
**Teacher training based on the results of
research on their actual practices
in the context of Sub-Saharan Africa:
The OPERA project in Burkina Faso, issues
and challenges**

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Teacher training based on the results of research on their actual practices in the context of Sub-Saharan Africa: The OPERA project in Burkina Faso, issues and challenges

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Abstract

The OPERA project (Observation des pratiques enseignantes dans leur rapport avec les apprentissages des élèves / Diagnosis of Teacher Practices in Relation with Learning) started on the basis of observations on education systems in French-speaking Sub-Saharan Africa (SSA): in educational research, too little attention has been paid to what actually goes on in the classroom. This paper present the construction process in Burkina Faso for training teachers, which is grounded in its context and devised with stakeholders based on the needs identified for teachers through research, as well as initial feedback from the tool designers and trained teachers. The tools resulting from OPERA's research are tested and combined with a dissemination strategy for their implementation in pre-service teacher training structures. We show how this implementation lead to substantial changes to training and teaching practices.

Key words: OPERA project, teacher practices, Burkina Faso

JEL Classification: I21; I24, I29.

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1. Introduction

The OPERA project (Observation des pratiques enseignantes dans leur rapport avec les apprentissages des élèves/ Diagnosis of Teacher Practices in Relation with Learning) started on the basis of observations on education systems in French-speaking Sub-Saharan Africa (SSA): in educational research, too little attention has been paid to what actually goes on in the classroom. Following the Jomtien Conference (1990) and Dakar Summit (2000), many teachers were recruited to facilitate students' access to the education system. These recruitments result in the presence of a relatively high number of untrained teachers and few teachers having benefited from pre-service training, in particular for primary education. In addition, the training provided is often academic and leaves little room for actual teaching practices in the classroom context.

Research shows that teaching quality in Sub-Saharan African countries still remains poor. It does not ensure that basic skills are mastered, or sustainable literacy, or the effective occupational and economic integration of young school leavers: among 5th year primary students in French-speaking Sub-Saharan African countries (according to data from 15 countries which took part in the surveys of the CONFEMEN (PASEC) Program for the Analysis of Education Systems), only 39.6% reach the minimum level required for reading and 50.2% in maths. The education sector policies and programs implemented in these countries have focused on the inputs required for quality (textbooks, pre-service and/or in-service teacher training, management and supervision, curriculum reform), and sometimes also on processes (but in this case, more on general issues such as school management or parent involvement in school governance). However, they have not paid great attention to what goes on inside the “black box”, to the processes which are actually at work in overcrowded classrooms and in schools, to the specific constraints, or reviewed teacher training.

There have been curriculum reforms, but the little training for stakeholders in these rapidly imposed changes, which are totally at odds with former practices, has not produced the expected effects. As regards the teacher training currently implemented in French-speaking African countries, it has often been built on models taken from Northern countries and applied with no contextualization. The research conducted by PASEC has not observed a relationship between the training given to teachers and students' achievements. A recent UNESCO report emphasizes the lack of teacher training in Africa.

“Improving the quantity of teachers will not be enough; quality needs improvement, too, with teachers well trained and motivated. Many countries have expanded teacher numbers rapidly by hiring people without the proper qualifications and training. Among the 91 countries with 2012 data, the percentage of trained primary school teachers according to national standards ranged from 39% in Guinea-Bissau to more than 95% in 31 countries. More than half the 50 countries with data for 1999 and 2012 increased the percentage of trained teachers, in some cases by wide margins... Others, including Benin, Kuwait, Ghana and Swaziland, moved in the opposite direction, with percentages of trained teachers declining significantly.” (2015 EFA Global Monitoring Report, UNESCO, p. 198).

These results have led to new visions which require further research on what actually goes on in classrooms, hence research such as the OPERA project concerning the observation of actual practices and the importance of devising contextualized training based on the actual teaching practices observed in classrooms in the context of SSA, describing them, and identifying their

effects in order to develop benchmarks with stakeholders and common tools for the entire profession.

