal conflicts from partici-

pants of different cultures. The methodology of the “charrette” or design charrette is suggested as being interdisciplinary, using an original technique that might stimulate exchanges with the community and find original solutions¹⁵.

We should add to the preceding experiences that Shinn (2006) in her plea for realism in involvement regarding interdisciplinary approaches demonstrates that specialists working in varied disciplinary fields and treating a case do not put more obstacles to action than a centered formal discipline. She reports an investigation in health departments in the United States that shows benefits with multiple analyses and observations on persons and communities. She discovers a higher level of strategies becoming in a way a practical theory. The major difficulties come from organizations of financial support subvention unable to classify researchers’ studies such as those coming from community psychologists.

From inderdisciplinarity to transdisciplinarity

Smith (2006), a specialist in urban studies, proposes to researchers to move from interdisciplinarity to transdisciplinarity in such a way as to profit from collaboration and sharing in a conceptual pluridisciplinarity frame of mind. However, Reich and Reich (2006) propose that the absence of sharing on an operational concept of interdisciplinarity limits the deepness of dialogue in relation to the practices that encourage collabora-

¹⁵ This methodology in the 18th century is a ritual specific to design disciplines when students of the first school of architecture in Paris in a « charrette » or carriage were drawn by horses and were eager to present their projects to evaluators (Sutton, 2006, *op. cit.* p. 130).

tion and the support of researchers in different domains. They suggest the use of a model of *cultural competence* when considering disciplines as models of different cultures, applying Kuhn's (1970) concept of paradigm. In this way, one finds the same cultural challenge that one encounters when meeting persons of different cultures. It belongs to researchers to favor disciplinary diversity, including their own, and be sensitive to the dynamic of contacts with diverse disciplines or cultures. Avoiding power struggles may result when giving precision to a more significant vocabulary to better understand one another (p. 52). Sharing a common task when working together permits an opening to other points of view. Methods of studies in different disciplinary cultures help grasping the complexity of the case. It might be a perspective that can link theory and practice without having to eliminate definitely the more abstract concepts of interdisciplinarity. A complex case calls for an attitude of openness; the concept of culture may permit a synthesis of visions of other researchers or practitioners in a dialogical action leading to an enlightened intervention.

To summarize, one may say that community participation or involvement requires interdisciplinary research maintaining the spirit of transdisciplinarity including pluridisciplinarity and multi dimension visions. These aptitudes require a respect of the human conception of systems and "Holism" or a wide vision with participation of persons centered on a systemic design preoccupied by a vision of the "Whole". However, working together commands realism in action that helps accomplish changes in the system. Critical theory, despite being an inspiration and a clarification, does not necessarily de-

mand action. According to Freire, what is needed is a sense of responsibility for each person to transform the world. The interdisciplinary methodology calls for pluridisciplinarity and transdisciplinarity, which enrich knowledge. Case studies bring practical lessons to acquire aptitudes for partnership and for grasping the meaning of a problematic situation that may suggest innovative practices for significant change.

Problems in organizations and communities are the places where interdisciplinarity in the sense of multidisciplinary may meet transdisciplinarity. Accepting a plurality of methods from different disciplines to solve complex cases is a must. Transdisciplinarity, being a goal, may be delayed. The need for integration of methods is not always obvious: action and reflection must respect the complexity of the case. A pragmatic eclecticism in reference to transdisciplinarity may be efficient as long as the complexity of intervention is taken into account. In our opinion, systemic modeling is a structural approach that could help a pragmatic conciliation between authors and actors of diversified disciplinary theories. Integration of methodological approaches may favor comprehension of complexity to trace a path toward change.

4.4 Systemic approach modeling in disciplines

It is difficult to illustrate experiences of disciplines like education, social fields, health services and management without mixing extensions of one field with the other. Explanations were given in chapter 3 with systems or systemic modeling showing complexity and involving necessarily other fields of study like education and social fields, often concerned with health problems that need management

to be systemic and participatory in each field. The following cases' illustrations may help the reader to grasp the complexities and understand the relationship with other dimensions of knowledge.

In education

Systems or systemic approach in complexity

Kemmis (2006) proposes that action research, though well known in education, had not yet reached a spirit critical enough to induce discussions about necessary transformations in education and the scholarly system, until his publication with Carr (1986). Does that remark suggest that a dialogical discourse is too far away from practice? This reasoning for a deliberate action that changes practice may indicate a lack of overall critical change as such; or could it be that a holistic view might be necessary to induce more formal critical reflections? The human spirit often functions in a reflective way from action as Shön indicates in *The Reflective Practitioner* (1983). Systems approach modeling might be suggested to enlarge the educator's viewpoint to a more global vision as long as it becomes a critical design inquiry.

The systems approach is not always explicitly mentioned in the articles reported on educational action research in chapter 2. There are exceptions like one in pharmacy explained in management of cognitive pharmaceutical services resolved in a context of complexity using also a scientific approach. The growing number of persons or teams solicited for an extended participation in teachers training, nursing education and other fields of study reveals preoccupations of openness to a wider or holistic point of view.

Looking at university research with its diversity of disciplines, one may note the lack of information on group dynamics and some tensions in methodological choices and diffusion in order to avoid pitfalls in research. A systemic view should probably be considered more often, and a plurality of methods applied fruitfully.

Education for promoting change

Change in education is not obvious through the systems or systemic approach alone; however, it is obviously needed with participatory action research (PAR) in its integral dynamic form. This is the case with Suarez-Balthazar et al. (2006) mentioned above whose research team holds an interdisciplinary partnership: members from four academic institutions, three community organizations and eight teaching fields of study. The aim was to fight children and youngsters' obesity in schools in a Chicago area. The systemic approach and action research correspond to an ecological social model and its research method is borrowed from soft systems methodology (Checkland, 1981). Another example is the recent extension of Checkland SMM spirit used by Vita (2014) in comprehensive research exploring student needs in secondary professional instruction, requiring actors' participation including students in a border city of the "République démocratique du Congo". The aim is to adjust the contents of teaching to economic and professional needs. At the conclusion, the researcher conducts action research participation at all levels to help solving successfully a teacher's strike.

Another systemic research, described by Vera et al. (2007), consists in multi systemic interventions with the collaboration of a Latin American school

to achieve change through participation at all levels of responsibility; it aims at promoting academic success and positive development of urban adolescents of color. This rational endeavor and the interventions, with and for youth, adding cooperation of parents and teachers, contribute to solutions of cultural problems.

A new curriculum reform and change

Referring to chapter 2 and the Chinese new curriculum reform of 1999, Xu (2009) reports that, due to the mitigated success of the hierarchical approach, an action research project was conducted with a university SWOT program revealing its Strengths, Weaknesses, Opportunities and Threats. It targets the educator and his practice for the transformation of a curriculum through critical reviews of internal and external school activities. This endeavor shows an open system without the name considering its participation at all levels including university contribution and help from students. Recalling the trends reported in chapter 3, *first*, the experimental scientific discovery for generalization; *second*, the cooperative action research like the one by Xu mentioned above; and *third*, the new basic education, Bai (2009) writes that only reflection and cooperation (with volunteers) that group university faculty (the learners) and teachers as main researchers accepting the new modernity in a changing society can qualify as action research. The curriculum's functions "structure, content, implementation, evaluation and management" (p. 2) do not seem to imply an open systemic strategy but rather a linear one as found in a classical sequence of systematization. However for Bai, in accordance with scientific authors, it signifies that all these "developments cannot be separated from the current edu-

cation reforms and social development in China (p. 1)” commanding “changes for teachers” “... from a knowledge-imparting to a learning-facilitating role; from book-teller to teacher researcher; from curriculum executor to developer; from textbook consumer to community educational resources explorer...”. All these reforms are reported under the title of teachers’ action research and “under the title of Teachers and school-based curriculum development...” (p. 2).

This above action research qualifies as having the general quality of a systemic approach considering a possible implied holistic vision. If the system appears to be linear, it does show loops. It is the reform experiment that is “attributed to the creative use of action research from a methodological point of view” (p. 4) and answers the *change* issue in educational practice but not yet apt to support theoretical discoveries according to Bai (p. 4). It is under the heading of an experience or a practice screening.

Change: Systems approach and action research

The systems approach modeling is not *always* effective *alone* to induce change and often needs to be linked with participatory or integral action research from institutions, organizations and voluntary persons. On the other hand, the definition of action research is sometimes applied to different education conceptions or curriculum reform. SAMIAR (Systemic approach modeling integral action research) should be well described to avoid misunderstanding or equivocal significations.

Including the artists in residence as mentioned in chapter 3, Mathews (2008) describes how an Art Department realizes a project *Ethos* to pinpoint

links between art and science. With the help of an artist in art photography participating to transform a school in adjusting its program, the teachers explore for each group a global view to kids' needs. Without mentioning specifically the word “systems”, the author describes philosophical aspects considering Sartre, Foucault, Bragg, and Dewey as inspirational voices and the teaching model in art education named Teacher-Artist Partnership Program. The model is the expression of an open human vision. Another researcher, Horn (2008), tries to give freedom of expression in an art department exploring the free will, the involvement in autonomous projects with contemporary points of view and practical applications including the help of artists in residence and cooperation with hundreds of persons of all ages as participants. Both project models show implicitly *a systemic global view*. It is in the same line of thought that Howard-Jones (2008) brings up the design of a teaching model on creativity in dramatic art in education (see chapter 2).

Some research guidelines or lessons in education

An experience mentioned in chapter 3 suggests AR reflective thinking to design a model on creativity **in dramatic art** (Howard-Jones et al. 2008).

A study on obesity employing the **SSM** or soft systems methodology explicitly requires **participation at all levels** (Vera) and a systemic approach to **openness in field studies** (Suarez-Balthazar).

We learn that it is **possible to treat theoretical complexity** openly (Meftouh) but less convincingly to avoid explicitly all analytical examinations.

To design a systemic model for *explanation* when considering oneself a professor, an engineer and a theoretician is partly successful but the “**introscope**” or an **insight introspection could not solve the preoccupation of becoming a scientific pedagogue** due to the limit of experimental sciences (Rosca) unless the concept of science is enlarged as Midgley suggests in the same chapter 3.

On the construction of a course or lessons, **a systemic approach may show success in visual arts** at the secondary level when constantly rethinking its implementation (Gosselin).

New insights of a professor (Dugal) for a systemic endeavor reveals in her research **the essentials points in learning through *punctum and studium*** when suggesting narrative techniques to school teachers preparing mediated lessons.

Extending the Dugal insight (*punctum and studium*) in a systemic **teaching model when studying a new language for emigrants** demonstrates their adaptation for *immigrants’* needs (Renaud), not mentioning the recent migrants.

Developing a design or **a teaching model for future social workers** is possible when achieving *critical judgments* in their social work activities (Lévesque).

In social work and theory

Referring to a pluralist theory

Ventura et al. (2006) apply the systems approach to the pluralist theory of international relations in a study of the European Union. The pluralist thoughts acknowledge the complexity, the dynamics and most of the concepts inherent in systems theory: attribute, inputs and outputs, environment, motiva-

tions and process. Considering international relations, the global community as a whole is conceived as depending on regional subsystems integrating other subsystems. Having in mind the whole, all components bring a pluralist picture of European international relations requiring a systems theory to understand the complexity of their interactive venture. The systems approach, in its history and analysis, gives an account of the main features in its ontological aspect. This pluralistic theory explains the essential complexity but applications to diversified interactions and internal dynamism leave the reader with a desire or an appetite for more illustrations.

Path dependency and path generation: change in relations

Djelic and Quack (2007) bring a response to the necessary operational definition of the nature of interactions for change in national and international European negotiations. They put forward the concept of *path dependency* and *path generation* in international treaties that could explain delayed interactions. Difficulties and discussions are said to be linked to a path dependency culture for coming to a consensus like laws against “cartelization” and centralization; they demonstrate mechanisms towards conditions of change for path generation strategies when existing systems are open. The authors describe and explain the “rules of the game” when discussions, agreements and meetings in the acceptance of regulations occur against cartels and centralization. The cases are analyzed, the first demonstrating institutional change through *collision*, and the second illustrating *emergence of transnational institutional paths* with impacts on transformation of national institutions. In the first

pair of cases, the American command in Germany post-1945 exerts significant pressure against cartelization in favor of competition in the organization of markets. It was not until the 70s, and with another generation, that an antitrust was adopted to foster competition in German commodity markets. The second case intending to change the banking sector from a centralized or cartelized one to a competition regime did not work as well because the old path is reinforced due to international oppositions from the British and Soviet governments.

One may retain that change in international relations is a “moving target with many points of interface”. Institutional changes through collision might be faster but not necessarily more effective on the long run. Creation and generation of transnational paths appear to have more impact on national institution and transformation. The authors build their theory upon efforts of reintroducing gradual and significant change. Path generation is a continuous and complex process of emergent nature through time and successive cumulative stages. It is “a process of combination and recombination where legacies play an important but non-deterministic role”. It is a “political process of emergent nature” (p. 167). It becomes complex when one moves from pure technology to societies viewed as open systems in their interaction with each other. In a nutshell, path generation is a “long-drawn process and slow process” for change in a “punctuated equilibrium”, has no observed radical jump with “multidirectional struggles, an aggregation of decision points, and multiple critical junctures”. It “often relies on a combination of different mechanisms.” The exertion of power may be necessary and the ability to mobilize support and legitimacy; thus

“institutional systems or subsystems will be more likely to change when external pressures and solutions are connected to local stakeholders and their traditions...” In that sense, the rule setting becomes “a reflexive learning process” adding legitimacy and socialization because it is “cognitive and normative” (p. 181). It follows the logic of appropriateness.

A development project (see chapter 3) is not always totally systemic in the sense of assuming total complexity. It could be partly linear with a will or aim for a traditional scientific approach, like Sørensen and Haugbølle (2008) show, but also may remain systemic with interrelations of persons, thus accounting for a plurality of methods.

Critical theory and involvement in action

Concerning social involvement, the publication of Davidson et al (2006) is a systematic study of *critical theory* in its relationship with power and action aiming at a contribution from community action. Ten years of publications analyzed from seven (7) reviews are dedicated to critical theory. The result is a strange paradox. The anti-establishment critical theory indicates very few concrete actions for a change in the status quo while community psychologists, oriented toward action, do not argue much against the structure of institutions. One may quote Paulo Freire when he writes that transformation is “a collective project that takes place between other types of men, those united by their action and reflection on their action and onto the world” and for whom praxis is “a reflection and action of men in a world to transform it” (1977, pp. 28-29).

Shinn (2006) in her plea for realism in involvement regarding interdisciplinary approaches demonstrates that specialists working in varied disciplinary fields and treating a case do not put more obstacles before action than a centered formal discipline. She reports on an investigation in health departments in the United States that shows benefits with multiple analyses and observations on persons and communities. She discovers a higher level of strategies becoming in a certain way a practical theory. The major difficulties came from organizations offering financial support unable to classify researchers' studies such as those coming from community psychologists.

Action and reflection in the solution of a case

Action-reflection-action may require priority when considering an action to improve in Integral Action Research or PAR. Any reflection requires an event, a prior exchange of ideas to extend one's vision. In the case of education, reflection should refer to a path that is being mapped just like walking is tracing a direction as Antonio Machado suggests. Approaches could emerge from deduction or induction when referring to a social critical theory, write Fisher et al. (2008), when they demonstrate that community psychologists from two different countries are inspired by the same idea of social justice. They both are motivated to defend the indigenous people even if their approaches are born from two dissimilar sources, one academic and the other from practice, but both sharing a common aim to create an educational discipline.

Change and equilibrium

It may take time to put something in equilibrium: de Rosnay and Lerbet refuse to accept equilibrium

as a modeling necessity. Why? Understanding a required change and applying means to multiple components of development is a must in modeling complexity. The cases are the European banking economy refusing competition. Two examples may help to understand difficulties in changing when it is well rooted in the culture.

Nuances for change in a system of intervention

Examples of change bring nuances to the above preceding remarks. A researcher should regard organizations like a *system intervention* in a 100-member Michigan Police Department lasting 7 years and illustrating a deep cultural transformation valuing the democratic process taking time and prolonging the police workload (Ford, 2007). When reflecting on variables in systems, added elements of change in an action research program by Driskell et al (2008) show that space, place and citizenship are interwoven in a complex and original fashion indicating that place is important in the locus of a growing sense of citizenship. Tseng and Seidman (2007) notice that a systems approach helps youth appreciate social environments. It shows that the learning process of kids can be stimulated to organize at times their learning activities in accordance with cultural or national values. Systems approach is also seen as a frame of reference for discerning relations in social work (Hingley-Jones and Mandin, 2007) in the escalation of unsolved conflicts (Coleman and associates, 2007), or in the importance of a *relative* way of doing studies in different *age* groups that takes into account “intergenerationality”, “intersectionality” and life course (Hopkins and Pain, 2007).

A systems approach open to a variety of languages

Larsen and al. (2007) raise the question of a technique for a Unified Modeling Language (UML) that could create knowledge in a complex situation. On the other hand, one could argue with Gregory (2008) that multiple methodological systemic strategies seem to preserve the complexities of finalities and that UML suggests reductionism that cannot satisfy for example what *soft system methodology* (SSM) is doing when dealing well with confused problems and situations, or *viable systems methodology* (SASV) and even *critical systems theory* (CST) for promoting creativity. The UML appears to think that a bottom up cultural change does not work but adds chaos unless there is a top down commitment doing it like employing objective oriented (OO) with the case tool use (CASE) which are named in the eight suggested categories: “environmental factors, organizational factors, staffing issues, coordination, method/process, OO and CASE tool use, specific modeling tools, and mixed direction factors” (p. 98). The interactions between categories leave space for a causal relationship, an explicit finality to eventually quantify the process, thus revealing a legitimate behavioral approach reducing nevertheless finalities. If we suggest accepting a pluralistic approach, could UML be complementary to other languages and be preoccupied by an understanding of meanings such as a phenomenological method would try to achieve?

Lessons for systemic modeling in social work

This above review on articles related to sociology and social work was an effort to find a theory referring to a systems approach that could enlighten social action notably integral or participatory action

research. They can be seen as hypotheses that may enrich interventions.

A pluralistic social philosophy describing the essence of the international community (Ventura et al) may require **a dynamic vision** to explicate the process of change.

Path generation versus path dependency (Djelic and Quack) are retained as **worthwhile concepts** when change is the finality. It makes systemic a modeling approach more complex but also more realistic for changes in society.

Change in European economic systems appears mainly **when forced**, on account of external competition imposition, but may not be as effective if it is not voluntary.

Change may occur if “external pressure and solutions are connected to local stakeholders and their traditions” and seen as a more emergent reflexive learning process.

Concerning action and critical theories, Davidson et al. show that **those imbedded in action are more prone to draw from their experiences than social theory writers**. However, the lessons from a combination of both approaches might be the answer to relevant and intelligent action.

Working on a case as experts from different disciplines **does not impede worthwhile discussions to help solve a problem** (Shinn).

The language of modeling in a systems approach, seen as a unified language, **appears useful** (Larsen et al.); nevertheless, **the complexity of life may encourage researchers to use other languages** that have done well in treating confusing problems.

Considering a **dynamic system as a frame of reference** in social settings is a wise way to **answer needs**.

Change may be promoted **when a wider horizon** such as a systems approach **is proposed** and discussed in length even by a group considered conservative.

The systemic ideas to promote a relationship-based approach in social work **must avoid a purely procedural vision** and should discuss problems of intractability.

The **intractabilities** of multiple components in development toward change show that The Ford project intervention in a 100-member Michigan Police Department **suggests that time is essential** (7 years) to come to cultural **transformation** when implementing a democratic process.

Another, the Driskell project, indicates **that space, place and citizenship** are **interwoven** in an original fashion making space a locus for a growing sense of citizenship.

Tseng and Seidman insist on *locus* to **let youth learning social process organize** at times **their learning activities with** cultural or national **values**.

Systems approach is also a **frame of reference to discern relations** in social work (Hingley-Jones and Mandin).

In health and services

Involvement in all community levels

In health sciences, articles using either action research or interdisciplinary fields of knowledge (seen as a systems approach) were impressive in number. Both approaches appeared complex and

required cooperation at every level. Research content deals with the prevention of infectious diseases and above all with the organization of services and treatments. The positive results might inspire other persons or groups namely in community health centers to rethink their own organization using either action research or interdisciplinary cooperation.

Are health scientific articles preoccupied with a systems approach? J. Sheffield (2008) raised the question in his remarks on health computer knowledge. A number of systemic perspectives suggest concepts from multiple systems to be integrated. Three orientations are shown: personal or individual learning (knowledge creation), practicing communities (normative knowledge) and technical and technological exercises (knowledge application). The author asserts that knowledge in health sciences stimulates a systemic development and brings a case to the effect with a systemic ecological intervention.

Cooperation in health prevention

Community cooperation in health prevention according to Bond and Carmola Hauf (2007) concerns sponsors but should extend to the whole community. Few models exist; however, they try to discover *how collaboration* extends to the whole community. It has to be an organizational structure linked to local groups, national and even international ones. All community resources must be included. Six themes of collaboration for efficient health prevention are expressed: theory and serious research, interdisciplinary researchers and professionals, a global vision, multi-disciplinary, and multi levels attention to prevention factors, initia-

tives responding to population needs, groups and their participation and finally efforts toward permanent help. Action is thus participatory, systemic, opened to a holistic view, with people and organizational interactions. A Danish experience (Clemensen and al. 2007) is also based on an interdisciplinary perspective with participation at all levels; most of the themes or factors for community involvement in literature are covered.