This is the rationale for OPERA's research which, *via* a bottom-up approach conducted with stakeholders, teacher-researchers and inspectors in a pilot country, Burkina Faso, accompanied by three experts from the South and North (M. Altet, University of Nantes, A. Paré, University of Koudougou, Burkina Faso, N. Sall, University of Dakar, Senegal), sought to observe and analyze the teaching practices actually established in the context of this country. Training actions and adaptable tools and resources have been devised on the basis of the results of the research conducted in order to provide a response to the needs identified. The aim is to enhance the effectiveness of teachers in their context, based on an understanding and analysis of how their practices function, the construction of a professional judgment, and a strengthening of their sense of personal effectiveness. The tools and resources will allow teachers to evaluate themselves and enhance their professional practices, and inspectors, school principals and trainers to train them in how to analyze and evaluate their practices and assist and advise them in order to encourage professional development.

Our text will present the construction process for this training, which is grounded in its context and devised with stakeholders based on the needs identified for teachers through research, as well as initial feedback from the tool designers and trained teachers. The tools resulting from OPERA's research are tested and combined with a dissemination strategy for their implementation in pre-service teacher training structures in the West Africa subregion and even further afield, *i.e.* in African countries benefiting from the Francophone Initiative for Teacher Distance Training (IFADEM), which aims to strengthen the professional skills of teachers. We will show how this implementation will lead to substantial changes to training and teaching practices.

2. Context

In the 2000s, most SSA countries, with support from international donors, implemented a curriculum reform based on the skills-based approach.

It rapidly became apparent that this reform had achieved mixed results which “err on the side of reserve in terms of its relevance and its effectiveness in Sub-Saharan countries, when they are looked at in terms of the context in which this reform has been established. Have we not proposed developing countries a ‘pedagogical model’ that is totally at odds with what societies expected, or were likely to accept and integrate?” (V. Téhio, 2009).

During this review seminar in Paris (CIEP, June 2009), A. Hima, a CONFEMEN representative, added that *“curriculum reforms have mainly been conducted on the basis of political decisions and without a specific diagnostic of the issues of quality or current practices in countries. The training given for the implementation of the reform has been designed using a top-down approach, with a cascade rationale which generates a gradual loss of quality”*. Yet, according to F. Cros, *“to aim at producing an effect from training on practices, it is necessary to start with actual practices in order to move towards the targeted curriculum reform and not take a top-down approach, which severely limits changes in teaching practices”*.

Furthermore, as reiterated in a UNESCO report (2015: pp. 207-208):

“In many cases, teachers were not involved in curriculum planning, leaving them disempowered by a top-down process. They lacked an understanding of the reforms’ intentions, and the reforms lacked grounding in classroom reality (Al-Daami and Wallace, 2007). In Ghana, Kenya, Mali, Senegal, Uganda and the United Republic of Tanzania, teachers often did not understand the objectives of the curricula, partly due to a mismatch with teacher training and a lack of support mechanisms in the classroom”.

It is for this reason that, conversely, the OPERA project (Diagnosis of Teacher Practices in Relation with Learning) for research and training aims to contribute to the quality of education by improving existing teaching practices. It involves going into classroom lessons with the aim of observing teaching practices and understanding how they function in order to improve them using analysis tools resulting from the research. Indeed, since Jomtien (in 1990), education has given rise to a great deal of questions in the world in general and in Sub-Saharan Africa in particular (Suchaut, 2002; PASEC CONFEMEN, 2004; Pourtier, 2010). It is the issue of student learning which is central to the problem. To address it, these countries have focused on inputs, but despite these efforts, the issue of quality continues to be raised. In the search for quality, research in recent years has focused on actual teaching practices in the classroom. The OPERA project is part of this approach and aims to identify teaching practices with potential to bring about impacts and build training tools and resources to meet the needs identified in Burkina Faso, keeping in mind a wide dissemination of training tools in subregion countries and IFADEM countries.