Roleplaying to sustain persons suffering from dementia

Brooker and Woolley (2007) suggested a design to help persons suffering from dementia. In their modeling they used the concept of action research with an integral vision. They worked with a group of experts, practitioners and researchers in different sites in the United Kingdom. The original discovery of this research consisted in the invention of a symbolic role of *locksmith* to respond to their needs. This task should be entrusted to a senior member of the personnel who must make sure that residents and practitioners give the maximum of their potential. It appears as a systemic vision model linked to a form of integral action research.

Research by Barros and Nunes (2009) studies sociology, medicine and the construction of a sociology on health. From secondary data and an immersion in Brazil and the United Kingdom, these authors think that an interface between sociology and medicine progresses despite traditional difficulties in relation to structure, health systems, medical school power and the culture of students in medical studies. Researchers in medicine, probably on account of the positivist conception of science, do not seem ready to accept studies done from an interpretative

paradigm. Canadian research by biomedical scientists (Albert et al., 2008) explains the place of social studies in relation to health and expresses apprehension in making a link between sociology and health affirming that dialogue is difficult between protagonists of both fields of study. As we reported earlier, Shinn (2006) suggests working on a case to resist to the impasse or deadlock of both parties if researchers are willing to establish mutual respect.

Systemic modeling and simulation in a hospital emergency department

Using computer simulations of reality could help real systemic modeling and application of participatory action research to diminish the length of stay (LOS) of patients. In chapter 2, we have seen how Rosmulder et al. (2011) reported the organization of emergency consultation to convince staff, including the medics or doctors, nurses and administrators, toward a significant change in diminishing the waiting time of patients as an essential finality. This resulted in a picture of possible future changes reality against the traditional health care delivery model in which “The physicians manage the cure, the nurses manage the care, and the administrators manage the control in the hospital delivery” (p. 398). It responds to the possible simulation replicating “the dynamics of improved scenarios without changing the actual system” (p. 398). The first step was to design the actual healthcare model with participants in an action research process. The second was to explore scenarios’ improvement and the projection of anticipating effects. The participants (called stakeholders in this case) are invited to think in terms of being organizers of delivering healthcare. They employ the simulation model to project effects of change with the director taking

the place of medical physicians unwilling to abandon managing the cure. After a number of experiments, the changes appear to be significant in terms of Length of Stay thus saving time of waiting for patients. The action research finally helps making a systemic change.

Lessons to retain from health services

The lessons on health services using either action research or interdisciplinary contributors **are complex and require cooperation at all levels**. The content deals mainly with preventions of infectious diseases and/or organization of services and treatments.

Sheffield suggests **borrowing concepts from three orientations**: knowledge creation, normative and application or a systemic development with systemic ecological intervention.

Bond, Carmola, Clemenson et al. from Denmark maintain that cooperation **should extend to the whole community**: local, national and international. Six themes are suggested: Theory and serious research, including interdisciplinary researchers and professionals, with a global vision, multidisciplinary and multi levels attention to prevention.

Barros and Nunes encourage **sociology on health despite traditional difficulties** in structure, health systems, medical schools, and students' rejection of interpretative paradigms.

Remembering that dialogue is difficult with a variety of disciplines, Shinn's suggestion to have different disciplines people to work **on a case give positive results** when transdisciplinarity is impossible.

To avoid difficulties in communicating, it appears better to refer to Reich and Reich in **seeing dialogue as a paradigms conversation** with an attitude of openness according to Kuhn.

Working with simulation may be a **step towards changing the quality of participation** in the long run when referring to a positivist scientific mind, for example in the experience **with the length of stay** in a hospital emergency department.

In management

Critical design inquiry: the Holon perspective

Systems approach Thinking (ChST) is proposed by Kira and van Eijnatten (2008). These authors, as Bawden et al. (2007), have written before suggesting the “Holon” concept as a useful way to indicate that no simple part can be thought of without reference to the whole and vice versa. Complexity should be applied not only to reality but also to partners (stakeholders) as a collective teamwork and trainer on the job site. This vision helps to manage competencies and to integrate necessary resources in organizing the workload. For the authors, equilibrium must not be only homeostatic but should concentrate more on multiple equilibriums to avoid chaos. It should switch from a global or holistic view to a “holonic” one. Interactions between parts and whole would become more important than between parts themselves, or emergence more than integration, and transformation more than rationalism and so on (p. 746).

With the above suggestions, an individual person receives attention as a worthwhile part of the whole and reflections on action should refer to the whole and taken into account when influencing actions. The living dynamics of a work organization having

a “chaordic” view should respect four principles of sustainability (or durability in time):

- 1) The connectivity (functional links) principle referring to the functional complex mental models of individuals’ contribution requires more complex organizational models and vice versa through mutual interactions.
- 2) The consciousness principle necessitates a work organization support “internal and external development in itself and in its stakeholders” increasing comprehension that should be expressed in complex work actions. Shared mental models ought to be examined when evaluating a work enterprise.
- 3) The emergence principle towards a higher degree of complexity becomes a link to unity and integration because it promotes new functional goals, new strategies and new solutions. Actions become more distinct, differentiated and integrated. Awareness may become more distinct and differentiated.
- 4) The dissipation principle means that a sustainable work organization is not an “eternal” structure and can dissipate or cease to exist but would probably survive when “complex individuals and functional solutions create potential alternatives for further functioning of its stakeholders” (p. 749-752).

The above considerations could be interpreted however as delimiting the small group or department cell to be limited in their thinking when not departing from higher or holonic decisions in an enterprise. For managing a non-cooperative enterprise, one could accept this assertion but for a systemic approach open to participation essential in

action research it might be too restrictive in giving worthwhile opinions and determining action to be taken at their level.

A multi-level collaboration

Stokols (2006), social ecologist, suggests a new conception of “*transdisciplinarity*” with different levels in which collaborative action research is multilevel. The first level is collaboration between scientists or scholars of different disciplines. At the second level should emerge researchers in multiple fields and community practitioners with diverse professional and lay points of view. At the third level there should be cooperation between local state organizations, nationals and internationals. Studies would be on processes, contexts, and results of each type. “Transdisciplinary action research is viewed as a topic of scientific study in its own right to achieve a more complete understanding of prior collaborations and to identify strategies for refining and sustaining future collaborations...” (p. 63). These considerations might be interesting but must be reconciled with a complex vision of reality showing a little less hierarchy of discipline. Who knows if the last level is not the first one aspiring for a combination of the three levels at the same time?

Complexity versus scientific approach

In pharmacy, Sørensen and Haugbølle (2008) from Denmark describe a three-year development project study for Cognitive Pharmaceutical Services in drugstores. The authors maintain that actual problems must be discussed and resolved with those using a scientific approach. The contextual complexity of organizational factors must be considered as taking into account relationships between employees. This innovation appears partly systemic on

account of the interrelation between persons pinpointing critical thinking, but also linear if one considers steps (diagnosis, action, decision, evaluation) to introduce it. This is an example of a worthwhile plurality of methods that could be mentioned more explicitly unless considered a utopia.

Lessons in management

In hospital emergency room as mentioned above, the simulation of a system to give care to patients has shown that **without the participation of the three groups**, doctors, nurses and administration, **it is impossible to achieve managing major changes** without the participation of each care expertise working together. To diminish the length of stay of patients (LOS) it is essential to make holonic considerations essential to survive in change (Kira & van Eijnatten).

The Pharmacy **Implementation** seen with the complexity of organizational factors must be considered **as taking into account relationships between employees**. It suggests two approaches: a linear one with diagnosis, action, decision, evaluation to introduce innovation, and a more plural or complex approach to face the scientific components in regard to diversified points of view of employees.

Conclusions: Systems or Systemic Approach Modeling

In chapter 4, we saw that one school considers systems thinking as emergence and interrelatedness as the fundamental ideas of social system. Another school refers to systemic thinking as a process of social construction of the world through our mind (Flood 2010). The latter consideration is constructivist (De Rosnay, 1975 and Le Moigne (1974,

1984) in the designing of a project. However according to Le Moigne (1984 2nd ed., p 81), the term “approach” should be avoided because it refers to a Cartesian conception of science that analyses and does not conceive models. Lerbet (1982) responds to this assertion that the term “approach” is the best word description since it is a modest effort to complexity in fields such as education and social sciences; thus, it avoids developing its proper systemic inertia.

Chapter 4 revealed systemic modeling as a research method, open enough to integrate a plurality of methods, namely Integral or Participatory Action Research. The philosophy or idea behind Systems or systemic approach modeling is in reference to an open systemic point of view for persons, groups or society at large as proposed by von Bertalanffy. From there it was shown that the complexity of the real world is a call for research methods to adjust if they are to be efficient. Our research tries to show the profitable use of systems approaches especially illustrated by social psychologists. We explore the profound structures of systems calling for trans-disciplinarity as an ideal or giving a diversity of possible options or cases to answer a systemic approach modeling. The effort is done with a sample of examples in education, social theory and work, health sciences services and management. The aim is to show directions and possible lessons for application that ought to be multiplied.

Chapter 5 will present the combination of both approaches, Systemic and Action research, as a worthwhile adventure to allow for a more thorough investigation when confronting complexities of real life problems.

Chapter 5 - Systemic Approach Modeling Integral Action Research

This chapter explains the principles of Systemic Approach Modeling Integral Action Research (SAMIAR) illustrated with applications; it describes a model concerning Action Research in chapters 1 and 2 and Systemic Modeling in chapters 3 and 4. This method is complex, copes and tries to suit some of the complexities of the world. It is also open to other research approaches like the narration of one's experience taken into account. SAMIAR has been experienced in education, including some students as researchers and referred to in Chapter 6.

SAMIAR Principles

In our view there are six principles to be understood when deciding to use SAMIAR in a research that combines integral action research and systemic approach modeling. The order in which the six principles are presented may be perceived as linear. A circular graphic might have shown the interrelation of each principle with the other five but is difficult to illustrate and not necessarily reproductive of lived reality.

The **first** principle concerns the **finality of change** that is anticipated and thought of in a project that is constantly evolving in its process and products.

The **second** principle refers to **the creative modeling process** of revision of action and reflection to induce interactive phenomena linked to the finality of change and characterized by precepts of relevance, globalism and aggregation.

The **third** principle is conceived as a **global conduct requiring reflection** that questions action in a heuristic and systemic process conducting to a co-operative intervention that may become a community one.

The **fourth** principle concerns the **discourse** that requires enlightened reflection that is inscribed in a problematic action, open to integration of disciplines and favouring the commitment of actors as authors of a history that transforms the world.

The **fifth** principle is **participation** that commands authors to act in each and all stages of consecutive change in dialogue on action and discourse in investing their common values contributing to the collective project of modeling.

The **sixth** principle is the **contract** that is defined and negotiated as an open, formal, unstructured entente that should reflect a common language in relation to aims, roles, and values.

5.1 On the finality of reflective change.

1st principle: Change

The finality of SAMIAR or systemic approach modeling integral action research is to anticipate a project as constantly evolving or changing in its processes and products.

Change as the finality of systemic modeling

In systems modeling, comprehension becomes explicit, global, and conjunctive while it could remain implicit, mainly centered on the problem in the parameters of dialogs, discourses on action research that reject dogmatism or sectarianism and thus avoid a blind militant attitude. When allying the finality of understanding characterized by the sys-

temic approaches and integral action research, participants must enlarge their problematic horizon. Change takes a more global signification linking interaction of components to the whole, including immediate environments. To realize change, a team models a project of action research and realizes a systemic approach. Efforts are redirected in the sense of a systemic change write Behrens and Fosters-Fishman (2007) when they suggest going beyond pure comprehension of context, encouraging community psychologists or psycho-sociologists to reformulate their theories and their methods in that direction. To link participatory action-research to a contextual vision as it is done in a systems approach responds well to joining inductive and deductive visions towards the finality of an enlightened change.

Change as a finality in integral action research gains a global dimension, a direction that expresses relevancy of components and their interaction with the whole more than just interactions of parts and between them. This explains in a certain way that the whole is greater than the sum of its parts. Researchers like Kira and Van Eijnatten (2008) consider the whole as a “*holon*” relevant to a “*chaordic*” systemic thinking when members grow internally and externally in their complexities. Clegg and Shaw (2008) call this a “holarchy,” especially in management. The “holon” appears as the vision of what is understood as a global change. We could say that:

Change is a durable transformation of practice, emerging from reflection and application of knowledge towards a philosophy of awareness from all actors' participation.

It is not a linear direction or a dichotomy, one or the other, but the union of both approaches, a reliance that becomes increasingly important (Herrscher, 2006, p. 411). For example, a group of SAMIAR researchers may need experts to enlighten interaction in international relations (Ghisi and Martinelli, 2006), in youth's social environments (Tseng and Seidman, 2007), or because the need for change is systemically situated in the intractable and escalation of conflicts (Coleman et al. 2007). All these components linked to finalities of actors/authors may be forgotten in the midst of an action in a disciplinary approach of a multidisciplinary practice (Hills et al. 2007), a transcultural (Christman, 2007) search of community health or for an essential knowledge to improve understanding of a complex problematic.

The finality of change is a deliberate action

What is the nature of change to be done? Change acquires significance depending on contexts. Some researchers suggest a biological growth meaning. Others retain as important the technological progress in an institution or another sphere of society. A few qualify the phenomenon as a human or social adaptation. Others mention change only when talking with a person or a group, shown in open pedagogy by Horn, (2008) and Mathews (2008) when granting freedom of expression to young artists. Change is in the transition from one state to another. It might be episodic or continuous, congenital or radical (Foster-Fishman et al. 2007, p 200-01). The finality of change overlooks wellbeing or utility in such a way as to be able to be expressed in an open system, a non-binary one respecting freedom to act (Martins, 2006). Change is synonymous with mutation, transformation. It is

meant to enrich a process of modification of practices, procedures and relations without having to produce a specific result (O'Connor, 2007, p. 402) because it depends on people's freedom and their influences. The term "change" appears preferable to improvement because it expresses a deeper transformation. The same could be said in health services when one shows the person as the first one responsible for care in mental health in the United Kingdom (McEvoy et Barnes, 2007) or in Australia the aggravation of a chronic sickness (Robinson et al. 2008). The proposed change is temporal and should be inscribed in a dynamic transformation of thought in reference to actions, in a more global interactive vision to face complex realities.

Real change demands attention to the social milieu in which the project is inscribed. For relevance of actions in relation to understanding, the systems approach must be expressed in a modeling process. A reflection on accomplished actions or undergoing an enriched vision with a systemic approach makes the strategy of action research relevant or pertinent if decided by everyone when accepting a wider framework. The advocated system is an open one inspired by von Bertalanffy, adjusting comprehension to action or change. Not only is the actors' perception of action transformed, but their discourses also become more refined. A preoccupation with reflection over real change brings to systemic modeling a sense of reality while if one dwells too much on reflection, says Edgar Morin, this is harmful because 'too much general abstraction takes one

away from the concrete and impedes the designing of a model' (1990a, p. 34).¹⁶

One could ask if change can be seen as the finality of research that aims to enrich knowledge or theory. One answer is that change is happening not only in action but also in thinking. It is a reflective action, a deliberate one, an interior change of thought shared normally by the whole group or within a Socratic dialogue resulting in a greater critical reflection according to Skodoulis and Dawson (2007). In order to make practical knowledge more productive, the *design* of systemic projects requires that evaluation be open to spirals that include moments for revision of action and thinking in the transformation or the resolution of a case. It is normal to signal the importance of this process (or human processors) aiming at favouring transformation to the plan of explanation, application and implication because these steps distinguish integral action research from other types of research on action (Desroche, 2006, p. 48). If we join systemic discourse to integral action research, we give to actions global dimensions, relevancy, aggregation and finality or teleology that characterize a systemic adventure (Le Moigne, 1984, p. 43). It is an approach to situated learning, knowledge and reflection that often needs to be changed. One must notice that Le Moigne however does not see change as an aim or finality and rejects especially the word 'approach'. Lerbet (1982) rejects the above standpoint because change is fundamental in action research and even in systemic modeling when authors are aiming at transformation, especially in education, social work, health care, and management.

¹⁶ Translation: A. Morin.

Operationally, one could also see change as a central cultural competency and relevancy (Reese and Vera (2007). One may think that systemic thinking reinforces the determinism of critical theory because social phenomena are examined between the parts and the whole. In that case, one might be forgetting that theory belongs to no specific discipline and is everywhere; it is devoted to epistemology, to critical transformation that must be present (Davidson et al. 2006, p. 36). When uniting systems approach to action research that aims for change, actors intervening in the system become sources of change and are responsible as authors of their own history. Comprehension that is given rightly as finality in systems approach is transformed in a practical intelligence of systemic change translated in SAMIAR with a modeling project. This last reflection reaches the operational and descriptive definition that we understand for change in relation to comprehension:

Comprehension in systemic approach modeling integral action research is not a purely theoretical vision; it is necessarily linked to practice and concrete expressions through exploration of new ways or strategies aimed at an intelligence of a complex problematic that is understood through dialogue with research actors/authors in order to conceive modes of inventive, creative and reflective transformations to eventually reach practical knowledge or life lessons.

The finality of endogenic character development

One may argue that it is not only action research that produces change. Many applied researches are also producing change, differently but effectively;

however, the grid for participatory action research (PAR or IAR) goes beyond a purely scientific theory as an application. Experimental research for example produces effects because of its independent variables. It is a relation of cause and effect. Its finality is above all, for example in education, to verify hypotheses in relation to theoretical models of teaching or some of their elements. There is not a mutual constant influence even if a return from the effect to the cause as such may suggest trying again with another independent variable. Change is seen not totally differently in systematic development where it depends more on the design of the strategy without asking users' participation at each step of the process. Participation is usually programmed by agents but not as creators of the design. It was normal in the 70s in instructional or educational technology to apply formative evaluation during the process but not at each stage of the systems design. With a philosophy of open education, it became normal that students be included in the conception or the designing of a plan of study at each step of their own learning endeavour, often with small group strategies.

The systemic approach modeling, because of its organisational complexity and its ambiguity, suggests a frame of reference using frequent paradoxes when people have to participate (Freire, 1977). Obviously, a developmental design inspired by action research tries to respond to complexity when planning interactive trials and errors essays letting the team make readjustments with returns that resemble integral action research. Systematic education makes participation difficult in a production or a development for example at the Lego enterprise (Luscher et al. 2006). Nevertheless, one could no-

tice today a development research as utilizing the dynamism of action research in its production, and notably in social or economic development for underprivileged sections of a population (Dionne, 1998, 2007). Examples of the latter have been signalled before in social sciences on the evolution of the concept of development by Foreman-Peck and Murray (2008) who integrate a fourth dimension including involvement, experience, technology and globalisation as an answer to complexity.

It was noticed earlier that some authors like Midgley (2008) (chapter 4) pretend that action research or systems approach is scientific and would in that logic make SAMIAR an extension of scientific research in its classical definition. Murray et al. (2009) show in their examples that evolution in a rural country was planned in four European regions. In an urban development applying co-generative processes in accordance with democratic principles, Ataov (2008) describes a development in an urban society in Turkey. One may also notice an osmosis relationship between an endogenic participative development in researches between universities and indigenous community groups in Australia (Mayo et al. 2009). Through participation, finalities become more respectful of the social complexity in defining a problem.

To summarize, SAMIAR transforms comprehension inherent in systemic research when adding change to the finality of systemic modeling. Change becomes a component that enlarges the horizon for solutions when using action research (participatory or integral). The finality becomes comprehension of change that transforms actions afterward. The process aims at respecting the char-

acteristics of an endogenous or participatory development, the cultures and the peoples' decisions. In that way the qualities of change related to integral (or participatory) action research explained in chapter 2 needs to be expressed and respected.

The relation of action and reflection is multidimensional, from action to reflection, from reflection to action, from a deliberate action to a more refined action and so on. The open system suggested for modeling does not allow guessing on participants' reaction because actors' values are continually questioned; the design in SAMIAR requires a moment and a place for constant dialoguing reflection because change is constantly present, exploratory and formally achieved. Actors as researchers ought to be looking constantly to new avenues for improving the qualities of interventions with the second principle on its unfolding action and reflective reasoning.

5.2 Unfolding action and reflective reasoning

2nd Principle: Modeling as a creative process

Modeling through SAMIAR is a creative process revision of action and reflection to guarantee induction of interactive phenomena linked to the finality of change and defined by the precepts of relevancy, globalism and aggregation.

When modeling in systemic action research (integral or participatory), one must think concurrently about the process of revision of action and reflection that guarantees induction of field phenomena and about essential precepts to systems approaches aiming at deductive thinking for a global and coherent regard on strategies. The process of revision

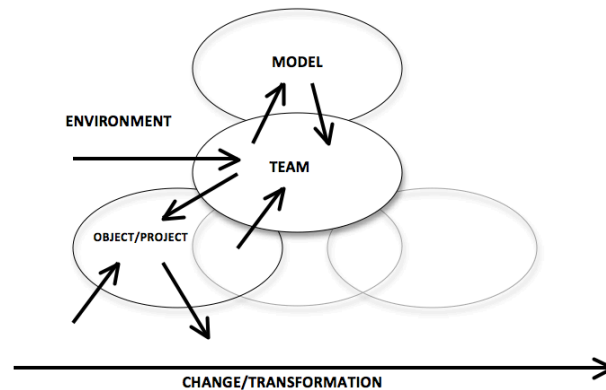
integrated in the methodological design responds to the constant need for evaluation required by action research. The systemic approach that uses the term of “processor” is not a rigid mechanism because it refers to actors as humans who participate as “processors” ready to modify their minds and the design project through critical reflections and actions when the project is unfolding. Modeling through the process of SAMIAR is a prototype among many other possibilities of design.

One should observe that analytical modeling is replaced by systemic modeling. Instead of an object of study, in systemic modeling it is the object /project or more simply the project that predominates. The element becomes an active unit or a component replacing disjunction with conjunction. Analysis is seen as conception, evidence is relevancy, and causal explanation becomes teleological comprehension (Le Moigne, 1990, p. 9). In that way a different methodology emerges and becomes constructivist, instrumental, and designed to develop solutions for complex problems.

The model: figure 1 – prototype of SAMIAR

SAMIAR becomes a research methodology employing systemic thinking to understand an active evolutionary complex phenomenon. The model is open to a collective actor or a team to induce a teleological change. The dynamic of this prototype of systemic modeling is a result of integral or participatory action research introducing actions and reflections loops (Hirsh et al. 2007; Janzen et al. 2007) permitting the study of intervention strategies and the change consequences.

Figure 1 A Prototype of SAMIAR



SAMIAR is commanded by the requirements of participation essential to action research and by systemic precepts. The comprehension or understanding of the finality of systemic approach modeling expresses an end state of transformation, essential to integral action research expressed in **principle 1** on comprehension and change.

More explicitly, the team plans and schedules dialogue meetings for critical reflections on strategies or tactics creating or inventing a dynamic model. The design is an intellectual construction of knowledge based on action expressing reflective change that becomes the finality of the project. The real world is not reduced to elements but seen in its global nature from every angle. The model permits a view of entanglement of social interventions and their interrelations with retained environments as frontiers. The four principles of Le Moigne (1984, p 43) are always present as deductive components: relevancy, globalism, teleological and aggregation serving as compass indicators for dialoguing reflec-

tion on the complex situation. Nevertheless negotiation, participation, the will for change in discourse and action relevant to integral action research enrich modeling through reflections acquired by actors' interventions and their creativity. These important moments emerge from Glasson et al. (2008) in their participative action research explained during a project helping nurses to become researchers.

The team: figure 2 – SAMIAR's team

The team is the heart of the interactive intervention between the phenomenon model and the abstract model. Actors make the team; the systems approach sometimes names actors too mechanically like "processors", but participatory action research retains the terms of actors and authors (Desroche, 2006, pp. 33-68). Referring to the latter as practitioners, the object of research is transformed in a team project and the actors become authors of their decisions taken together democratically. The investment of actors as practitioners into action is of course obvious. The change agent or the animator if he does not come from the field is open to interventions of actors even if he is the one who suggests a project. In a continued process of action and reflection, the actors (authors) collect diversified information in the field following their actions, report them and treat them with the team as authors /actors. Authors/actors form in their exchanges a group that has the responsibility to apply, adjust or modify operations of the model if necessary. O'Connor (2007) suggests using systemic markers in the intervention model (Systems Guides Intervention Model) when problems arise, especially if no agreement arises between systems from participative actors. In the case cited, it belongs to social

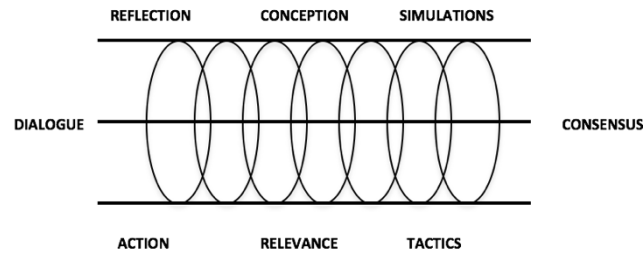
workers and responsible agents to bring children in community homes. It remains important to unveil misunderstandings and places where they occur in order to take decisions following exchanges of ideas. Even if a fact appears as a minor part of a system, it is important to come to an efficient solution. The emergence of the social system, as shown by Swanson (2008), arises when it commands a critical sub-system and develops its self-regulation and unity, but it is dependant and influenced by the processes and structures of information. It might be useful to draw a model of intervention as mentioned above (O'Connor, 2007). To keep a system's equilibrium, it is necessary according to Baily (2008) that a frontier is maintained in a live system respecting the theory of social entropy like entrance and exit of information. Parsons (2007, pp. 406-407) describes the equilibrium of the system showing that it is important to see if the organizational structure is open to creativity in accepting new equilibriums, what he calls the complex adaptation of system (CAS). The latter helps actors to come to agreement and consider their actions with a certain prediction. Too strong conservatism for an agreement and a certainty of what one accomplishes does not help change like the opposite, a misunderstanding that may engender a high level of uncertainty. Between the two poles there must be a dynamism that permits creativity in dialogues and decisions to come to equilibrium of groups' opposition. Joël de Rosnay (1975 p 29-31) treats this phenomenon of regulation and maintenance of equilibriums in the functioning of an ecosystem.

When modeling, SAMIAR retains its finality (or its teleology) of innovative and transformative change that is exposed and impregnated in an action. In an

inductive approach, actors understand reality in its complexity under different or multiple forms. The dialogue of authors and actors permits them to experience mutual comprehension of the field reality in order to describe it faithfully and to conceive one or more mini teleological models. In this way, the process of a live modeling calls upon their creative imagination. Critical reflection, the heart of dialogue, is recursive, auto productive, leading to new mental concepts and to creative images of planned action aiming at developing change strategies and tactics adapted to the field reality.

The emergent thought from debates is the frame of an innovative questioning, a nonlinear process like a spiral that is inductive and deductive, reflective and functional, exploratory and creative. This spiral does not exclude practical knowledge founded on experience; it encourages it even if it does not always proclaim it explicitly as did the nurses in the United Kingdom (Tolson et al. 2006; Booth et al. 2007) with their statements on best practice. The results might not be easily responding to a quantitative experimental research because qualitative research essentially belongs to the world of signification. McDuffie and Scruggs (2008) on specialization in education for handicapped children illustrate the above affirmation that it is when parents and teachers make affirmations that one perceives the utility and its validation. This theoretical-practical knowledge answers the double requirement of a problem studied in action and the production of life lessons. The work of a team dialoguing to produce practical statements is drafted on figure 2.

Figure 2 – SAMIAR’S TEAM



To keep contact with the reality open to action research, the team of actors/authors of SAMIAR takes the center place in figure 2. Exchange and discussion meetings establish bridges between concrete and abstract realities, the real and the simulated, the invented strategy and the intervention. The ellipses suggest different stages of a grounded systemic action research (Figure 2) and the ellipses are identical because it is impossible to trace them ahead of time. On real ground they vary, being longer or smaller depending on the time length of interventions and meetings. They can be drawn with different lengths depending on experiences and debates of the actors/ researchers. They are meant to correspond to the complexity of the case at least approximately and corrected when applied.

The relevancy concept, considered an abstraction of the model, enlightens the grounded reality. The first actions entail a reflection on their relevancy; the phenomenon to model is conceived in its project, rethought and validated by new actions; then strategies are elaborated and simulated, and tactics are adopted; they are reviewed, corrected after new processes of action-reflections. Edgar Morin (1990a, p.106) writes that ‘the strategy does not design a predetermined program (...)’ and ‘it ‘per-

mits to retain a certain number of scenarios for action' and 'profit from hazard' to change tactics afterwards.¹⁷ It is a classical method of action-reflection-action known by actors or practitioners becoming authors of their decisions.

The object-project field indissoluble from its environment

The reality of a phenomenon that cannot be broken down appears indissoluble from its environment and irreducible to one component; it is situated in the heart of an existing structure and its history and possesses a function. Even if it is possible to identify the three poles of any project – the *ontological* (being), the *genetic* (becoming), and the *functional* (making) – the last, the making, retains a primordial importance in systemic action research modeling due to life that prolongs, starts over and continues its course in a changing future. The first two, being and becoming, are upstream and nourish the making. Any researcher must know how to establish frontiers, the operational or functional one becomes a frontier without negating the two others (ontological and genetic) and keeping space while the model is isomorphic, meaning an open door to other methodological approaches when possible. In our operational model of education, we may call upon narrative research at the beginning of a module. In this case, the pole 2 the *becoming* of actors may enrich the ontological pole 1 *being* of a project and still expresses itself in the historical reflection (*becoming*) of module 2. Then the ontological and historical pole may inspire in due time the *functional pole* of actors in module 3.

¹⁷ Translation: A.Morin.

The research field seen as a project because of authors/actors are always considered as doing complex irreversible actions, recursive and teleological in interaction with an active environment. The latter is active while the model is isomorphic or similar to the object that becomes a project.

It is mainly during meetings that the group works at modeling expressing creative ideas emerging very often from their interventions, following exchanges or during a discussion with other authors/actors. To model with action research and systemic approach principles, the actor/author, de facto the team must make sure that the precepts of systemic approach methodology are respected. Receiving instruction to prepare a team may be necessary to transit from a Cartesian conception to a systemic modeling. Professionals/practitioner (actors) becoming researchers (authors) must accept the team as a collective modeller or designer and that the object of research becomes a project that incorporates all actors/authors and their common values.

The team as a collective author/actor must be lucid regarding the implication of their motivations in their intervention on the field. Each actor researcher in the field represents the team and should appear open and creative in his or her actions. The characteristics of the team enrich the personality of the actor that pursues the quest for creative innovations in order to develop a greater understanding of the problems and contribute to solutions with the democratic support of the team. Thus, the project becomes relevant and may be modified during the action revision loops; it then may adjust to circumstances when applying field actions. An actor in reporting his intervention to the team may be prof-

itable for each member enriching dialogues and deliberations. It becomes a collaborative learning that could be facilitated through the Internet according to Nel and Wilkinson (2006,). German and Stroud (2007), however, distinguish participative action learning from experiences, giving power change to action research. It would be in combining both actions, participatory and research action, that participatory action research exists, which is an assertion that could probably be denied by some authors. One may add that a project perceived as simple or straightforward at the beginning may become complex with interventions in the field and team discussions. The opposite is that a project seen as complex at the start may look simple with interventions or outputs for action following a debate on strategies by the group and applied by the actors/ researchers.

Relevancy, globalism, teleology and aggregation precepts

If the process accepts a creative revision of action and reaction for an interactive phenomenon induction aiming for change, it is also a warranty for the precepts of relevancy, globalism, teleology and aggregation. The characteristics (Le Moigne, 1984, p. 43) of each one follow.

The first precept of relevancy emerges when the team discusses a project as corresponding to intentions and may modify it if necessary. The second, globalism, forces the team to perceive the individual and collective project in an operational relation with the environment. The team as a modeling group must see the project as a component of an ensemble. The law of equilibrium or not pertains; it is important to find niches of creativity open to

change. Emerging from globalism the third precept concerns teleology or the finality of change that actors/authors observe in the behaviour of their project or the project's components. These are not looked at as structural explanation but as resources that mobilised them when accepting change. It is a rational and intelligent understanding of change more than a demonstration pertaining to Cartesian thought that however could be complementary in the case of SAMIAR. The fourth precept, aggregation, means the formation of aggregates reflecting deliberate choices of the modeling authors/actors who rely on relevancy of the desired change to retain components or variables open to modification. In this way a group establishes its convenient or realistic frontiers. The results of the latter stimulate qualitative research in quest of significations.

To gain in operational process, a community psychologist (Guranick, 1994, 2007) calls on principles to clarify the aim for change; to identify if it concerns an existing system or the creation of a new one with the unorganized parts; to conceptualize interventions as systems change at the beginning, and to utilize an eclectic approach but integrated for change; and to work with agent open to actual, relevant and existing events. On the other hand, Foster-Fishman et al (2007) after clarifying concepts of systems and change suggest an adapted framework to work for change or a systemic transformation in four stages or steps:

First stage: To delimit the system's frontiers

This first step concerns the vision of a problem and possible solutions in a specific context. It is a difficult task to question the nature of a complex problem and to discover the nature of the system con-

tent in relation to a problem. Animation techniques can be used in *focus groups* where a variety of expertise might be represented.

When the problem is expressed or conceived, it is necessary to define it and establish its frontiers. The task remains difficult because it must respect values' reality, possible interventions and realistic change excluding arbitrary decisions. The team identifies the relevant systems levels of interconnected parts and the actors concerned by the problem: it is called a *global* or *hologram* consideration. Levels are added or retracted to become a significant aggregation to the finality of the desired change without forgetting the possibilities to act and decide on the retained frontiers.

Second stage: to identify the fundamental parts of the systems capacities to change

The designers must discover which parts might be affected by change in the system considered as a whole. There is a deep structure that has a normative aspect; these are among others, attitudes, values, beliefs, expectations and tacit needs acting on behaviour. This deep structure establishes a status quo and furnishes explanations of the functioning systems. There is also an apparent level including norms, resources, regulations, politics, procedures and activities or operations of the system. Each component is examined to perceive its characteristics, similar or different from other sub systems.

Third stage: to estimate or evaluate the system interactions

It is now important to draw the integration of components in a *graphic figure (the language of systemic design)* to illustrate interactions in order to notice the systemic possible changes. Each compo-

nent is directly or indirectly connected to another one so that results are the products of interactions. In other words, no component alone permits comprehension if separated of its interactions with other components of the system. One must remember that any system has two types of interactions: *equilibrated* loops and *reinforcing feedback* ones. If interaction is reinforced, the components interact between one and the other to arouse an escalade or a great change effect. If there is a delay in the interaction and the system, it may show an apparent defect, or a real one.

Fourth stage: To promote a systemic change

Once deep components and apparent ones are understood, it is possible to elaborate intervention strategies to facilitate a systemic change. The authors suggest questions to help identify the levels and effectuate a change into components while observing those that are relevant to the finality and those that favour it. The effort to be deployed on other components or to the observed interactions in the problematic situation must be considered. Finally, observation is suggested on different points of arousal, on the *patterns* or configurations that impede change or help attain the desired aim and ask what links may be created between components so that the functioning may be done in relation to the change finality.

These authors propose guiding-questions for each stage. It might be useful and profitable to consult mainly those of the second stage. It appears to us that actors/authors of systemic modeling may compose their own guiding questions if following the principles and steps discussed above.

Intervention as dialogic, recursive and holo-graphic

Systemic modeling intervention must respect the three characteristics essential to systemic thinking; that it should be dialogical, recursive, and holographic (Morin E. 1990, p. 51 and 169). Dialoguing helps associate two elements, sometimes seen as competitive and consider making them conciliatory and complementary in SAMIAR. In action research, the totality of opinions and their complementarity through dialoguing is essential even more when harmony of strategies should be integrated and harmonized with a larger vision of systemic modeling.

Recursiveness is defined as an organization of elements or components following a process of self-production or simply a circular causality in synchrony. The group recognizes that in action research, the process of actions and reflection sometimes separated, inter crossing, generating or engendered correspond adequately to the systemic approach dynamism. In that way discussion is not afraid of disorder knowing that a new harmony will emerge and that reasoned statements engender also creative components. Complexity is probably the kingdom of action, vital or beneficiary from a complex thought if we understand E. Morin (1990a). An article by Espinosa and Harnden (2007) helps in enriching sayings on the consensus according to Stafford Beer on “syntegrity” or *team syntegrity*. This model theory tries to reconcile hierarchical social interactions when encouraging a participatory and impartial dialogue in a group who has interests and diversified points of view in order to come to democratic enlightened decisions. A social organization has the characteristic of letting diversi-

fied interests and points of view emerge that accompany a recurrent ensemble of human interactions. In a Colloquium for popular education, our group (GÉSOÉ) has developed techniques to favour the emergence of new ideas, among others, the cyclo-writing (cyclo-écriture) (Groupes... & Morin A. 1984, p. 149-154).

A global or holographic vision of reality is an essential card for systemic modeling. This global vision is important to SAMIAR because it considers personal interests in the wholeness of a team project. The animator playing often an essential role in action research is also helpful in modeling to make a synthesis with a stimulating large vision of individual interventions and finding a place for everyone in the process of the project, thus excluding no one. Techniques could be useful for the animator to act as a collective actor. He must be attentive as Vespieren (1992, p. 356) explains that clarification of partners' motives may be elucidated because each one contributes to put his brick in raising a theoretical building and all share the same risks. It means that researchers must help actors to implicate themselves in the research. Minary (2000, p 31) expresses the idea of a system that must permit components to be waiting without being forgotten or abandoned.

It appears impossible to define exhaustively the characteristics of tools used in SAMIAR while distinguishing participative and systemic ones. Every collective modeling agent must create or invent them. To better the construction of a method, it is necessary to have strategy, initiative, invention and art writes Edgar Morin (1990, p. 130). In health sciences, Clemensen et al (2007 p. 129) recom-

mend a participative design. It is a developmental approach taking its roots in action research looking for technological solutions to solve real problems of the world. It is suggested to have a multidisciplinary team of researchers with clinical and technical expertise concerned by the domain. The final result of the process must not be anticipated, thus permitting to be open to creativity, roleplaying in a physical, relaxed and calm environment giving participants a chance to explore the potential future in trying or creating prototypes. The following exploratory definition based on reflection in psycho sociology keeps its actuality:

Multidiscipline is an approach referring to the utilisation of different methods with the known intention to face challenges linked to change using a multi form of investigation and multi levels of interventions in studying a complex case.

In summary the second precept is change, understood and applied as the finality of SAMIAR. It aims at the transformation of action and discourse incorporating the participants' values. The process is neither a pure and simple application of a theory, nor a systematic development research, but a transformative intervention of action and discourse through a team that lives as a formal spiral and an informal revision of thought and action. It is produced in systemic modeling linked essentially to its environment respecting precepts of relevancy, globalism, aggregation and teleological change.

3rd principle: Action

Action in SAMIAR is conceived as a global convention requiring reflection, questioning what is done with heuristic and systemic methods leading to cooperative or communitarian interventions.

Systemic approach modeling integral action research (SAMIAR) is defined as much by action as by the active process of reflection through a precedent, concomitant or following intervention. Action and reflection are complementary. Action according to R. Delorme (1999, p. 25) lies at the heart in systemic modeling complex reality and calls principally for processes of decision and strategic action from an individual, an enterprise or an organisation. If one distinguishes them, it is to unite them in the systemic modeling. Confusion may occur when one regards discourse as an action treating reflection having scientific observation objects.

Action in SAMIAR is a global conduct

Action is a way of acting with a global vision preferably considered as a secular one (Turina, 2007) without being blind when group values are conducted envisioning a religious, militant or other value. Neutrality must be understood as a respectful action of freedom of choice regarding interventions to undertake strategically to achieve systemic change. An example is suggested by Adjei-Nsiah and his group (2008) that relates two periods of exchanges followed by a third more democratic one between workers and migrant farmers who create sensible institutional reforms to equilibrate the sharing of land in Ghana.

Action in research action may be considered as a global convention; it is not thought of only in relations of means toward ends. Dubost shows (1983, p 493) that the logic of actions moves from no action to no research and that between the two poles, there is a range of action research that treat life experiences, social interventions, more militant interventions or socio pedagogical ones, organizational development, actions studies, psycho-sociological, decisional, analytical or demonstrative ones and ground or field actions. Action as a psychic process without reference to an exterior reality is not included in our definition because it is too abstract and may abandon the essence of action research; its necessity is to be part of a field and included in a reflective thought. Actions to qualify as research must accommodate the process of conscientization, or reflection, of analysis, of correction, of verification and of growth in knowledge. Any action research devoid of a relationship between theory and practice is not necessarily integral or systemic; for example, a militant or activist intervention might abandon critical reflection and become too authoritarian; such an activity would not qualify as integral action research even if it is systemic. The education of interns or trainees, referred to in this book, represents actions meant to illustrate a live relationship between practice and theory. Such is the case of experiences in education, (Magos, 2007; McIntyre, 2006) in health, (Blum, 2009) or in pharmacy (Sørensen & Haugbolle, 2008); the shown action researches because participatory are all concerned persons. However, the Munro and Cook (2008) experience in management internship inside a small enterprise is participatory, but the theory is never questioned; it could have been systemic, but not

integral. The relations between action and reflection in systemic approach modeling integral action research are interactive because participation in explanation or application requires that each actor has taken up a position in the decision process regarding the finality of change.

Action includes necessarily “doing” or “making”

In SAMIAR, action is aiming at transforming autonomous persons. Action may precede, accompany or follow reflection. If one examines causal results, it is difficult to see any difference between action research and other types of research; for example, each research produces truths, organizes and critiques new information, it excludes even a certain number of components to reach the solution of problems, it evaluates the effect and expresses new affirmations or teachings. Up to now, any research does approximately the same task. But systemic integral action research explores more, works often in the dark, proceeds by trial and error, like an ingenious handyman or through reactivity; it is rather a process strangely similar to those used in open pedagogy. The system is open (von Bertalanffy, 1973) similar to a living being. It might be difficult to distinguish between an open pedagogy, a learning cooperative and action research. What is most fascinating is the accompaniment or the simultaneity of action and reflection. It resembles what Schön (1983) says about the reflective practitioner in action, or on critical reflection to action. More than a century ago, Blondel (1893) in his remarkable dissertation (1950, p. 23) writes about ‘action science’ observing what is beyond positive, quantitative or experimental sciences, and refers to action science as being as valuable as positive science. He explains the conscience of subjectivity or the recogni-

tion of thought that produces a design to be considered as a scientific discourse. Blondel maintains that *action science* observes what is beyond positive sciences, quantitative or experimental. He affirms that ‘if I am not what I want to be, what I want, not from the lips, not in desire or in project, but from of all my heart, with all my strengths, in my acts, I do not exist.’¹⁸

“Action” in systemic approach modeling integral action research is different from action in daily life. It is an intentional, implicit or explicit action implying thinking that expresses itself, becomes more precise in its discourse following dialogs. It is part of a group discourse that organizes modeling to enter in positive interactions creating disequilibrium in the system that copes with a new reality, but nourishing and stabilizing it with a new vigour. The consequence is that dynamism exists between action and discourse that were separate to learn more about them, united again to come to efficient interactive interventions.