In short, this research conducted from 2013 to 2015 on the basis of observations of actual practices in primary classes in Burkina Faso first described the context, which was addressed using a theoretical framework for the observation of teaching-learning processes in context, and presented categorizations of the analysis of the observations made and of case studies. Training tools resulting from the outcomes of the research were subsequently devised and gave potential avenues for training for teachers and supervisors (educational advisors and inspectors).

The OPERA research was conducted in Burkina Faso, which was selected as a pilot country. This is a landlocked country in the center of West Africa, with no direct access to the sea. It is dependent on neighboring countries for its foreign trade, which is based on agriculture, livestock farming and mineral products. The education system has been inherited from the French system. This system is currently governed by a “Law on the Orientation of Education”, which determines the general orientation of education and training. Despite recent efforts, education provision remains inadequate. Indeed, the number of public and private schools varies depending on the type of area. Most private schools are to be found in urban areas, especially Ouagadougou and Bobo-Dioulasso, and are scattered or do not exist in rural areas. Classes continue to be overcrowded. While the teacher/student ratio stands at 43 in Sub-Saharan Africa, it stands at 52.2 in Burkina Faso, against 17 in Central and Eastern European countries. This ratio masks significant disparities. The classes observed had between 30 and 130 students, with 70 on average.

The quality of teachers also continues to be a concern. In 2013-2014, there were 58,294 teachers, but only 50,582 (86.77%) actually give lessons. Over 13% have other positions and their pre-

service or in-service training also has its share of problems. Indeed, pre-service training is conducted in ENEP, National Schools for Primary Teachers, in the form of theoretical lessons the first year, followed by a practical training period in the classroom in the second year. The length of the training has often been reduced to one year with the same curriculum. There has been an in-service training program since 2001. In the opinion of the people involved, in-service training faces implementation difficulties related to resources and the lack of motivation of teachers, whose salaries are low.

Finally, educational outcomes, which result from the overall situation, are below the expected results and especially concerning girls. The results become lower as students progress in the system, and this is especially marked for girls in comparison to boys. Burkina Faso stands out for the fact that it is one of the only countries in French-speaking West Africa in which there are no contractual teachers in primary school. It is also one of the only countries where the Skills-Based Approach has not been adopted by the Ministry, which preferred to devise an Inclusive Schooling Approach (ISA) focused on the learner and the integration of knowledge.

It is an eclectic approach, which is especially based on social constructivism and includes input from other innovative educational approaches. ISA aims to build learners' knowledge in an interactive way with other stakeholders and the environment. It places learners at the center of learning and leads them to an actual and consequently interactive participation in the teaching-learning process.

This does not preclude the issue of the quality of the teaching given by teachers in this country, who have received pre-service training in public and private institutes, being raised, as is the case everywhere else in Africa.

Consequently, the need to improve quality is recognized for African education systems, both in Burkina Faso and in the other SSA countries, and teachers are central to this improvement. Observing their practices in order to identify the effects they produce on their students is becoming an issue which the OPERA project wanted to seek to address.

3. OPERA's research – The theoretical choices

The OPERA researchers made the theoretical choice, in line with the research of the OPEN network (2002-2012), the Anglo-Saxon research of Hattie (2003, 2009), and the North American research of Hamre *et al.*, with the "CLASS" observation tool (2013), of defining the complex teaching practice on the basis of three constituent fields: the *relational field*, which covers the climate and relations created in the classroom, the *pedagogical-organizational field*, made up of the teacher-student activities conducted and their organization, and the *didactic-epistemic field*, which manages the scope of knowledge and learning issues (Altet & Vinatier, 2008). These three constituent fields of practices are compared with the personal sociocognitive characteristics of the teacher (Clanet, 2005) and context. For OPERA, the "organization" dimension is crosscutting and present in the three fields of teachers' work: they have to organize the class, students' learning and working conditions, as well as the knowledge to be taught. This choice of a