Action is commitment

Actors invest themselves in action; they engage their values as a collective actor that projects reflective cooperative action. The latter is part of a recursive identified and finalized phenomenon, deploying a hologram in an environment covered with a variety of projects. According to Turina (2007), secularization is a property of action that should not be considered as a long historical process. The concept of action should be seen in an operational way and referring to an observable conduct of an individual or a group. Better than great theories, action

¹⁸ Translation: A. Morin.

is a key to understand different levels of social change and answers very well a systemic vision attentive to interactions and to differences at a micro or macro level. Referring to Sale (2006), participatory research without action is not acceptable. Davidson et al. (2006) go further and maintain that theoreticians of critical theory are more inclined to isolate theory and practice than to act as actors on the systems structures. Their lengthy research confirms what practitioners condemn in those who isolate themselves and what Paulo Freire (1977) writes regarding the necessity of uniting action and reflection in a change praxis.

Action questions discourse in a heuristic way

It is important to recognize and integrate action into group dynamics because the participants are concrete actors, involved practitioners in real actions. In the case of the researcher who acts as a practitioner, it does not mean to integrate the actor/researcher in his laboratory, but to help him to model his actions systematically in such a way as to become an author/researcher of his own theories. This suggested clinical approach is one that favours emergence of a number of generalizations defined here as *practical principles or life lessons*. This production mode for knowledge should be applied to education even if a natural scientific label does not emerge from the traditional field of experimental sciences. Dubost (1983, p 337) suggests for sociology an extension of the concept of science: "For us, when choosing to enter in a clinical methodology, sociology must recognize itself with the label or seal of involvement, must then accept a new mode of relation to the actor, recognizing a new status in his work as producer of knowledge, accepting a non-positivist identity, renouncing to a

certain scientific label, to a certain ideology of science.”¹⁹ The concrete action system by Crozier & Friedberg (1977) may include the totality of ways more or less integrated that might be perceived in a situation founded on a regulation of wholeness, even as a systems vision that enlightens us as long as one avoids to center everything on the knowledge of the organization and forgetting theorizing on the process (Dubost J., 1983, p. 472; p 480-81). In that way we are thinking like most researchers on participatory action research in Latin America proclaiming action and knowledge in a dialogue with postmodernist researchers (Fals-Borda O. et Rahman M. A., 1991).

Three case studies have gone beyond their formal discipline and have situated their action with a transdisciplinary or pluridisciplinary perspective. J. Schensul et al. (2006) developed an interdisciplinary and intersectorial partnership to deepen their understanding of adults’ depression in poor and underdeveloped areas. They indicate conditions for such research: an agreement on the research object, common values, working together before and an aptitude to negotiate and take group decisions. For preventing AIDS, the works of Laperrière (2007) in Brazil and of S.L. Schensul et al. (2006) in India should be retained. In struggling against obesity and the promotion of healthy food, Y. Suarez-Balcazar et al. (2006, 2007) show how theories on community development and participatory evaluation of ten disciplines guide the work and action towards a healthy alimentation for youth. The authors recognize as necessary a solid involvement against difficulties, a continuous ex-

¹⁹ Translation: A. Morin.

change of methods and resources, a partnership and the sharing of power, without forgetting cultural competency. The above cases are examples that demonstrate that multi or transdisciplinarity is essential to more efficient action in a complex system. Shinn (2006) affirms that it is the case that calls for competencies on actions to be undertaken.

The process places action in a systemic relationship

The process theory concerns what is involved in relations between intervention and system. If a problem occurs, it is important to find the origins of the difficulties in this relationship. An action could be taken concerning a task ‘requiring less explanations but an experience with effects that would modify traits of the situation,’ writes Dubost, 1983 (p. 526).²⁰ In systemic modeling, understanding the finality of change is primordial to a causal explanation, experimental or laboratory research. Analysing a situation and its contextual factors is complex (Bataille, 1983). The efficiency of action, especially in training, depends on a psycho sociological adventure as much as on education for change in attitude and the configuration of the system. If the two facts are combined, results are spectacular affirms Dubost (1983 p. 178). This efficiency perspective reminds us that action should be globally considered as much on both immediate and remote relations.

Action is not totally planned and predetermined

What does “action” means? This question is important. Dubost (183, p. 369) writes that action may have a degree of anticipation; some indicative lines

²⁰ Translation: A. Morin.

are entirely planned, others elaborated in comprehensive traits, defined, or suggestive towards production of other innovative actions. In a complementary point of view, a totally planned action is systematic (problem, cause, hypothesis, experiment, evaluation) belonging to development agents of curriculum. The latter is more hierarchical specifying the role of actors at specific steps of a course. But in SAMIAR, a curriculum must be defined in a larger perspective leaving responsibility to actors (or students) that could eventually change the process or even enlarge the content of a course taking the responsibility on the basis of open or less participation in regard to subject matters to be learned. Participation could be open to methods of learning and less on content depending on the nature of the discipline to be studied.

Different types of participation characterize the process of SAMIAR. It concerns intervention acts as much as organizational ones or the realization of the action. This process theory encompasses the method, the retained procedures and the person that displays them. This person takes care of representations and relative hypothesis regarding efficiency, explanation of desired facts, observed with their relation to cooperation or collaboration (Dubost, 1983, p. 568). Explanation, it is important to remember, is concerned with intelligent and rational understanding requiring acts of reflection.

Action is more collective than simple individual cooperation

Action is more collective because exchange in a dialoguing way is essential. Action for participation requires a minimum of collaborators or actors. Action could pass from collective to communitarian

because the experiences may inspire other groups to find similar projects that could interest other institutions or communities.

Beyond theoretical interdisciplinarity, it might be a concrete action required by a case, for example in community health services that stimulate practitioners from other domains. Shinn (2006) does not see conflicts between diverse practitioners looking for solutions to solve problems in other places but more an overture to empirical, methodological, theoretical or practice perspective that commands high-level strategies. Difficulties may be met, but also rewards in a helping or support group with schizophrenic persons (Chien et al. 2006; Kinzie et al. 2007). In a research concerning harmful effects of lead, it was an action that united service, pedagogy and research functions of a university to collect information for preventing sicknesses in an American west center community (Rajaram, 2007).

It is difficult to imagine SAMIAR as individual action research since participation is required at the start and the author/actor requires involved persons to work stimulating systemic interactions. Collegial and community characteristics and efficiency on one and other actions appear important. The inspiration dimension might be called “transferability” for some persons (Gauthier et Baribeau, 1984b, p. 306). Inspiration implies relative results, life lessons or practical advice. If inspirational help creates similar actions, it relies on autonomous strengths of groups to realize them. This is what is meant by shared values. The investigations of F. Gauthier and C. Baribeau show clearly that the notion of value is a real characteristic of retained criteria. ‘The “sharing” aspect does not always require total

adhesion to prevailing values in the whole group, but it is necessary that the process as a whole be recognized as relevant and valuable.’²¹

Towards action evaluation becoming more complex

Is it possible to evaluate the results of SAMIAR? Action results tested even quantitatively might complete the cycle and stimulate the community actors’ efforts. Durlak et al. (2007) open the way to program evaluation aiming at promoting social and emotional youth competencies helping to improve their studies. This research implies that schools, families, and community organizations are pursuing social changes. We have mentioned before that 24% of 524 studies show quantitative data on changes in specific systems. An example of Bell (2008) in the United Kingdom trying to analyse results of a training of SAMIAR type of program in the training of administrative management in the public sector is instructive. A qualitative evaluation and another partially quantitative allow him to show that it is possible to do systemic action research in order to learn managing complexity. To generalize, Bell recognizes that he has to develop other tools for analysis of this training. In the meantime, it is thought that qualitative research must continue its efforts for appreciation of results, remembering that signification of each step of the process and exchanges between concerned persons or actors might be important. Regarding the latter, methods of anthropo-pedagogical evaluation or other strategies like those of the Open University (2000) in systems formation and critical reflection on practice appear efficient.

²¹ Translation: A. Morin

Verifications seem more important, even necessary in large projects quoted by Kreger et al. (2007) who analyse the benchmarks and the indicators of success or failures in systemic changes obtained in the field of health in California. The following lessons are: 1- Draw a design of appropriate strategies and indicators of the contest in the concerned community; 2- Select, resource and sustain partners who cooperate; 3- Commit oneself to an evaluation of the organization portfolio; 4- Invest in planning resources; 5-Contact multiple sectors and their activities; 6- Incorporate in the design environment activities and fundamental influences. These lessons may not directly concern action research projects of smaller dimensions. If they are highlighted, it is to put into perspective necessary citizens collaborations involved in systemic actions that succeed. However, most of the time, qualitative evaluation of changes is done in relation to questionings and solutions brought to different problems. From one qualitative research study, confidence in the competency of a practitioner depends on interpersonal qualities of the practitioner; but the loss of confidence is linked to the lack of competence in health cares dispensed by professionals (Hupcey and Miller, 2006). In qualitative research, evaluation is formative and continues bringing practical lessons for similar future projects as a means of reflection or reference when exchanging and dialoguing.

To sum up, action research in SAMIAR is not a daily action, punctual, ordinary, and banal. It is a global phenomenon, a commitment to do, to act. It questions the discourse heuristically in its relation to a concrete system. Not totally planned and predetermined because it keeps the privilege to coop-

erate in a collective or individual way. To evaluate action becomes more and more complex; action should pass from *individual* to *collective* and indeed, even *communitarian* as explained in chapter 1.

Action being dependant on reflection expressed in an open discourse to dialogue, to others' points of view, demands participation of actors expressing their values, their thinking mode and their will to act, intervene and pass from an individual to a collective gesture, one open to critical reflection. It generates and inspires change in problem development. Interventions should refer to the reality of a system. Action becomes incentive and inspiring on a long term for other groups to consider practical lessons in their education, social, health or managerial services.

4th principle: Discourse

Discourse in SAMIAR requires enlightened reflection, inscribed in problematic action, open to discipline integration and favouring the involvement of actors as authors of history that transform the world.

Discourse needs an extended concept of science

Any research implies theoretical and practical knowledge. If it is practical, it appears in laws or regularities as explained by Bastide (1971, p. 194). Is SAMIAR an action science? What would Aristotle say to clarify the concept of science? Blondel writes in his doctoral dissertation in 1893 that 'at the origin of scientific procedures, it is necessary to hide the unexplained passage of the quality order to measure order' which means to accept only quantitative data. Far from 'reducing the subjective ele-

ment, the 'positive sciences' are subordinated and dependent on them' (in Blondel, 1950, p. 51-52). He also suggests a broader concept of science since positive sciences take the whole place. Then he adds that to observe what is going on in the subjectivity of consciences or analyse a problem in looking for means to solve it, one must move to rigorous action science, which is of a higher order and different from positive sciences that 'are not sufficient'.²²

This preoccupation with action research can be extended to a systems modeling approach that may be maintained by persons looking for a modern conception of science. Complex systems even more than action research require a broader understanding of science. This is what Midgley (2008) is claiming (chapter 3) and similar in a way to the spirit of Blondel. This claim is everywhere and well seen by the masters' students of Neto (1989) at the University of Brasilia in a collective action research on making a radio broadcast search to reach the non-teaching employees of their institution. However, it does not seem essential to enlarge the concept of positive science but of science as knowledge well reflected and deeply explained; it would value its content philosophically. Experienced reflections in SAMIAR or participatory action research accepted by mutual consent are always possible to amend. One may hope that experimental sciences named scientific allow corrections or even denials by any other experiment that may enrich, temper or contradict previous results. Futile debates may be solved through the complexity of

²² Translation: A. Morin.

the modern world whose understanding calls for multiple types of research methods.

Discourse makes the researchers authors of history

Discourse is philosophically understanding rather than intuitive. It is a reasoning process moving from spontaneous to enlightened and involved. We have shown in chapter 1 how Freire opposes education structured as a banking²³ system. Education, in his opinion, must involve people – men and women – in the construction or transformation of the world. The human being through dialogue can come to a level of critical conscience to transform society. Slavery is not only the lot of poor people but also of those in power who are dominated by servitudes such as cupidity and fear, which serve to undermine them.

It is the process of “conscientization” or consciousness raising that combines comprehension with the necessity to foresee the transformation of the reality around us. Praxis is a “reflection and action of men on the world to transform it” (Freire, 1977, pp. 28-

²³ The editor of Morin A. 2010 p. 109 notes that Freire by “banking education” means ‘a school organization (Africa, Asia, Latin America) having a great number of students in a classroom (100 students) due to lack of credits employing teachers not too highly qualified to instruct students to learn through memory and repeat their teaching without opening them to critical or open learning. Thus Freire opposes education that views thinking as a learning banking lacking discussion.’ Archer David, *Éducation et éducation bancaire*” in *Education des adultes et développement*, DVD *International*, No 69, 2007 on the 10th anniversary of his death. Institut Für Internationale Zusammenarbeit des Deutschen Volkshochschul-Verbandes. Translation: A. Morin.

29). The three terms (see ch. 2) spontaneous, enlightened and involved characterize change in the discourse. Models of “conscientization” from Humbert (1982) help understand how far it might be possible to foster educational, social or cultural action. In Canada, a community participatory action research in community health adopts a Freirian methodology in its critical dialogue (Hills et al. 2007 p. 129-130). Their remarks on value attributed by persons to multidisciplinary and health must go beyond restrictive medical cares. Aiming at “concientization” their partners, Savin-Bawden and Wumpenny (2007) suggest a dialogue investigation in lieu of an open questionnaire for their inquiry in geography. On the other hand, Downey et al. (2009), searching to empower communities about public health, agree on a Freirian method, but the text becomes too systematic by introducing a split between dialogue and deliberation. The process appears linear and in undertaking actions, at least in the shown example, it loses significance and exchanges are less lived and motivating.

Discourse is in the dynamics of a live and open system

If discourse is inductive in action research, coming from change interventions in the field, in SAMIAR it is important to look also with the eyes of complexity of a systems approach. Modeling commands a hologram vision in such a way that observations or reported facts are discussed in relation with the whole, the ensemble, in a manner to enlighten the intervention process. Then relevance is judged, retaining facts that respond to change needs. Teleology, pertinence, global nature and aggregation become essential characteristics for critical reflection important for modeling and tak-

ing action within the frontiers of a research field. The systemic approach reflects a living organism that realizes itself because of its active personality. The living being is autonomous and creates its own environment. It is the general theory of open systems of von Bertalanffy (1973). To the precepts, it is essential to add what characterizes an intelligent human being, the fact that he is able to dialogue, and to become conscious in a Freirian way. Action research implies that human beings are able to adopt, without necessarily always describing it because a systemic discourse is open to an environment that is recursive and able of modeling with the above precepts.

A living system must be nourished to be able to restore itself. It belongs to a leisure system that is managed by human beings. To data resulting from actions and processes that produce them, Liu Y.D. (2009) adds that changes must always be communicated in action research. In Amazonia, Brazil, participatory action research on evaluation or health programs to prevent sexual diseases transmitted through AIDS, Laperrière (2007) observes that experiential learning is adapted to practitioners acquiring knowledge. She underlines the narrow links that unite professional action of nursing and the protocol of research that takes into account the environment relevant to the Brazilian frontier context. Action research opens the door to exploration in a creative and recursive adventure. Collins et al. (2007), merchants in an enterprise, inspired by their personal profile of life and practical experience, use a synergistic approach and participative methods to make actors co-learners in a collaborative teaching environment through their pairs. It is sustained an-

dragogy through action research when exploring an environment.

Modeling enriches discourse as reflective and critical

In mutual aid (“entraide”) in a master’s university course, Jewett and Goldstein (2008) encouraged conversation between teachers in narrating their teaching experience, letting each one be inspired in incorporating the experience of others. Discourse in this way is deepened. Discussion builds a system of activities and cooperation in dialogue that becomes a mirror in which each practitioner sees himself, rethinks and reinterprets his teaching practice. It is a co-construction from a small to a larger group, in the classroom. The technique helps discover the relevancy of listening and the drawbacks caused by interruptions, when stopping to listen and making a suggestion too fast.

Among other qualities of dialogue and reflective conversation, Binding and Tapp (2008) suggest authenticity, (genuine) sincerity inspired by Gadamer (1975, 1989). Understanding in a human manner necessitates others in relation toward the same object or situation where a phenomenon is produced. This process is not simply a matter of a unique subjective and personal point of view. Gadamer, disciple of Heidegger, proposes however insisting on the question of dialectic and response or the back and forth of dialogue in an open conversation. Transformation happens depending not only on the object, but also on participating human beings.

Techniques are also suggested for new significations. Landau and Drori (2008) ask students to see themselves as members of an organization pos-

sessing a new view of the world, its norms and values. The result gives diversified stories suggesting different ways of using cultural resources, for example an ideological emotional involvement toward pure science or opportunism in scientific work when participants see their survival and the organization in danger. Power struggles may also be perceived. Kristiansson (2008) writes that strategic reflexive conversations are meant to permit librarians to understand better 'development' projects. Finally, techniques in cooperative learning suggest enriching educative conversations (Gillies and Boyle, 2008). Following interviews, the authors perceive the importance of properly structuring their groups (composition and tasks) and of teaching thinking in a critical and reflective way. Dialogue and critical reflection, essential to SAMIAR and increasingly present in university higher teaching, encourage facing problematic situations and finding necessary solutions.

Discourse gives priority to the process of change

If chapter 2 gives priority to action in discourse, it is underlined again with the systemic approach modeling. The latter (SAM) commands a structuring design but not at the expense of the aim inscribed in integral or participatory action research. Participation remains making actors authors of their involvement. Action is linked to the design of modeling.

Davidson et al. (2006) have shown that researchers in critical theory rarely undertake concrete transformative actions for change and accomplish social actions. Action research is viewed as the production of change (Stokols, 2006; Pennie et al., 2007), but does not have less preoccupation with theoretical

lessons towards a better world. Pirson-De Clerq (1981 p 32) explains the back and forth spiral:

“Action research does not aim at the production of knowledge as a priority. It aims at an activation process of change (for example) that infiltrates any institution when stimulating one or many dynamic sequences, i.e. in forcing institutions to give time and space where problems, mental blocks, unspoken resentments may be given explanations. In other words, the action research process moves and initiates action deeply in the institutional formalism and permits explanation of the non-expressed in words. Then action research is initiated, and produces immediately its corollary, research, due to its permanent questioning that actors apply to produce knowledge for their own usage.”²⁴

Action and reflection are situated in the initiative and sequence of events that could improve an open systemic model. As mentioned earlier (see chapter 1, Interrupting action), we do not agree with Habermas in giving to action a second place. Action in the process is as important as reflection.

Discourse favors multidisciplinary

Discourse in SAMIAR is conscious and involves an act which includes the presence of the researchers, and their lived experiences. SAMIAR cannot and does not aim to be an autonomous discipline “with a specific and exclusive field, object and method, and recognized by similar disciplines” (Dubost, 1983, p. 685)²⁵ because discourse studies from all or many approaches may be considered in solving complex problems. The lessons extracted from

²⁴ Translation: A. Morin

²⁵ Translation: A. Morin.

action research are conjectural being lessons of life and practice. Theories do not compete but tend to be accountable for solving problems. We have seen that interdisciplinarity in a strict sense for community psychologists has been tried but found difficult to come to one knowledge corpus. We may suggest methodological pluralism or trans- or multi-disciplinarity; others may like cultural comprehension of each discipline or simply collaboration between consultants implied in the diagnostic or solutions, thus responding better to real or complex problems (Dawson, 2006; Bond et Carmola Hauf, 2007; Mallick, 2007; Reich et Reich, 2006; Elias et Margolis, 2007). Stokols (2006) suggests a research plan for a science of transdisciplinary action research.

Discourse in SAMIAR makes man and woman the authors of transformation of a world that expresses itself in a complex reality. The discourse inscribed in the dynamic of live and open system expresses itself in a conversation or a reflective and critical dialogue enriching action while claiming for it. It is translated in a scientific practical knowledge of life lessons, know-how or practice favoring multidisciplinary, even transdisciplinarity.

SAMIAR is not a discipline but an approach linking integral action research and systemic approach modeling. It cannot be implemented without participation ideally of all actors and authors from the beginning to the end of the process. Enrichment of discourse that passes from spontaneous to involved is not achieved only by the dialogue of actors or authors who struggle to come to consensus integrating experiences and knowledges. It is also enriched by knowledge

alliances referred to in previous chapters when talking of endogenous development.

5.3 Participation and negotiation in SAMIAR

The **fifth** principle **participation** expresses what a group of participants is involved in when time comes to negotiate a contractual entente to respect it afterwards. The **sixth** one, the **contract**, is a necessary condition of participation justifying priority in the explanation.

5th Principle: Participation

In SAMIAR, participation demands that actors involve themselves in all steps of the change process through dialogue, in investing their common values, and in contributing to the collective systemic modeling project.

This principle is a formal definition of systemic modeling approach with integral action research. Participation is the essential component of action research. Latin Americans and Anglo Canadians name it Participatory action research or PAR. Important texts of Desroche (1982, 2006) help us understand the characteristics of participation (chapter 2) using three categorical terms of action research: *explanation, application and implication*. The most complete form is called Integral action research because it necessitates explanation regarding action and does not accept dogmatism since the process and results can always be questioned through critical reflection. On the other hand, systemic approach modeling favours enrichment of understanding within a wide or more global vision requiring the sustained cooperation of all partners during revision loops or periods essential to integral action research. Authors (processors) are invited to ob-

serve the interactions between different components of a systemic problematic respecting criteria of *teleology*, *relevancy*, *aggregation*, and *globalism*. The application maintains the necessity for *actors* (practitioners) to act in each step of the research process, as much as *authors* (researchers) of the systemic model for change responsible for decisions regarding field interventions. To summarize, actor and author are two faces of the same collective person, the group, and each person must participate in the decision process of an organizing group. This *implication* demands sharing common values of professionals/ practitioners as actors and authors investing in interventions toward necessary changes.

Participation encourages partnership

In systemic modeling integral action research (SAMIAR), participants must look at environments that may affect required changes to solve a problem; in acting, they may realize the necessity to headhunt actors/authors of different influential zones or interaction in such a way that they may compromise themselves in the transformation process. Potvin (2007), on the combination of acts of life and action partners, writes that life partnership is the one that presents the greatest integration of human components and that action partnership is often realized in an institutional milieu imposing regulation. The action model requires, among other conditions, ‘that the conjugation of acts and synergies be founded on mutual and reciprocal trust between partners, on a disposition to share information and interpretations in order to contribute to a consensus and to pursue and appreciate the under-

taking action (p. 99-100).²⁶ In the same way, Pesamaa and Flair (2007) focus on variables concerning influencing positively cooperative relations and strategic development, and note that friendship is related to loyalty and involvement and that loyalty is in relation to trust. One may remember the realism of Sale (2006) who reports difficulties encountered when forming a research committee on oncology: discovering complexity going beyond pure representation; observing that the presence of administrators during key meetings, though important, was nevertheless disturbing; and noting the problem of having full attendance and participation of interested persons to form a party for negotiation at all phases of a project. The theories on implication of all as being party or stakeholders are better known today (Laplume et al. 2008). One must consider all components of an organization or an enterprise. It is difficult to count on employees, even customers or suppliers who might be from underdeveloped countries, without respecting ethics when making decisions. Applied to action research, this new constraint, more important than shareholder's profiles, reduces the sphere of exchanges and participation. Actual ecological considerations show this tendency. *Mutatis mutandis*, partnership in SAMIAR does not have to take the interests of financial agencies into account because participating and assuming responsibility go beyond pure immediate success and short terms results. Often enough it is the pride of those who are handling their life that is the name of the game as we have seen in development projects mainly in the health domain.

²⁶ Translation : A. Morin.

Partnership is without doubt sealed or recognized by the nature of problems. Bond and Camola Haul (2007), in their group heading for prevention and promotion of mental health, indicate how necessary partnership is in the sharing of power, resources and authority between individuals and groups of a community. Real prevention must include for example, families, peers, the young and older community, the school personnel, the members of health services, the recreation and business community, even the regional, national, and international groups. Always in the domain of health prevention, McEvoy and Barnes (2007) insist on the importance of teamwork and respect of patients' complex needs that as partners play an active role without putting aside their link with the community. O'Connor (2007) bringing a three-step guide (detection, documentation and dissemination) centers directly on persons while Hirsch et al (2007) illustrate social changes interactions with diagrams' loops relevant to graphic language showing the back and forth of influences. To center on persons, such as the student being considered as a responsible learner in his line of thought, is also due to an openness of teachers' pedagogy where enthusiasm and creativity replace security and anxiety; such is the experience of Magos (2007) in Greece where students originating from an ethnic minority become searchers. McIntyre (2006) describes a similar experience of cooperation in the United States, this time with students in teachers' education, working with students in a school for coloured persons in a socioeconomic inner-city area. The author reports changes in social attitudes as much in university students as in those from the poor area. Fraenkel (2006) presents a development collabora-

tive family program that involves *families* as experts in the solution of their oppression problems. Keeping in the partnership domain, Puri (2007) shows that integration of indigenous scientific knowledge is a sine qua non condition of management, of distribution and development of agricultural fields in India. We should remember that Arnold and Fernandez-Gimenez with the Tohono O'odham Curriculum Advisory Committee (2007) have evaluated with success a curriculum on an ecology territory and its administration. This partnership answers the needs and approaches to tribal organisations. In Kenya, Majale (2008), considering case studies, concludes that one cannot create employment in the urban planning and in the restoration of poor quarters without people participation at the national, municipal and local levels. Most researchers, as we may notice from previous descriptions, use participatory action research with a high level of participation from all interested people.

Let us remember that not all action research commands an integrated participation of users from the beginning to the end of a research process. Some are managed by development agents who control each and every step and plan participation in the phase of refinement of their innovative prototype or for a verification of the product. With systemic approach modeling integral (or participatory) action research, the process is founded on verification of action by actors/authors exerted by a group project, first for them as actors/author even if experts are consulted when necessary. A systemic modeling procedure gives space for participation as a means, technical when linked to the way of enlarging discussions to perceive better multiple interactions

components and construction in a group of strategies and tactics relevant to action. The partnership concept is transformed in systemic approach modeling through teamwork from all actors having different roles and accepting collective tasks.

Participation's dimensions enriching SAMIAR

As explained in chapter 2 (Saint-Pierre, 1975), participation is a personal commitment of the mind and behaviour. In action research, it means becoming responsible to other social actors in a group when exerting a role. With SAM or systemic approach modeling, it is involving oneself in participating in an open discussion with a holistic vision of action at each step of modeling.

If to participate is to share, to contribute, to cooperate then it appears a wider term or concept. Thompson et al. (2009) have done a research on collaboration and its measure. The study shows the complexity of the concept "collaboration" and the difficulties of defining and measuring it quantitatively. Twenty organization directors have reached a descriptive definition based on their experiences and case studies:

Collaboration is a process in which autonomous or semi-autonomous actors interact through formal and informal negotiation, jointly creating rules and structures governing their relationships and ways to act or decide on the issues that brought them together; it is a process involving shared norms and mutually beneficial interactions. (Thompson et al. 2009, p. 25).

Governance comprises those who participate together in a project and collaborate in order to make decisions guiding their own behaviour and rela-

tions. A group must create open structures permitting to make choices and come to the solution of problems.

Organisational autonomy permits maintaining organisational identity and authority different from a collaborative one. It describes a tension between the interests of the organization and the collective.

Mutuality or interdependency encourages organizations to search for benefits, mutual or shared, based on homogeneity or a passion for a cause that is beyond the mission of the collaborating organization.

Norms express trust and reciprocity in the participatory organizations. This trust may be translated as: behaviour faithful to explicit or implicit engagements; honesty in past negotiations before involvement; and, refusal to profit without measure from another organization even if the chance to do so exists.

The concepts of autonomy, mutuality and norms have been validated (validation of a construct) with a questionnaire including 56 indicators and empirically tested with the sample data. The authors say that they should be generalized through other samples and that different constructs be tested and elaborated to come to other collaboration models applicable in particular situations. The weakest variable as far as fidelity seems to be autonomy, what the authors admit hoping for future researches considering that “dimension” in other contexts that brings factors influencing tension between individual and collective autonomy. This research opens the way to a complementary quantitative avenue apt to clarify the latter exploration of collaboration, even perhaps participation, that qualitative research

considers important in its operational processes. The autonomous variable, organisational or not, is difficult to predict and it would be utopian thinking to discern it accurately. Thompson and his thinking group agree with Durlak et al. (2007) when they say that qualitative researches obtained results deserving greater generalization and appropriation. Since in SAMIAR there is an important part of management, Thompson et al. dimensions might enlighten us when we encounter difficulties working for change and also with cooperating and collaborating organisations.

Participation is dialogic in live or virtual team animation

Chapter 2 noted that participation is not dependant on hierarchical authority but on group mutual agreement through **dialogue**. Participation must be cooperative and the initiator or the animator is a steward invested by the group in that role. The systemic modeling approach brings a spirit of wholeness suggesting an environment determined by group boundaries.

The team sustains a technique of open animation that facilitates discussion and dialogic exchanges. It is a function of a democratic ideology giving an active role to members for building an action reflection or integral action research inspired by open systemic approach. The multiple loops of back and forth exchanges on actions reflections are set within the frontiers decided by the team as actors/authors.²⁷

²⁷ In a Coloquium for Popular Educators many years ago, we created four collective writing techniques. However, it was the cyclical one that was retained as respecting well

When action research starts, the initiator of a project is often a researcher playing a mixed role of author (researcher) and actor (practitioner) making the task of modeling ambiguous. Trondsen and Sandaunet (2009) write on this duality. The analysis is based on two online experiences of “self-help” groups, one concerning women having lung cancer and the other “teenagers” with parents suffering from mental illnesses. Knowing that action research produces knowledge, researchers engaging in that program must note the ethical nature of their data, perhaps leading to difficulties. However, the authors think that the iterative cycle of action research and the mutual aid service facilitate absorbing these drawbacks. In these experiences, at all phases of the project, an active dialogue between researchers and collaborative organisations rely on technical, judicial and clinical advice. Researchers, as moderators, make clear to participants that they are not health professionals. An authors’ lengthier analysis reveals reflections on the dual participation of researchers as moderators. First, the researcher, initiator of these meetings, furnishes reflections as an insight of the lived experience during its course. Secondly, if the experience cannot be reproduced univocally, the steps to appropriate it could be retained. A constant dialogue of researcher with managers or stakeholders permits correction during its course. Thirdly, even if intervention is difficult due to researchers’ absence of knowledge of the clinical content, the reference group compensates for this without substituting or replacing researchers that are participants and moderators as much as the

action research spirit. *Gtoupes d’éducation ...* and André Morin, 1984.

members of the voluntary team living the dialoguing experience.

Participation commands constraints and limits

In SAMIAR the researcher style is one of a practitioner who sees the urgency of situations and provides direction in order to take punctual and intelligent decisions. The researcher-practitioner keeps an open mind, knowing that he does not know everything when starting and that intervening may be enlightening. He or she does not only observe, but intervenes with the environment, participating in all objectively, putting dialogue in the forefront. Reflection is dialectic, and subjectivity is questioned and advised says Liu (1992). Systemic approach modeling as an open system method must adjust itself to integral or participatory action researches (IAR) that implicitly command projects conforming to the values of actors and practitioners. Systemic approach modeling allows IAR to undertake a project expressing *actors* or practitioners' values. IAR can be developed with a *teleological* finality that takes into account the values of actors hoping to realize an active study becoming a real adventure in time and relevant to their practice, as actors becoming *authors* of an open project respecting a *global* vision with the values of everyone; and retaining variables components in *aggregation as relevant or pertinent*. The *subjectivity* of systemic approach modeling is primordial, declared and permits *projection* to explicit *the end or the finalities* of the modeling team. In that way, actors /practitioners and authors/researchers are able to invent strategies while making actions more significant and efficient.

In summary, participation is shown as much in explication than in application and implication. It promotes partnership. It is a personal commitment and commands an overture to human activity. Collaboration enriches participation in accepted dimensions of mutual interaction, governance norms such as group decisions, and reflecting organizational autonomy different from collective identity, mutuality, trust and reciprocity with others. Participation diminishes dependent hierarchical rapports. Participation is sustained by dialogue on values, growing through open animation techniques. The latter characteristics are as difficult to live as much in virtual (online) team than in face-to-face teams. Animation stimulates comprehension of roles and relations of cooperation or collaboration. To maintain a healthy dialogue, decisions on constraints and limitations are required.

For us, SAMIAR or systemic approach modeling integral action research is essentially participatory. It is research that corresponds better to specific aims of change on a short and long term, particularly in education, social work, health services and management. This systemic approach modeling is adapted to a short or longer period of time. Participation through representation, as in an election, is not sufficient. SAMIAR needs more intensive cooperation, involvement, even co-management. Participation needs to respect decisions taken before and through the process of research. It respects the essential condition of an entente, like a negotiated contract as explained in the 6th principle for action research in chapter 1, and now when systemic approach modeling becomes associated to integral action research.

6th Principle: Contract

In SAMIAR, a contract is defined as a negotiated entente, open, formal but unstructured, expressed in a common language regarding aims, roles, and values.

The contract perspective means an agreement between different persons accepting a researcher and a group, all members of a group that recruit persons to realize SAMIAR or another type of systemic action research. If this principle is put as the last principle, the content is present in all other dimensions of SAMIAR. It was first in chapter 1 but it could be better understood at the end because it is present in all other dimensions.

The contract is an open agreement

The contract must be open, formal but not structured in a way of being closed to change. It accepts modification. A closed contract would limit interactions and impede fundamental questioning. This openness is required by the necessity of dealing with complex realities that pertain to systemic modeling thus imitating an open living organism. The openness is required when needing expertise from outside. In that way it is similar to a living organism. However, the contract must keep an unstructured openness to refinement at all phases of the research; keeping a necessary flexibility is essential in SAMIAR. The conditions must always permit rich participation, an attitude and aptitude for transforming society.

An open contract relies on negotiation as explained in chapter 1 for IAR or integral action research. This characteristic remains when actors/authors give themselves a holistic vision able to deal with

the complexity of action or change determined to have a systemic view as in SAM or systemic approach modeling. Negotiation is necessary in needs assessments, construction of a model, data collection or interpretation and revision of actions significations.

Jean Dubost's 25 years of action research experience insists strongly on negotiation. For him, it is necessary that there be a common cause that links researcher, social workers and action. To merely talk about aid, assistance or consultation does not suffice because common motivations are necessary. He writes 'that intervention actions are not defined through a command but by a negotiation between different parties' (p. 616)²⁸. Regarding the researcher's perspective required by a social intervention group, Pirson (1981, p. 546) suggests: "a precise contract that fixes regulations and limits of the game" in such a way that all persons know what they are committing themselves to. The author recognizes however later in his writing; "that this freedom of choice in the contractual phase, for essential at it is, is rather annulled by the conditions that determine the actuality of the exercise of the research." Wery (1981) affirms almost the same points of view about the "conditions of achieving an action research" (p. 640) and Grell (1981) exposes before briefly what are the 'problématiques' (pp. 605-614) of an action research.

Our contract is open too, but also different from a traditional contract. In the latter, the customer passively accepts the expertise of the expert who, viewed as the best available person, provides him

²⁸Translation: A. Morin.

with a feeling of security and mutual trust. In an open contract, the customer has control of the action. He is active and participates in trying to better understand the case, to control it. According to Schön (1983) he is a shareholder; to Laplume et al. (2008), a stakeholder if compared to others concerned with the research. The customer and the professional become actors and authors i.e. practitioners and researchers with common and different tasks.

Is it possible to learn from actual research on negotiation? It seems uncertain because as Buelens et al. (2008) write research on negotiation methods is controlled by the empirical and quantitative paradigm in most of the psychological models developed in a laboratory, and ever more through simulation, taking into account context but referring scarcely to field practice. In a literature review, the authors covering 68 scientific journals from 1965 to 2004 collected 941 articles on 2163 examined and added 167 articles for a total of 1,108 articles. Coding was done through a post positivist approach aiming at quantitative researches. It is reported that 22.5% of the articles are conceptual and 77.5 % are empirical. The dominant methodology is experimental. Results found that few articles are beyond traditional approaches and very few are longitudinal. Only 3% of researchers are participants as managers. There are very few field studies (2%). The authors think that a new equilibrium should be favoured between methods and go beyond the quantitative barriers opening the door to qualitative methods more grounded on field studies (p. 21).

A desired and deliberate contract

The open contract leaves space to dialogue as suggested and conceived by Freire (1977) contrary to a commanding order. The contract is characteristic of the effort to come to a global diagnostic as much as the research of solutions or acquisition of practical knowledge. A researcher, or better a “préposé” or attendant, should start out by creating an atmosphere among participants that fosters dialogue and openness to deliberate what is expected from one another. In that way the researcher becomes an attendant or an actor but never the only responsible author of research.

A contract must indicate the aims and roles clearly

The role of the researcher is often what is the most obscure in the contract. A researcher inspired by the Lewinian approach, apparently more experimental, would tend to define the hypotheses, leaving the participants with the task of finding means to realize a project. A university researcher, for example, must know that it will be difficult to harmonize his personal research project with other demands made on him.

The researcher’s task and his methodology must be defined clearly, even if modifications may occur later. In that perspective, Boudreault (2004) mentioned that he was alone in his development project of a learning model for teachers in professional training to need an action research, or systemic approach modeling combined with action research. In the latter, social actors, teachers, staff and professionals had to become sole author researchers. When there was a request, it had to be studied in its contextual function because the latter

pinpoints the milieu's indicators and events that may favor change when referring to the actor's situation.

A contract must respect the participants' values

In our review of literature, a small number of authors write about the coherence between an entente or negotiation in regard to or in relation to participants' values. Denis Monière (1977) shows that ideology prepares one to rationalize and demystify the world, to legitimize structures, to be efficient; this last function leads to action. However some values are acceptable while others are not as it is shown through democratic principles or social and individual freedoms. 'An ideology writes Reboul (1980, p. 122) is acceptable as long as everyone may contest it without destroying it, without destroying oneself'.²⁹

A contract defining democracy or militancy

Militant research is very little concerned with explanation because proselytes find it difficult to question ideology. Some researchers refuse to become actors equal to the practitioners in order to keep their neutrality and their freedom of interpretation. It is a legitimate point of view, but it would not be a systemic approach modeling integral action research because the researcher is active as an expert like in many organizations but not acting at the same level of the actors/authors.

As an example of a democratic exercise, one may refer again to the three periods of discussions of Ghanaians (Adjei-Nsiah et al., 2008) on sharing land between owners and nomad immigrant farmers. Two exchange periods were necessary to come

²⁹ Translation: A. Morin

to a third one establishing institutional reforms capable of reducing uncertainties and permitting land sharing.

A contract enriching a common language and knowledge

Very few authors have addressed the necessity of learning a common language. Though it is an obvious need, it is often forgotten. Our two analyses of sites and of many pedagogical experiences in action research have shown that few take into account this essential condition of contract or of negotiation. The *Ford Teaching Project* is however a good example (Elliott, 1988, pp. 198-200 and Morin, 1986, pp. 80-95; pp. 214-215). It is a very explicit project regarding a language elaboration destined to help teachers identify problems and promote teaching in a variety of school subject matters through an investigation and discovery model. This project recruited forty professors from twelve schools. It then appeared obvious that the contract would refer to the world conception of a specific society while retaining characteristics of the actors' culture.

Acquisition of a common language becomes a challenge, but considerably enriches knowledge making, particularly when it incorporates indigenous elements. Puri (2007) explains that when he examines geographic information through a multiplicity of community 'savoir' or knowledge opposing official systems in India, he finds that a language replaced, within a knowledge systems, is more complex than the common language of the same country's culture. In that way we may refer to the Reich sisters (2006) when they assert that treating cultural competence in interdisciplinary collaborations suggests considering disciplines as different cultures. It

is normal to share our understandings as do people of different heritages in South Africa, except where there are political troubles making knowledge an instrument of power (King et al. 2007).

Language may engender lengthy research

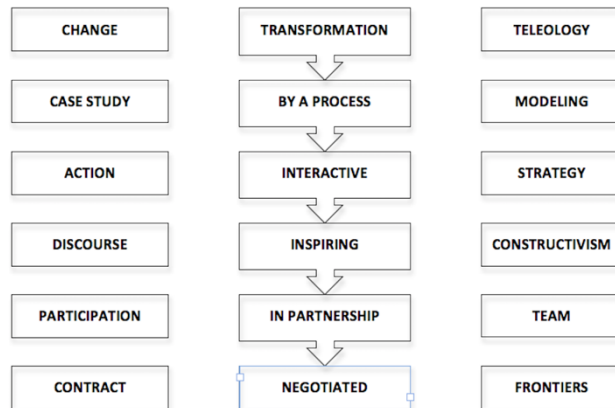
Within a large-scale project on drinking water in the Sydney region, Australia, Webb and his group (2009) start research that goes further than simple involvement to better understand the community language and its implication for action. It concerns, they say, systemic action research (p. 3) that integrates authentic involvement of a great majority of the population. In action conversations, the authors look for parties or stakeholders to become co-researchers in a study enrolling the community. The article describes well a precise methodology that helps appropriation of its development in another area. At the start, it consists of the acquisition of competencies for the project and the finding of a frame of reference to accomplish an action research. Questions had to be formulated to know: How people perceive the problems? What is their perception on what has to be done? What do they suggest as first steps of action? Following, there is a need for group discussion on results, analysing them, and making a list of persons to be seen as stakeholders in seven categories: water professionals, community professionals, governments, non-governmental organizations, sports leaders, educators and residents of all categories. The analysis of the language engenders a classification into three themes: in the technical category are grouped terms describing change agents preoccupied by the short or long-term usage of water; in the category of processes are written terms indicating change agents as media, school and government; and finally, in the

category of culture, one finds the terms that define positive and negative attitudes regarding change agents. To summarize, the general conclusions, surprisingly for researchers that affirm that they should be obvious, were the following: an educational program aiming at the conservation of water or its recycling utilizing three modes of transmission and reception of information and learning: the use of the visual, the verbal and the doing (*kinaesthesia*) but the major effort must be given to images and diagrams with practical examples on what has to be done or not.

Conclusion: Figure 3 and the six principles of SAMIAR

The language must be precise and clearly understood. To avoid criticism, it is important to bring precision into the vocabulary essential to integral action research. Words are significant because they possess connotations linked to the past and to the experience of each actor. Agreeing on their precise meaning, through open negotiation and in an atmosphere of participation and trust, is important when one wants to foster change.

Figure 3 - The six principles of SAMIAR



To conclude this chapter, Figure 3 above may help recall the essential features of the Systemic Approach Modeling Integral Action Research. In the left column, are grouped the essential features of IAR Integral Action Research and on the right column, the main ones of SAM or Systemic Approach Modeling. In the middle column are action verbs of what happens with both approaches, SAM and IAR joined together in a research project. To help understand: In the middle column the transformation has for finality CHANGE from IAR and TELEOLOGY or science of finalities from systemic approach. The process being a composite borrows from IAR the idea of CASE STUDY while MODELING pertains to SAM. The interactive characteristic is ACTION from IAR and STRATEGY for the field inspired by SAM. Continuing, the middle column inspiring borrows from IAR the reflections of the discourse and from SAM the intellectual thinking called constructivism. Partnership calls from IAR participative characteristics to join a team from SAM. All these processes need

negotiation of the IAR contract and the decisions on frontiers from SAM. These are principles or more humbly assumptions. The contract is an open entente or agreement, wanted and deliberate that must be clear on aims and roles of each person or actor/author or practitioner/researcher. The latter must be democratic, respectful of the values of participants. The contract must foster the development of a common, precise and clear language prone to enrich knowledge.

The last chapter 6 is the narration of a course given to master's degree students in Education as an application of the preceding theories and experiences on research methods using a participative model of teaching.

Chapter 6 – Carrying out a Systemic Approach Modeling Integral Action Research

The principles explained in chapter 5 concerned the process of operationalizing systemic approach modeling integral action research. The model itself will be illustrated in this chapter 6 as a prototype planned and applied in a university teaching course on qualitative research methods in education. This framework, which proved successful in the past, may encourage readers to draw their own modeling exercise for their fieldwork or inspire forms of participatory research concerning complexity requiring an open systemic global vision.

6.1 Referring to the scientific literature

In studies consulted in preceding chapters, only one author names explicitly his process as “systemic action research”. Webb et al. (2009), on a principle referring to language, considers seven categories of persons in society in order to better understand communication points for language that may stimulate consciousness of a problem concerning the lack of water in Australia, what Freire would name ‘conscientization’. The authors do not explain their modeling process in this first part, but nevertheless want people to understand the language of communication bringing attention to water problems and suggesting solutions for provision of drinking water in Australia. However, in the health domain, many authors combine a multisystem, multilevel approach in-

cluding participation (Bond et Camola Hauf, 2007; Clemensen et al. 2007). When considering relations between a systemic approach and action research, other researchers write that AR is the systemic motor of change (Hirsch et al. 2007; O'Connor, 2007; Ponte et Rönnerman, 2009). Many case studies insist that specialists of different disciplines or levels of authority should work together (Ford, 2007; Shinn, 2006; Schensul J. et al. 2006; Schensul S.L et al. 2006) and come to multicultural disciplinary visions (Reich, SM. et Reich, J.A. 2006) or dialogue with other thought systems and cooperate tracing a pathway in the inextricable reality. It was also shown how psycho-sociologists encourage their peer to rethink systems concerning their relation to change and not just to understand it (Herrscher, 2006). Behrens T.R. and Foster-Fishman P.G. (2007) remind the operational principles in employing the systemic method to promote change and suggest the soft systems of Checkland (1981). One may assert that the concept of reliance in systemic and action research is present as it was with Avenier in 1992.

In 1996, Flood R.L presented a text stimulating reflection on holism and social action for solving a problem. He explains the limits of confining research only to significations; doing so would be forgetting five systemic or systemicity aspects – imbricated, or interwoven layers, or strata – that lead to a wide complex vision of reality. The first stratum refers to aims, the second to paradigm, the third to process, the fourth to principles and the fifth to philosophy. Our understanding is that this perspective with five visions applies to each stratum of the systemic process. On the other

hand, our modules regarding training or education to SAMIAR research represent multiple strata but in a different ranking position; namely the genetic pole, the ontological pole, the functional pole or process one, the underlying paradigms which are the aims of operational principles. All these categories help actors/authors engaging in a SAMIAR process to recognize, when exchanging on the totality, the whole as opened up to any dimension that might lead to a transformative change.

In 2008, we discovered a training mode to systemic and action research utilized for local governance in the United Kingdom (Bell, 2008) that was similar to our training formation program, though concerning a different group of persons. It shows similar contemporaneous trainings apt to employ a variety of research methods. Bell writes about an Action Learning Cycle (ALC) and asks if it could address difficulties encountered with managing officers in their public function exercise. In a second questioning, he wonders if a course given at the *Open University* (2000) could adapt itself to a hybrid programme of training education that combines systemic and reflective capacities of practitioners. The new learning cycle taking its origin in action research leaves space to four or five workshops or important moments that permit: 1- to start from values of the human being and reflections on experiences; 2- to participate in the problematic tempo and receive an evaluation; 3- to reflect on the participative potentialities of modeling; 4- to commit oneself in a participative action of systemic reflective collaboration; and 5- to prepare a communication with members of the local govern-

ment. The workshop in 2007 offered to the public sector shows a probable result. With this educational model, the reader may discover that action research to which is added a module of narration and systemic modeling corresponds to a new tendency of allying multiple methodological approaches to accomplish changes in society.

6.2 Toward process guidelines

Taking into account the six principles necessary in an operational canvass of systemic approach modeling integral action research (chapter 5), this last chapter exhibits a prototype planned and applied in a university master level teaching course on qualitative research methods in education. This framework, which proved successful in the past, may encourage the reader to draw his own modeling exercise in any fieldwork stimulating a participatory and systemic global vision modeling.

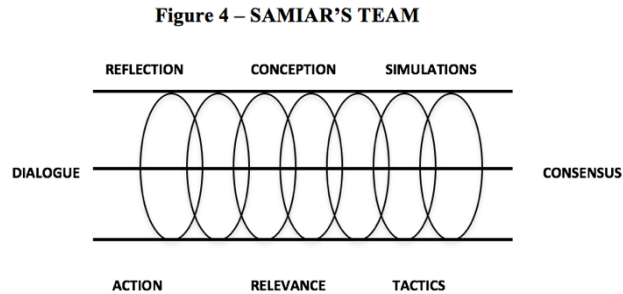
The proposed operational model takes its inspiration from an integral action research and systemic approach modeling or SAMIAR. The model is activated through a pre-module that gives precision in vocabulary avoiding confusion while realizing a contract regarding the other four modules. The group accepts openness to changes necessitated in the course of events.

If one tries to define operationally the systems approach modeling integral action research, one would say that **SAMIAR** is a *process which applies systems thinking to understanding a complex phenomenon that is dynamic in an evolving environment intended to help collective actors to act in open, recursive ways in producing a transformative change enriching theory and practice.*

Considering the three propositions, the finality of SAMIAR is the transformation of action and discourse (AR) achieved through the intelligence of a teleological project (SM) in a bounded (AR) and complex (SM) situation. The critical discourse of AR becomes interactive with SM; the spontaneous and reflective action of AR is recursive and auto productive due to SM. The environment often implicit in AR is expressed within the hologram view of SM. While in AR there is cooperative and mutual understanding, the perception of strategies of SM makes the action more efficient. The spiral process of AR conveys well with the recursive and irreversible one of SM. (See **Figure 2** in the preceding chapter).

The team

The team is the heart of the dynamic process of interaction between the phenomenon and its model. Actors fully participate in the action. In spirals of action-reflection cycles, actors gather all kinds of data from projects about the complex phenomenon as illustrated in **Figure 4** below.



The actors act as a team (a collective actor) sharing experiences, data and the responsibility of applying, adjusting and modifying the program and their

model of action. If necessary, the team designs new strategies to bring new changes to the problematic situation. In time, the situation is transformed because of exchanges with the environment. Thus, a new cycle of action-reflection is underway.

When questioning their understanding of a complex phenomenon, the actors as a team may invite other researchers to join in provided they accept the value of participation, of creation and production of strategies and shared understanding with other participants who act collectively. The team decides on finalities, starts to negotiate an entente (a contract) that must remain open, formal yet unstructured, in order to accept the recycling of thoughts and actions. Though participation evolves, it remains the key and the major research tool. Such participation can be fostered through exchanges, meetings, animation techniques, or other collective writing procedures. Electronic media may be used to keep minutes of the proceedings, the collective project and the opinions of each researcher-actor.

If systemic modeling is used, it is because the situation or the phenomenon appears to be too complex to be deconstructed in units and resolved by traditional research methodologies such as experiments. The phenomenon cannot be isolated from its environment and reduced to one component; it is embedded in its historical and functional structure. One can recognize the three poles: the ontological (being), the historical (becoming) and the functional (doing). The latter concerns the action research priority that reflects actualization of history and recursiveness of the changing reality toward development in the future. Considering the functional aspect of reality, the actors, after applying different

actions or strategies, readjust their thinking, transform their conception and ideas, and act in accordance with reflection in action or reflection during shared dialogue recurring in meetings. Time is required before the team acquires a more accurate picture of the fieldwork or the project, does some modeling to restore the phenomenon in a hologram way, and invents strategies that are conducive to transformative change. Mental images of activities become more efficient as a result.

The fieldwork or project in SAMIAR is always considered as complex and irreversible, though recursive and having teleological actions in interaction with an evolving environment. The model is isomorph to the general system and homomorph (fair picture) of the project.

Modeling

After determining the project's purpose, the team constructs an image of the model in three steps. First the actors or the team as a collective actor decides on a blueprint model having the characteristics of the general system. During the second step, the actors draw the similarities between the traits of the model and the traits of the perceived phenomenon to be modeled. They keep only what is relevant in accordance with the identified projects insisting not on the structure of the research object, but mainly on the actors as responsible (processors) for the action. The third step is concerned with applying collectively the accepted strategies.

Through the team's imaginative construction, the model is capable of receiving non-exhaustive, global and relevant data to achieve its ends. The model stores the information and processes it. The simulation activity opens an assortment of possible

behaviors. The collective actor can now decide on strategies to bring about a worthwhile transformation of the problematic and complex situations.

The process guidelines

Through action, sometimes first, or following reflection or combining both, the team is able to conceptualize and then simulate change. The circles represent the different spirals or cycles of a field project using action research. Action, relevance and strategies are appropriate concepts at this level, while reflection, conception and simulation indicate what is done in a dialogic conversation to achieve a consensus. This guideline is a preview of a learning model that tries to apply the modeling procedure.

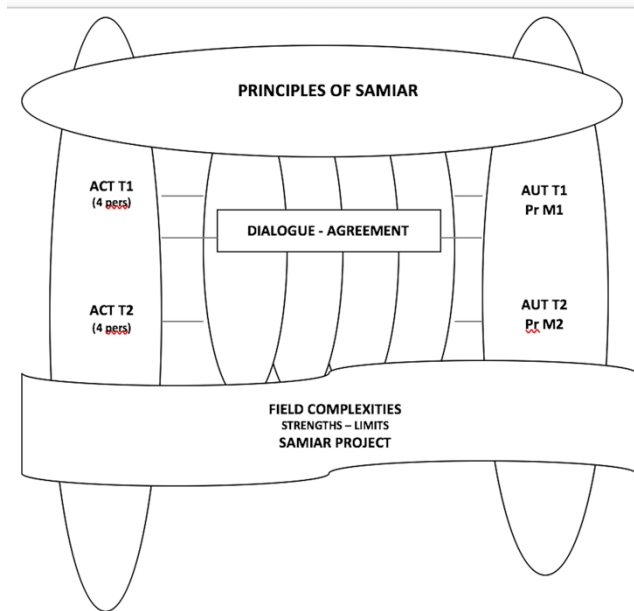
6.3 An operational prototype: Field complexities (limits – strengths)

The operational model is presented as an example experienced seven times when teaching qualitative research methods to master's degree students either in instructional technology or in education with teachers in exercise.

The dynamics of SAMIAR (Systemic Approach Modeling Integral Action Research)

A large group of 20 to 30 students meets and divides itself into small groups of four or five. The course is introduced with a pre-module consecrated to learning a common language and arriving at an agreement or contract relating to the following research training experience. Four modules are suggested for development in small and large groups of discussion and work.

Figure 5 – Dynamics of SAMIAR



In the center of figure 5 above, one may recognize the key of SAMIAR which is the dialogue between actors/authors of the research that come to agreements (ententes) resulting from sub spirals to indicate back and forth references from the field (base of the graph) and the principles of SAMIAR (above ellipse). The team or group models refer to a problematic suggested by experiences of field-work and using principles of SAMIAR as explained in chapter 5. Each module (illustrated by major vertical ellipses), if put in figures, would show many sub spirals of discussion between team members, with another team or the large group. The proposed research model is different from a lecture teaching style but sometimes a briefing is judged necessary to clarify work or action. Research principles are explained through

experimentation of the research method during the session.

Figure 5 traces the dynamism of a systemic approach modeling integral (or participatory) action research showing four vertical ellipses illustrating the four modules. The four vertical ellipses represent four momentums engendering one another.

1. The participants narrate important events or moments either as learners or as professional practitioners referring to a memorable punctum (a historical punctum as genesis: i.e. an important moment in studying like an enthusiastic teacher communicating his or her reason for learning, the joy of working together in solving a problem, etc).

2. The participants extract the philosophical values from their narration and construct an ontological model as the basis of a typical learning experience (a philosophical consideration).

3. The participants draw a dynamic figure of systemic components that expresses a functional research model toward necessary change (an operational model).

4. Each team simulates the design of a project that helps students to become actors and participants in their learning or teaching venture (a teaching model).

General meetings are kept to a minimum either to explain the working guidelines, to exchange or communicate their conclusions to other teams within the large group (In the diagram, two teams are retained to simplify the illustration. Act **T1** and Act **T2**). In reality, there were usually 5 or 6 teams.

In the above figure, the practitioners are identified as actors (Act) in the left ellipse; as authors (Aut) on the right ellipse according to the terminology of Desroche (1982), Thiollent (2006), Morin A (2004 and 2010) which is used here. All teams draw a project of systemic modeling (Pr **M1** et Pr **M2**) using a graphic language.

The first major ellipse is the narration of practice opening to the second major ellipse referring to the process of modeling professional values or the ontological model that in turn engenders a functional module; the fourth ellipse being a simulation of practice or application of a team or a personal project for each participant. Dialogues and exchanges or the educational conversation are warranties of a growing discourse, from reflection to action or action to reflection. From these exchanges may surge exercises of simulation that transform themselves in strategies or tactical approaches adapted to an educational fieldwork.

To sum up, actors/practitioners model systemically as researchers or authors make references to their experiences (act 1). They become co-constructors of an ontological model (act 2). Then a design (act 3) deploys its operation mode born from exchanges and consensus. It then refers to the general systems theory, an open system of learning inspired by von Bertalanffy. It is congruent or homomorph (similar) to complex realities implying participation since it is an alliance with integral (or participatory) action research.

A **case study** (Cecile's case) is often presented as reflecting a milieu of multiethnic students indicating cultural complexity in educational realities of

a classroom in a multiethnic area of Montreal. It may inspire students' reflections; it engenders applications and worthwhile observations as suggested by Johansson (2007). Another possibility is to let someone present his case as a complex one. In both cases, SAMIAR becomes the research approach to better teaching. Every actor/author presents his problematic in due time and is an active participant from the very beginning. It appears that if a professor deals with students that are social workers, or in another discipline with a community project, the process could respond well like Lévesque (2004) did in her PhD research concerning teaching social workers.

The modules of the workshop course: an explanation

A workshop is divided into two parts. One in which the participants arrive, through open discussion, to an agreement concerning the meaning of words so that all speak the same common language, a first step leading to the rest of the modules. And one in which they arrive at an agreement concerning a schedule or canvass open to necessary modifications to live **a SAMIAR experience**.

In the first one on vocabulary it is important to be at ease with the structure of SAMIAR and the different concepts or terms to understand how the philosophy of systemic approach modeling is considered through an open system to discover a pathway in a complex reality. It is necessary in action research to come to a common language so that negotiation between practitioners and researchers overcome incomprehension because of language. This part refers to what is written in the

chapter on action research and participation, namely that an entente or an open contract (Principle 6) is necessary to work together. It means that it is essential to recall or explain the fundamental concepts of action research as integral or participatory and the concepts of systemic approach modeling to be able to cover as much as possible the complexity in the case of education and other complex fields like social work, health services and management. It is also important to explain the schedule or how the major steps will be planned, while providing sufficient flexibility to allow for changes resulting from participation, since everyone is an active person becoming more and more author of his/her adventure in modeling a draft for his personal or group research.

The four vertical spirals description

- 1-Writing on the board the components in a theoretical-practical frame of mind in relation with values;
- 2-Illustrating components of retained values and drawing an ontological model;
- 3-Designing a functional model with its operational dimensions;
- 4-Revealing the practical dimension of the simulated model with its impact on participants.

Each module is designed in relation to another one. It might be necessary to draw the components on a board indicating their relations with each other and making thus a living collective writing exercise. The actors/practitioners or professionals should be considered experts, resources for practice and often for a profession. During

this training, each participant may play different roles such as observer, expert or animator. It might be helpful sometimes to invite an expert to provide the information required by the group. This person should embrace an open dialogue, the trademark of SAMIAR. The role of the animator or “assigned person” should be described following different steps of the process mainly during exchanges and discussions.

An evaluation of the lived process during this preliminary module and each one thereafter facilitates adjustment and improves workshops during the next step or module. It might be useful to refer to the principles elaborated in the previous chapter. It is inspired by anthropo-pedagogical evaluation. The time spent on this preliminary module is time gained on the following ones.

1st Module: the formulation of theoretical practical components in relation to actors’ values.

A briefing on the module aims (1st vertical spiral)

The fundamental idea consists in prioritizing the experience of actors/authors or professionals and avoiding as much as possible the classical structure of naming a principle followed by an application. During this process, the interview determines the philosophy, the principles, or the values that inspire or will influence the practice as participants to a systemic approach modeling integral action research (SAMIAR). Resweber (1995) writes that a more complex schema may be needed of “implication-interaction because any practice is putting to test a theoretical option, its verification (p. 95)”. It consists in reformulat-

ing for oneself how proper cultural, social and educational values emerge. Briefly said, each actor/practitioner narrates some important moments of his involvement or implication in a learning situation where he or she received a shock or found success.

A draft of components includes concrete values lived and accepted by those following a dialectical exercise, a dialogue toward a consensus. The group builds its own philosophy and wisdom, with practical and not fictional theory, since according to Gadoua (2007) it is confronted with live experiences and is enriched with knowledge. Any model is a construction of the spirit that has been or will be put to the test. Confronting values in a group has the advantage of awakening thinking and mainly actualizing it, criticizing it while avoiding clichés devoid of inspiration (Atkinson and Delamont, 2006). There is as said in Principle 4 on discourse and underlined by Jewett and Goldstein (2008) a possibility for each participant to think over and reinterpret his narrative story of practice as in a mirror. The latter exercise helps co-construction by the team and becomes a test when this theoretical-practical construction is presented to one or more teams.

The exploration of past experiences is done using a narrative research approach for a story of practice as the ideal instrument to express what is generally kept secret. Daniel Bertaux (1986, p. 21-34), one of the leaders of this method, establishes essential rules (exploration, analysis, regrouping of data, synthesis and construction of a theoretical discourse) making life story a research instrument. This technique is an excellent tool to

explore and understand in a nutshell the professional's practice, the aim of this first module (or major spiral).

To compose the narration of practice, the actors/practitioners are invited to use concepts from Barthes (1980) exploited and analysed by Dugal (1993, 2004) *the studium and the punctum* (chapter 3). For Barthes, the *studium* signifies what is denoted and the *punctum* the devastating effect and sometimes hurting images for the spectator, an effect only understandable through personal signification that images conceal. It appears important that practitioners narrate their success or their positive *punctum* that are reliable and inspiring for practice. To achieve this goal, they search for events that had an impact in their personal learning development or in the accomplishment of their professional function.

Once events have been remembered, they shall observe them through the lense of *studium* and *punctum* which he or she narrates to another member of the team who will present it to the team; thus it achieves an educational conversation. This exercise has been an important step at the beginning of each course. This strategy's dynamism brings a first key illustrating the actualized content relevancy. The seven experiences done have been also appreciated according to an anthropo-pedagogical evaluation. These pedagogical experiences were discussed and reported in their personal diary or in a team's collective journal. They gave precision to an existential language linked to practice following Principle 6 on contract or entente. Principle 4 on dialogue or discourse becomes operational. It de-

scribes the construction of a list of values that may enrich the quality of practice. Discussions on values were often interesting to share: the ontological model that will emerge in module 2 reflects in actions capable of making participation efficient. (Principle 5: participation).

This questioning reactivates what is personal in each actor/practitioner, motivates and inspires new vital energy. The *punctum* exploration of members of a group links their practice domain, cultural, social, educational, administrative or health service illustrated by lived examples that surge to the surface as being motivating values, reactivated and suggesting relevant action in their professional work. Research in narrative psychology seems to be what Schiff (2006) calls the promise of a systematisation form to investigation that explores the signification and intention in human lives. Without doubt the “I” intervenes in our judgments and takes many forms; it is through analysis that one may avoid misinterpreting reality (Bradbury-Jones, 2007). The journal or diary becomes a precious tool for activating and deepening reflection.

It is from these brief narrations of acquired knowledge through experiences and reflection that values may be expressed in philosophical terms. In module 2 following, a graphic figure concerning these values linked usually to practice should indicate the research methodology of the team, and possibly of each actor, as practitioner becoming author/researcher. The action is a communal one (Principle 3) placing actors/authors in a discourse that looks at live experiences. At the same time, each member tries to

be nondirective in the interview. To sum up, during this first module, the group constructs the foundation of values in a theoretical practical model by interrogating and being conscious of concluding positive experiences and transcendental components. Each person enlarges his/her vision and reaches other human beings. These universal concepts consolidate through reflections with those who share similar values. The constancies are expressed in a simple and efficient technique. With this first spiral, the team is apt to structure dialogue and exchange.

An operational technique for this module

The first module has two phases, one with each team and the second a report and discussion in a general meeting of two or more teams.

a) First phase: The exploration of striking values

In the first phase, two members of the team question another member of his/her team on personal events in his or her learning or teaching experience and takes notes. Past experiences or professional practices are taken as criteria.

For example, in Team 1 there are four teachers who produce an important list of punctums that come from a narrative investigation originating from what impressed each one in the exercise of their profession or in their life as student. One of them remembers that as a student he was profoundly impressed by a woman teacher during his elementary school; another recalls the joy she experienced working in a small group when she was attending high school; a third remembers a long project in history and a fourth one, current

event debates on political and social topics. Highlighted is the attention given by a professor towards one who was having trouble in mathematics. Then each takes turns remembering an extraordinary teacher he or she had: the astonishment felt when learning a subject matter considered difficult; voluntary participation and the enthusiasm in learning a subject appearing rather dull but becoming interesting with an active pedagogy. Each one identifies at least one extraordinary moment in the progress of his or her learning of a subject: the voluntary and enthusiastic participation of teamwork preparation for an exhibition in plastic arts; a project well done and the joy of facilitating research in school work; the relevancy of questions being asked during lessons; the competence felt in teaching school subject matters; active and diversified pedagogies; interest, and even passion of learning, of documenting oneself. Negative punctum, if one may use this expression, is when they experience discipline problems, which finally stimulate them to search for means to capture the attention of students by rendering the learning experience more agreeable and pleasurable.

In a second tempo, participants share their discoveries. Each interviewer transmits to other members of the team his values as he or she has understood them. The team takes note of all practical values expressed and summarizes them. One person prepares a synthesis report that pinpoints human, pedagogical, social or other moral values.

Each team names a person to explain to the broader group or the class a synthesis report in order to receive a feedback from other teams. The insistance should be on emerging values that could help draw an ontological model in module 2.

b) Second phase: The project definition, finality and frontiers

Each team analyses the *punctums*, discusses and evaluates them to discover their inherent values and retain those that may be integrated or completed to form a consensual synthesis (Espinosa and Harnden, 2007). Disagreements should not be rejected; values might often be considered as complementary. What is important is to find the finality (teleology) of an eventual project that might capture all members of a team or the group. It might be even the adoption of an active education program to encourage a school to be open to change.

Learning a subject matter could be active and subordinated to an activity done by the student making library researches or through Internet or games or in the form of interviews. The whole educational strategies might be deeply transformed. The teacher may inform and stimulate as does the director of an orchestra, harmonizing, inspiring, suggesting, guiding, informing and encouraging learning from varied sources. Students as responsible actors of their learning may carry out projects stimulating new desires to learn and apply or discover knowledge from different subject matters completing one another.

Change as the finality of SAMIAR must have limits in regard to the multiplicity of circumstances that may arise. This is the reason why modeling Integral Action Research requires that *the frontiers* of a project be *defined*. To what should they extend: to the direction, to parents, to the environment? What is the limit of feasibility? When proposing frontiers, participants/actors find out that it is impossible to cover everything within the complexity of reality with all its ramifications. This is the time to apply Principle 2 related to operations done in relation with finality. As author/actor, the researchers aim at discovering a pathway towards a significant and efficient action. Recalling theoretical components should help respond to precepts of global reality (for example, does the immediate environment have influence?), of relevance (is it possible for actors to achieve the aims?), as aggregator (is it consistent in the project?), and coherence with the finality that the team has previously retained.

This process postulates a link between personal motivations and those of the team. The expressed values at the beginning after discussion have become the components of a schema for the team to utilize afterward for drawing two systemic figures, one *ontological* and the other *functional*. The team now draws or establishes its frontiers that should be discussed again when defining the values shown in the different constructed models.

At the end of this module, it appears important to spend time on an anthro-pedagogical evaluation and to discuss proposed changes to follow the suggested schedule for the satisfaction of everyone. The amount of time may depend on the

number of teams and knowledge regarding systemic modeling and action research acquired beforehand. Concerning work to be done, each team writes a report about what has been accomplished and the reflections shared by participants. An individual diary is recommended to help the research practitioner deepen the personal project in which he or she is normally involved.

2nd Module: Modeling components of the ontological model

A briefing on the 2nd vertical spiral

In this second module (or **the 2nd vertical spiral**), the actors as authors extract from their narration in the preceding module an ontological model anchored on retained values. J-L. Le Moigne (1984, pp. 63-68) signals three poles in systemic modeling: the genesis, the ontological and the functional. The narration of practice corresponds to the genesis or historical pole, the expression of values (or the first module) passes to the ontological pole, and later to the functional pole as articulated through operational strategies of research methods for bringing a change and enriching learning (3rd module). The model elaborated by two teams will serve eventually to study the field, or an exemplary story like Cécile's case, object of studies in teams **E1** and **E2** or another field case if requested that may question differently the group of actors/researchers.

Integral action research (IAR) enriches and transforms itself in this second module as an exercise of systemic approach modeling. It is deployed in a "graphic language" considered as an integral

part of systemic modeling” (Durand, 1992, p. 58). It is because of dialogue, exchange, debate and confrontation of ideas that actions are seen as expressing values comparing one to another. The actors as authors or researchers refer in modeling to components extracted from the narrations of their student life or teaching one with relevant experiences mentioned above. They obtain a first draft of the ontological values of the model to be constructed gradually in due time depending on dialogues and consensus. The model should be identical (isomorphic) to the general system as mentioned through the SAMIARs principles’ axes of IAR and characterized by *relevancy*, *finality*, *global* and *aggregator* nature (Le Moigne, 1984, p. 43) of the systemic approach modeling. The model will also be similar (homomorphic) to the field because anchored in the intervening environment.

A majority of researchers agree that it is necessary to be distanced from a problematic in which one is involved in order to be able to reflect on it with an open mind, to debate it and to consider and welcome suggestions of co-members.

When utilising narrative researches in relation to the story of her student life or in her practices of teaching, Dugal (1993) has borrowed and developed the concept of *studium and punctum*, a technique to give distance regarding the narration in applying learning theories and critical reflection. Afterwards, she presented her results with ten teachers. Much later in another course on computer sciences, Dugal (2004) showed that the fact of referring only to pedagogical cognitive objectives does not suffice to provide a wakeup

call and arouse the learning passion. A method must transform or reach the author/actor inside the learner mind and bring a passion of loving to learn. Mintz et al. (2009) have demonstrated the importance of linking values to the profession of psychologist when addressing a diversified society. The same advice applies for actors/practitioners regarding a formal or informal community. Neither the objectivist philosophical tendency, nor the relativist one is exempt from critical dialogue because they are situated in a context of values that link inextricably the professional to others (pp. 653-654) in accordance with transcendental values.

When a model comes up with *punctums* during the second module, it is proposed that each team draw an ontological model in referring to a complex figure case. In this workshop, Cécile's case is introduced because it reflects conditions that give life to SAMIAR when considering exchanges and interactions. This case is very meaningful because it reflects a problematic related to the Quebec culture and analyzed by a government commission inquiring on intercultural relations and differences between the majority and the minority in contemporary Quebec (Bouchard C. et Taylor C, 2008). Other reasonable accommodations were also discovered with teachers of different ethnical origins to help them integrate and become competent professionals keeping some approaches linked to their culture (Nguyen, 2009) that will be or were probably very useful as teachers in a multiethnic milieu like the one in the Cécile case (see annex 1).

In summary, Cécile's case reflects teaching in a school situated in a metropolitan milieu where teaching is becoming ever more complex and challenging. It permits members of the teams to take a distance from their own research project. Her case relates her disappointments as a teacher at the primary level having difficulties apparently engendered by the growing ethnic diversity of her classroom group and the living surroundings to the school. While studying for a master's degree in education she orients her research to an understanding of what is happening in her classroom in search of finding solutions to her problems. This issue appeared to be very relevant to the majority of educators during their course on SAMIAR; it was kept in the seven sessions when the course was offered.

The operational technique

In this second module each team has to draw a graphical figure of an ontological model. It is accomplished in three instances: the choice, the selection and the layout of a graphical figure.

a) The choice

The first team **T1** continuing its discussion through **module 1** determines to keep in place the components that are in relation with the finality of change as adopted. The group respects the teleological aspect of each part in relation with the whole (Durand, 1979 pp. 60-61). All components must have a relevant link with practice or action essential to integral or participatory action research. Time is consecrated to perceive and agree on the complementarities dimensions. If a component is rejected, it would be wise to keep it in a bank of possibilities....

To illustrate this step as mentioned in module 1 and the underlying values, the members of Team T1 acknowledge that the learning activity of the student is the finality of their teaching practice and that the student is a person autonomous and responsible for acquiring knowledge. Values sustaining this experience correspond to anchor points (punctums) of their personal life stories that members retain as a passion to be encouraged through mutual aid or cooperation and autonomy confirmed through evaluation or feedback: these are the anchors for the solution of Cécile's case.

b) The selection

It is normal to ask how a punctum has impressed an actor/practitioner because it may be associated with important pedagogical, social or other values in health care or management. What adjustments must be made in the teaching pedagogy? One may re-evaluate a previous discussion on the finality of change in relation to Cécile's case. How to place values into relationship? Which ones shall we retain, and which must be set aside? Are these values restrictive? Can they reach the class, the school, the family and the environment to be taken into account? If there are more questions asked, there might be more interrelations and arrows, circles and so on to draw the model.

Let us say that Team (T1) thinks that change for Cécile's classroom must be articulated in such a way as to respect the learning style of each child, his way of thinking in relation with his cultural values, often different from those of his or her neighbour or others in the school. In Cécile's classroom, discussion or exchange of ideas is a must. Group discipline must become a personal

discipline in recognizing and respecting differences. It seems possible to create a pedagogy fostering a class atmosphere leading to dialogue and a greater acceptance of ‘the other’. For Cécile, it becomes a new way of conceiving teaching; she must forget her role as an attendant to transmit information, but she must remain a resource, a **researcher/actor** in this action research. Today, many sources of knowledge are available for students or pupils as **actors/researchers**; besides oral teaching or books, magazines, radio, television and films, all new information technologies including the Internet bring references, games and other devices capable of stimulating pedagogical exchanges.

c) The arrangement

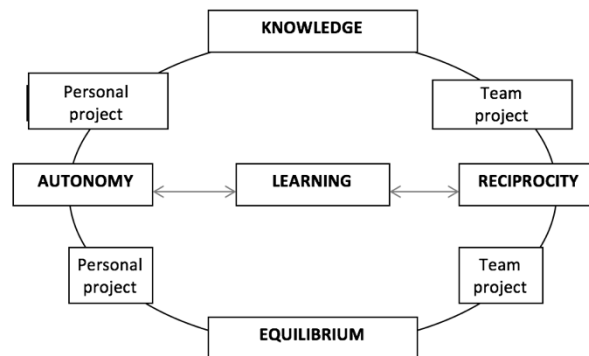
Team **T1** understands that the epistemological model of values is “an intermediary status between the real object and a scientific theory; it is a representation of reality, simplified to make it more intelligible” (Durand, 1992, p. 60).³⁰ It is a cognitive model of the real values of participants placed in priority on the graphic or model. Frontiers are not fixated; for the time being, they cover the whole class, however not excluding the environment, particularly the school personnel, the parents and the surrounding. To draw the ontological model, the central component must be determined i.e. the finality. Other values or components are available in the perspective of internal interrelations while the external ones must become more explicit. The global vision or principle 2 is respected. The figure must indicate with

³⁰ Translation: A. Morin.

signs, arrows, buckles, ellipses, or other symbols the interrelations or interactions of values with the dominant component. Lugan (1993, pp. 92-104) gives this demonstration of buckles expressing possible actions in a system when citing K. E. Boulding (1956). Reality being complex, it is possible that components and variables will be in narrow interconnections and present a privileged way of representation and modeling of reality (Lugan p. 22 referring to Boulding K. E. 1956b).

This **ontological model** of the first team **T1** shown below in **Figure 6** chooses this finality recognition of multiple cultures in the center of **learning**; it is a value that receives consensus from authors/actors of this team.

Figure 6 The ontological model



The student is considered the **main actor** of the intellectual, physical, emotional and social activity. He must be **autonomous** in developing personal projects to keep his **sensorimotor equilibrium**. He or she gives himself/herself many **projects** to acquire **knowledge**. These **projects** inspired by personal interests stimulate the learning of **autonomy**.

This learning expands presumably in **reciprocity**, accepting team projects favouring his/her physical **equilibrium** such as team sports, friendly meetings helping socialisation, formation to dialogue, exchange and collaboration without prejudice to the racial or country's identity. The teacher is the person that creates ambiance; it is facilitated through encouragement in the tasks, but also evaluations done with each student. The objects of **knowledge** become or extend in **team projects or personal ones** personally or in class and making participation the key element of appreciation.

At the end of this module, it is possible to suggest a short meeting with teams **T1** and **T2** to exchange and consecrate time in the larger group for an anthropopedagogical evaluation of this second module aiming at bringing proposed changes to apply in the following part 3 of Module 2. It may require explanation and discussions during 6 hours within the frame of university formations for briefing, teamwork mainly and general meeting with all participants and teams. It is the group that evaluates and gives its opinion on required time to assimilate this technique. Generally, the participants are satisfied to have succeeded in drawing a graphic figure and are ready to explain it to another team for feedback. Since the researcher is an important instrument of SAMIAR, it is normal that data be saved in a diary to deepen teachers' thinking on their proper values and remember them later in the following module 3.

3rd Module: functional figure of SAMIAR

This third module or major vertical spiral figure remains, with the preceding one, the heart of this Systemic Approach Modeling Integral (or participatory) Action Research (SAMIAR). The group of actors must as authors make the effort of imagining the operational behaviour of the theoretical model. To apply the values of the ontological or philosophical model where reflection on action is primordial, it is necessary now to give attention to variables.

References to literature

The third module has many ways to process depending on the level of familiarity one has with the systemic approach modeling integral or participatory action research. These two methodologies must be basically mastered. For actors of the same discipline but situated in different places and having diversified tasks, it appears preferable to keep the same exemplary case of Cécile that corresponds to a general interest of practitioners in the school environment. Knowing that practitioners or professionals think of their own problem situation like Cécile the star of our showcase does, we were open to consider other cases. As we have mentioned before, one may conceive, under certain conditions, that her case may be the exemplary one to use SAMIAR as a methodology.

We should remember that each actor/practitioner or professional as author/researcher is not obliged to choose SAMIAR as the methodology to solve difficulties in his or her fieldwork. Open to more than two approaches in qualitative research, we may include one or more of these approaches as

we did using narrative research. It is the field and the questioning that determines the methodology. Principle 4 of SAMIAR implies the refusal of absolutism or dogmatism and the acceptance of whatever research methods are applicable in solving a problem whose attributes, in our present-day world, are complex. A developmental research approach could respond to parts of complexity with relative participation to solve specific problems. **IAR** is a challenge as much as **SAM** when all the participants become researchers. Reality may call for another research model.

An example of another model is the Chinese evaluation of a cursus and the correction of manuals done by students (Xu, 2009). When teaching research methods, it is important to stay open and ready to consider other qualitative methods from other disciplines (Morin 2007). It is also important to give credit to quantitative research when necessary and if possible to extend results to a statistical generalization for example. We might consider returning to the complementarity of methods. If one hypothesizes that the students of Cécile could decide to have interviews with parents or with students of different cultures, then an anthropological perspective would be welcome. Despite the suggestions that team **T1** proposes to Cécile, she may develop learning modules and to do so, adopt the methodology of the systematic design that teachers are prepared to use when preparing their subject matters. We have noted that teachers, even having an open project as actors/authors or professionals/researchers, have a tendency of suggesting as their final work for a course on methods of teaching a project with revision loops for correction or

suggestions by students but with more precise indications in their questionnaire. Nevertheless, the spirit of SAMIAR was present.

In brief, the actors/authors, distancing themselves from their fieldwork, are ready to use a large or grand angular as done in cinematography and have a wide vision to understand better a problematic situation with regard to their own. Systemic modeling, outlined in the second module must stimulate looking at field practice with a more global functional perspective, richer in interactions.

The modeling functioning of SAMIAR

During this phase, we realize two graphical figures. The first one more systemic determines the frontiers in relation to the evaluated finality when specifying the components and the possible interactions. The second graphic gives emergence to more complexity with integral action research, the motor of systemic endeavour as noted by psycho-sociologists. The functional model adopts an enlarged dimension of integral action research when accepting *change* as the end result of the system.

a) The systemic graphic of the model components

Once having well redefined and established the frontiers, the team constructs or draws a first model that shows a smaller number of components than the interactions linking them together. For 7 elements or components, there would be according to Durand (1992, p. 67) 21 possible interactions. If there are too many units or components, it is advised to regroup them in order to

trace a manoeuvrable road to carry out the project.

b) Constraints and invariants

In any case, practitioners as researchers must consider constraints and invariants of the field. The constraints are interior or exterior frontiers that limit the desired action; they are obstacles to transformation because of negative reactions towards innovations. Cultural determinants may also be an obstacle because certain persons would feel infringed upon. For example, in Canada, outside the province of Quebec, opening a French school, while another exists in the same locality intended for immersion in French for Anglophone students, might be seen as a costly expense of the *seemingly* same service; however, it would be perfectly legal for the francophone pupils to receive teaching in their own language and cultural origin. Actors/authors might be perhaps wise to modify the promotion of a French school in another place nearby or decide on other interventions in the area suggesting French activities, such as cultural events, concerts and *so on until* the problem is resolved and the school can be accepted.

Regarding stable components that are called invariants, it is necessary to know that they are fixed and not easily transformable; they are mostly part of the case, out of control to the modeling persons. They oblige the actors to take into account factors that restrain their action. These components are age, language, sex, living far from the centers, the schools, hospitals, and so on.

Practitioners/researchers or actors/authors determine or decide on the limits of the principles of SAMIAR considering exchanges and actions seen as confronting criteria. Authors might imagine strategic simulations that are translated to the field through respectful intervening tactics in regard to the cultural complexities of the area. These strategies and tactics should reflect responsible participation of all interested people and the interactional dimensions of different components regarding Cecile's case as an example.

First graphic figure: modeling systemic components

The steps for this module are done in four time periods, not necessarily in a chronological order because of the complexity of the case and the relations between components. It appears important to define the invariants and to discover constraints, to establish frontiers and to evaluate the finality normally set up.

a) To specify the invariants

It is time to specify the stable components of the system that are rather fixed and those that are possibly open to change. An example would be the invariants of Cécile's class such as the programs and the school manuals, the books, the library, the computers, the age, the sex and the cultural origin of the kids, and time. These invariants are without doubt dependent on the way we observe and suggest participation without essentially changing them. For example, the school library depends on a budget that is difficult to modify, but probably the persons in charge would accept suggestions of books to buy or borrow. Moreover, the children grow older during the

year, the Websites are multiplying and the programs change sometimes because of scholarly reforms. It is often possible to decide on the time to do certain activities without changing the school period schedule, personnel in service, the union, etc. Once the constraints are recognized, many might be accommodated in the design.

b) To discover the constraints

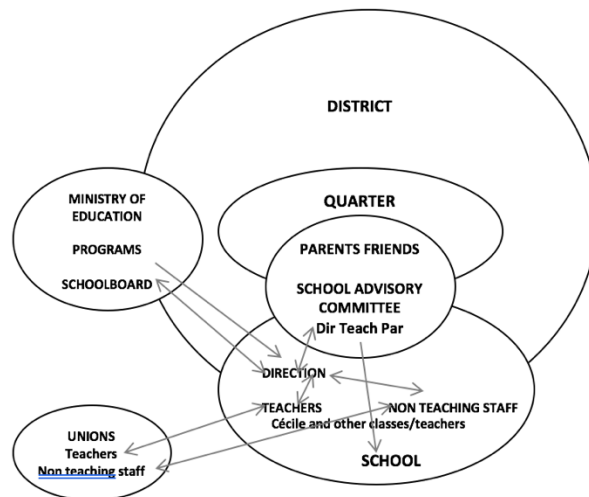
The constraints may be internal or external in the field and in the structure of the system housing the object/project. They show some invariance but not completely like age, and psychological changes appearing with it. The constraints might be economical, cultural, psychological and physical. In the invariants on which it is difficult to act, to encounter a work task determined by collective agreements, but also other psychological, social, cultural constraints, in relation with the numerous ethnical persons living in the environment of the school. To deal with those constraints or sometimes to adapt oneself without essentially compromising a project, it is important to discuss and discover the unstable zones and the creative and invention niches. One may rely on the desire of parents wanting the best for their children; it is also possible to find approval from the school committee that represents the direction personnel, the parents and the teachers.

c) To fix the frontiers

Frontiers are the level of possible interventions in the concerned milieu. It is convenient to signal the interactions with arrows or ellipses, circles that indicate the real places or the present organism through their influences on the environment.

See **Figure 7** below. In the **neighbourhood**, there is a place or **district** where **the school is and the homes where parents and friends live**. In the school, one may find the direction, **the nonteaching personnel (NON T)**, the **teaching personnel (TEA)** and **the students** that are grouped in **many classrooms**. Up to now, all levels being in the same building can be influencing one another. There is also an establishment or **school council**, where are represented parents, teachers and the direction who influences the school policies and writes orientation directives.

Figure 7 - Functional Systemic COMPONENTS Model



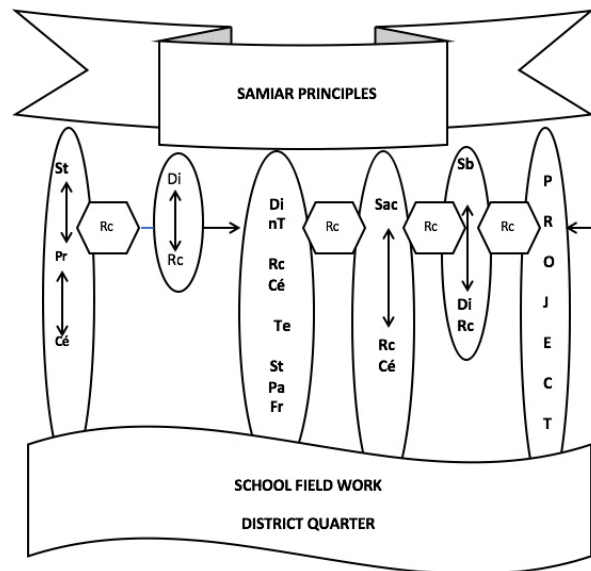
Outside there is the **Education Minister Office** that is present symbolically through **programs**, regulations related to age, and reforms. Under the ministry, there is a **School Board** that hires teachers and the nonteaching personnel according to collective agreements of the different **unions or corporations**.

The major systemic interactive variables are shown above in **Figure 7** through ellipses or circles that are linked or boxed, showing arrows and so on. The model however does not indicate the interactions between students, teachers, direction and the nonteaching personnel. This figure is only a prelude, a first step to complete a functioning model illustrated by **figure 8** of team **T1** below. For example, Cécile's class is in an environment near the other teachers, the direction of the school. If Cécile wants to introduce volunteers in her classroom, is the union willing to help or will it instead discourage her on account of budget ententes? Is the direction of the school ready to approve Cécile in her pedagogical project? What is the role of her colleagues? The establishment council is or not ready to intervene? What is the role of colleagues?

Are the service personnel, audio and visual resources, the library and others ready to collaborate? Can they compromise and accept a new workload not foreseen in the collective agreement? Can one use the school's computers? All these are components that may interact positively or negatively in Cécile's autonomous learning project.

It is then suggested to present **Figure 7** to team **T2** for comments and remarks to find if it is relevant to improve the model. In return, team **T2** submits also its graphic **figure 7** to **T1** for discussion. To continue improving a SAMIAR model, an anthropo-pedagogical evaluation is planned, and remarks in the collective diary permit corrections when comes the time to integrate them in the student final research report.

Figure 8: SAMIAR Functional Model



Caption:
 St: Student
 Pr: Project
 Cé: Cécile
 Rc: Research Committee
 Di: Direction
 nT: Non-teaching staff
 Te: Teachers
 Pa: Parents
 Fr: Friends
 Sac: School Advisory Committee
 Sb: School board

The SAMIAR model may help Cécile to transform her pedagogy and describe its totality in accordance with the general systems components.

Team **T1** knows that Cécile needs time and cannot change everything at the beginning. Cécile loves to teach, wants to improve her performance, but must take into account the components' complexity that surrounds her and regulates her school and her classroom. In the environment the people represent an important number of different ethnical cultures. She can accommodate them because she is open-minded. Her numerous trips

brought her positive critical reflections about cultures. She knows that she cannot simply rely on traditional teaching methods and that she must try to motivate the pupils or rather the learners to become responsible and passionate. She may approach teaching with the idea of stimulating the responsibility of each person who may become an active learner. She must identify the *leaders* and talk to other adults in the school about her project and take the pulse of their openness to change. Team **T1** will be obliged to evaluate again the finality of the ontological model of **module 2** to find a way, a road into the complexity of the case. The project of modeling pedagogical values of team **T1** will be adopted, becoming feasible and keeping the essentials of the first draft. It is this model that team **T1** illustrates graphically after retaining comments on the preceding figures. Considering all the human components in a SAMIAR functional model, Cécile has to draw one including a RC or Research Committee that should concern a SAMIAR functional model, Cécile has to refer to dynamics of **Figure 5** and design her own model (**Figure 8**) above.

The research committee **Rc** will be created after Cécile meets the Students **St** to present a project. The **Rc** including **Cé** meets the direction **Di** of the school that has been attentive to Cécile's desire to transform her pedagogy. The **Di** has approved her efforts to acquire new knowledge when returning studying for a masters degree in education. The **Rc** would meet first (3d ellipse) the direction **Di** and the nonteaching group **nT**, then the teachers, the students, the parents and friends. If the mentioned groups – parents (**Pa**), friends (**F**) Teachers (**Tea**), and director (**Di**) –

show considerable interest for the project, then the **Rc** and **Cé** will propose a cultural activity to the establishment School Advisory Committee **Sac** illustrated by the 4th ellipse. Encouraged, the research committee **Rc** and the direction **Di** will meet members of the School board (**Sb**). Stimulated by all these groups, the initiators of the **PROJECT** will be rooted in the environment through activities like an intercultural fiesta. Between ellipses, there will be meetings with the research committee (**Rc**) and Cécile's classroom pupils. A research committee **Rc** could be created in each concerned class or a general one for the whole school **RSc**. Other committees may be necessary if the project grows, but they are not illustrated in this figure regarding the SAMIAR functioning model.

Cécile's case is fictional and leaves considerable flexibility to the actors/authors, a lot of space to their imagination and freedom to invent new conditions, to identify invariants and to choose components with constraints, knowing that in the fieldwork there will be correction to exploration tasks of the project with responsible persons ready to involve themselves. With the systems approach, the modelling authors acquire a global vision, one that is relevant as it allows them to foresee alternatives to their usual modes of thinking. The functional model permits us to review ellipses, to correct them and to add some. The meetings of the **Rc** (Research Committee) between each (long) ellipse are dialogue reflection loops to improve actions and new decisions. If this project appears systematic for some persons, it is still oriented by the finality of change in the learning process. However, retroaction loops are

always present, keeping uncertainty possible; decisions might always be modified because in each step of the process there are one or more moments of exchanging and revising.

As we have seen before, team **T1** makes a simulation of its finality change and adjusts it inspired by Cécile's case. Eventually each actor/author should do the same with his/her project. The change finality being transformative, team **T1** may in due time refer to a possible evolution of a project inside or outside of Cécile's case. Autonomy and heteronomy are retained implicitly as expressions of the responsible learning. An anthropo-pedagogical evaluation of the second part of this module will let the group decide on the direction to follow for mastering better the process of SAMIAR and for the time needed to do it in the next modules.

4th Module: Applying Systemic Approach Modeling to Integral Action Research (SAMIAR)

In this module on application of the systemic approach modeling to integral action research (the 4th major spiral), one may decide if he or she wants to follow two different ways of doing or only one. The different steps are the following:

- a) Application of a functional systemic approach modeling already carried out by one or another team following the role-playing technique;
- b) Decision to present his or her personal research project to his or her team to be followed by discussions and exchanges to enrich it in making reflections on the general problematic and on possible and applicable modifications following a

similar procedure as those of the three preceding modules.

Other possible processes

It is of course possible to imagine other ways of carrying out SAMIAR outside an educational institution. It can be done by social workers, health services or enterprises in different fields of application. The preceding demonstration was a formal one in an education institution. The experiences quoted from the beginning of this book are often done in different surroundings, in social communities, in health services, and in small enterprises from which we extracted many lessons to be considered in our reflection. In an education institution, action research is not always welcomed, given that as it is not experimental and produces no quantitative data for generalization, it is not considered scientific. While we respect the experimental and quantitative conception of science, we hope that action research will also be respected as an approach offering knowledge that cannot be acquired easily in any other way, and that enriches and broadens thinking with lived experiences that lead to intelligent change.

A roleplaying game

A role-playing game might be an efficient way to proceed in the application of the functional modeling approach to **IAR** with Cécile and her class. It means putting team **T1** and team **T2** together. The new group must agree on a synthesis of pedagogical values for Cécile's class as expressed in the ontological model. For the systemic components of figure 5 and for the functioning model of SAMIAR in Cécile's classroom in figure 6, concerning an entente, a contract would be realized

in defining the underlying language of the proposed models. Some values, components or ways to carry out the project would be integrated or put aside without rejecting them definitely but keeping them as possibilities. It is not necessary to follow uniform values steps, but to consider them as possible solutions. Certain ideas, which at first sight may appear more or less relevant, might appear important in solving Cécile's problems following sessions of dialogue. The principle of participation (Principle 5) of all actors and the principle of entente or contract (Principle 6) are concerned at this moment.

During the role-playing operation, participants choose one or two roles. In a school, there is a director, a pedagogical adviser, one or two colleagues at the same level of teaching, students, a school board, a commercial environment, a sport center and so on. Once the list is completed as much as possible regarding interactions, the teams define the frontiers; in other words, they retain the place and the roles of the most pertinent persons responding to the finality of change, of autonomy and of reciprocal learning. The decision on choosing an animator follows. Who might play the role of Cécile and what is expected about her participation. Who would be the teacher, a woman or a man, and what is expected in terms of personal participation? The role would be a teacher that searches for collaboration. The six principles of SAMIAR could be experimented by the group that is open to any necessary methodology; that means participants would cooperate in openly expressing their views and with a critical mind.

The group may gain in having a participant observer who notes what is happening; this person would, when requested by the animator, give his or her point of view either during or at the end of exchanges. The principles of SAMIAR might serve as a guide for observation remembering that he or she must report that questions are relevant or not, following the SAMIAR research process. Does the animator ask the right questions? What type of change is being discussed? What methods does the group want to apply? Do we have to do a precise action to come back to reflect on it and situate it in the school system as a whole (global vision)? If we work together, what would we do, how often are we going to meet? What is our critical opinion towards participation in this action research? How well are we doing in our exchanges and dialogues; are they democratic? In discussions, are differences in opinions respected according to a critical view of SAMIAR? Are we able to simulate actions and imagine others that could work? Do we have critical attitudes regarding knowledge? Are we able to deduct practical lessons? Are there some characteristics of SAMIAR that are forgotten?

Each person intervenes according to her or his special experience or profession as participant in the group. Members of the group are able to identify each one and his or her responsibility. Priority is given to the actors who are the students.

Suggestions as examples

1. First it is important to be familiar with the problem experienced by Cécile³¹.
2. The animator may ask questions to verify if the problem is well understood.
3. What are the problems encountered? Are you able to classify them?
4. What qualities or strengths must Cécile have to find a solution to her problem?
5. How may she integrate her university training in this experience while fully respecting the participation of various services and persons in the school, mainly students and administrators, colleagues, and children from other classes?

After clarification of problems in Cécile's class, everyone is invited to bring his or her suggestions. The actors are identified between parentheses:

1. Cécile might decide to learn about her students' cultural situation doing an investigation and some sessions on cultures with them. She may suggest some elementary notions of ethnography or cultural anthropology.
2. Cécile might insist on the participation of all those concerned with an integral action research and see with these persons the components of systemic approach modeling to reassure herself that she masters well the interactions (with the teachers, the direction).
3. It might be good to see if instead of a structural approach step by step, she could suggest doing

³¹ See Annex on Cécile.

something like a class diary, a fiesta that might lead subsequently to a reflection on the complexity of the pedagogical environment (parents, personnel, students, etc.).

4. Should Cécile consult specialists to understand better the process of SAMIAR? Is her project well integrated with her university knowledge?

5. Shall we accept to do a SAMIAR experience? If yes, what is the first step? Shall we make a schedule for meetings? May we plan or describe action reflection loops beforehand?

6. Many other questions may be asked because it is common in universities to question the “why” of an approach. It may start a debate that would consolidate knowledge, thus reinforcing the process with different actors or parents.

The above process in SAMIAR is a role-playing that requires the consent of each person. The game means using Cécile’s suggestions on SAMIAR following the modules mentioned during the long development of the graphic figures by each team, in a “chassé-croisé” reflection-action that leads to a change in pedagogy. Using a larger group creates more surprises and opens the debate; there should be normally more interactions and diverse points of view and thus probably more enlightenment.

This roleplaying will take time but should stimulate exchanges that will shed more light on the reasons for uniting action research with systemic approach modeling. It should also permit other approaches like the narration of Cécile’s values and those of the participants in exercising a role and reflections on practice. The personal diary of

each participant during this part would make the author understand better the difficulties of practicing SAMIAR. An anthropo-pedagogical search in the group on this roleplaying could enrich each student research process. The student project could be found easier to carry out.

Each practitioner should be inspired by the lessons on practice that he/she has developed in his/her team and the values grid that guides the tracing of an operational model. This step may be done alone at the start or with his/her workplace persons if not possible with the team. The most important thing consists in applying the principles of SAMIAR extracting all the possible or imaginable components to enlarge the problematic and decide on a planned change. It consists of reflections on past, present or future actions and interventions in order to trace a way for a complex reality and reach trails for specific actions to solve problems.

To summarize the training suggested, it has been said that participants in the workshops write a diary in which they consign their application of principles in regard to their personal situation. We can also imagine that each member, while participating in the workshops' group, elaborates his or her individual project, the stages that are practiced with his or her individual project with his or her team. In effect some students have lived this experience like Luc Renaud (2004) already mentioned before. The advantage is that it brings live experiences and it enriches discussions.

Conclusion to this chapter

It is indeed possible to imagine other ways of realizing SAMIAR outside an educational institution. The preceding demonstration is a formal one in an education institution. However, the experiences quoted from the beginning of this book are often done in different surroundings, in social communities, in health services, in small enterprises from which we extracted many lessons to be considered in our reflection.

Another possibility for social groups not submitted to a university schedule: training could be done on action research open to systemic approach modeling in a few days sessions, and then they could meet after application many weeks later to share their experiences together, thus enriching their reflections and actions by sharing with colleagues a variety of fieldwork experiences.

As noted above, action research is not always welcome in education institutions because it is often seen as not scientific when compared to experimental quantitative methods. Nevertheless, there are not many other alternatives to complexity in an open environment. The author respects experimental sciences methodologies since he used it in his doctoral dissertation and even taught it and directed a few master theses with this methodology. However, human sciences in an open pedagogy call for a more comprehensive approach, one that opens the door to the intimate values of persons in their efforts to further their understanding of the complexity of educational practice. We trust that action research is respected as an alternative form of knowledge making that

allows lived experiences to feed our thinking and action in complex tasks. The idea of joining systemic approach modeling and integral action research is to consolidate the trajectory of participation to reach the complexity of domains in human knowledge like education, social work, health services and enterprises. Broadening one's vision helps one avoid errors of oversimplification in the complexities of the many field researches in human sciences. The systemic view is open to a plurality of methods. While it welcomes, for example, the narrative approach in no way excludes, when necessary, the experimental sciences.³²

³² The fields of analysis and synthesis of data is in continued development as shown much earlier by Nigel G. Fielding & Raymond M. Lee ed. *Using Computers in Qualitative Research*. Sage Publication, London, 1991. It deserves much reflection, continued development and recent readings on the subject of qualitative data to be treated.

General Conclusion

This book is in a way “a learning by doing” one, a sort of extension of an active school first proclaimed by John Dewey in the United States, and then later in the South American context by Paulo Freire. Both of these renowned researchers on the learning process showed the importance of reflection in real life situations.

This book also follows in the footsteps of the investigations done on action research by Lewin, Barbier, Dubost, Shön, Desroche, Kemmis and many others. Integral Action Research became the trademark, even though it was acknowledged that there exists a multitude of other approaches that are similar to, and complementary of IAR, such as the Participatory Action Research well explained by Fals Borda and Pyrch.

With a late companion Constantin Fotinas, with whom I founded the GÉSOÉ, I was introduced to open systems in education, thus enlarging the systematic design I had learned during my PhD training. This broadened my vision considerably and allowed me to become more sensitive to the multifaceted dimension of the world, enriching my comprehension of complex realities with von Bertalanffy who investigated the mind’s complexity using a holistic view. This trend was enriched with other educators like Lerbet, Pineau, Checkland, Flood, Lapointe and many others. I was also stimulated by PhD and master’s degree students and later a co-researcher, P. Cardinal.

While I understand that there are many visions of action research, I opted in 1982 for Integral Action Research with the French sociologist Henri Desroche because he qualifies participation in three dimensions of the mind: explication, application and implication. My conception is close to what is generally known as participatory action research, which was well developed by Fals Borda. It is for this reason that I quote the latter in this book.

I was also encouraged by another researcher from the University of Calgary, Timothy Pynch, an expert in PAR open to IAR with considerable experience in adult education and sociology, who has an holistic vision in cultural exchanges particularly with Indian nations.³³

³³ Timothy Pynch accepted to correct the English of the manuscript, enriching the text with worthwhile suggestions. He deserves my everlasting gratitude. Thanks to Ovide Bastien in reading the manuscript and suggesting a last touch of clarity and polishing before publication.

Annex - The Case of Cécile: A Multiethnic School

Cécile is a teacher in a traditional grade school. Each teacher is in charge of her or his classroom and teaches all subjects except physical education (one hour a week). She has been responsible for a 5th grade group of boys and girls for fifteen years. She has mastered all subjects, knows how to organize them and follow her students step by step in their individual learning progression. However, the number of pupils in each classroom has grown over the years since the last collective agreement. Moreover, with the arrival of students from different ethnic origins some problems have emerged and grown, and the environment changes constantly. It appears that integrating more children with learning difficulties in class, according to their age, necessitates a different approach to solving disciplinary problems. There is a growing lack of time to be attentive to 'normal' students.

Cecile finds teaching increasingly challenging

It seems effectively difficult to recognize this new surrounding far from the city center. The middle class has left the suburbs or moved to the center of the city. The environment has become complex. Francophone families are having fewer children and immigrants from all countries of the world replace them. Cécile is not prejudiced against them. She comes from a family that was well off enough to allow her to travel. Moreover, she taught indigenous people for fifteen years. Now everything is changed. Her class of twenty-eight students in-

cludes children of four different nationalities but few French speaking Quebecers. Problems multiply. Some kids seem not to understand even the simplest words that she uses. Some lack discipline while others are too obedient. Moreover, the French speaking Quebecers do not always demonstrate great respect for those of other cultures. Kids with difficulties require more time and attention. She feels like she is working against the clock and losing much of her time.

The other day Paul, one of her most brilliant students, created a serious discipline problem. Her class went to visit the botanical garden. Paul decided to sneak away with fellow Quebecers and returned to school without telling accompanying parents or Cécile. She and the parents thus worried during the last hour of the visit. Responding to a suggestion from a parent, one person finally called the school secretary who told them that the three boyfriends were back at school. Cécile would not have imagined such foolishness from Paul.

Furthermore, Mary and her friend Josette never stop gossiping in class, especially when Cécile walks to working tables to give supplementary explanations to those who ask. One hears them whispering: "...her again, him again."

André and Antonio, who arrived recently from South America, often break into fights. Whenever they are playing football with immigrants from Mediterranean countries they end up exchanging nasty kicks. One wonders how to go about teaching them to be tolerant.

Cécile would like to have more students as motivated as those from Asia who get honors in all dis-

ciplines except French. When the latter receive their assignments back, one constantly sees a wave of jealousy in class. They deserve recognition for their good performance.

Cécile initiates a research project in her school

Cécile shares her problem with her colleagues. All of them share the same uneasiness. The learning environment is depressed. Many families are on welfare; others are working, but in low-paid jobs or as seasonal workers.

The environment of poverty breeds violence; thefts of all kinds, even acts of brutality, are increasing. What can Cécile do in such conditions to improve her teaching situation while she is still healthy and has the courage to try to solve problems?

To stimulate herself and to improve her situation, Cécile takes courses at the University. Her masters' degree research may help her find solutions. Her professor at the master's level suggests students design their own research in their working place. Cécile strongly agrees with that suggestion and thinks she will define better her teaching problem and find realistic solutions. She talks to the principal of the school, a woman, who is happy with such a suggestion and shows that she is ready to help her achieving her project. It will not be possible to reduce the number of pupils in her class, but other flexible adjustments are possible, notes the principal.

What might we suggest to her? Would an action research be possible in that situation? Is she able to conduct it alone? How might she handle the situation?

We confront a traditional pedagogy that must be transformed to adjust to a multiethnic population. Teaching seems to be conventional but has always succeeded in the past. Where to start? Is the problem well described?

Might she do a systemic approach modeling integral action research? In answering these questions, it is possible that we might discover new paths for actions and valuable research questions

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N.B. Whenever a reference is followed by a star (), this means that it inspired this book's content even though I did not specifically quote it.*

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