multidimensional approach to teaching practices leads to a reconsideration of the artificial distinction between the research of learner-focused disciplinary didactics, knowledge management and structuring, and research on education focused on the communication dimension, action variables or pedagogical facilitators. This research is complementary if we are to account for the complexity of teaching practices and the closely interwoven didactics and pedagogy in the teacher's action, hence the "pluralistic analysis", an intersectional multidisciplinary approach of the teaching-learning process situated (Altet, 1994; CREN, 1999, 2001, 2006) to characterize and understand the link between the multiple relational, pedagogical, didactic, epistemic, temporal and psycho-social dimensions at work in teaching practices. These constituent dimensions interact, which allows the teacher to adapt to the professional situation experienced. The teaching-learning activities implemented by teachers are analyzed as acting as pedagogical-didactic mediation on the learning process and on learning conditions, on students' activities, and on their cognitive mediation in context. The teaching-learning situation is the meeting point between this dual teacher-student mediation. It is characterized by its interactivity.

- *Methodological choices*

On the basis of the observation of actual practices in primary classes, a model, an OPERA grid, has consequently been built in an open and exhaustive manner using indicators in the three constituent fields, adapted to the specific characteristics of the environment and integrating the knowledge that the OPERA research team has of the field. From the methodological perspective, researchers collected data from several sources in order to maintain a systemic vision of teaching-learning in context.

The data collected comprise 45 questionnaires for directors, 90 questionnaires for teachers, 270 classroom sessions for phase 1 of the collection and 125 sessions for phase 2, during which the turns for speaking and activities of the teacher and students are fully recorded. All this is combined with interviews with teachers before and after the session and with a few students after. 60 videos were made of these sessions (30 in the CP2 class and 30 in CM2), and a contextual analysis was conducted. The average scores of students (2013-2014) for CP2 (2nd year) and CM2 (4th year), plus the results of the 2014 Primary Studies Certificate for CM2, were recorded, as well as the scores obtained by students in the new PASEC tests conducted in 2015 in 10 countries, including Burkina Faso, in 28 CP2 and 45 CM2 from OPERA's research in Burkina Faso.

The research team was formed from the Andragogy Laboratory of Education Policies and Measurement and Evaluation (LAPAME) of the University of Koudougou and comprises researchers, trainers and local supervisory staff for teachers in the field. The observations were made by a pair of students trained in observation techniques and in how to use the camera.

The data were processed using Excel, SPSS, NVivo and Transana software and through documentary and qualitative analysis. An analysis of the main components (AMC), which is a complementary approach to categorization 2, is also used to further develop the results. These methods (AMC) build components which can be used to account for the phenomena studied. Qualitative case studies were conducted using all the data, the context, questionnaires, pre-post

lesson interviews, and observations of six sessions per teacher. The video recordings of practices provide a detailed description of the teaching-learning processes observed and compare contrasting practices. They were processed with the Transana software.

- *Outcomes*

The analysis model gives rise to three categorizations: a first categorization of the teachers observed concerned the socio-professional profile and their representation of teaching-learning. On the basis of their statements, it was possible to identify four categories according to the professional profile, comparing the design of the teaching-learning process and the number of years of experience. In terms of the conceptions of the teaching-learning process, teachers mainly take a student-focused learning approach (51/82) (as required by the paradigm of Teaching By Objectives – TBO), and less a content-focused teaching approach. One fact which stands out is, indeed, the observation that women are quite evenly distributed between the two types of conceptions, teaching (teacher/content-focused) and learning (student-focused). More of them also teach in small CP2 classes.

The second categorization concerned the profile of teaching practices. Table 1 summarizes the results obtained during the observations of the two phases 1 and 2 and their processing using the tools mentioned above.

Table 1: Summary of observations by field (phase 1 and phase 2)

Field	Phase 1		Phase 2	
	Total field	%	Total field	%
F1. Relational climate	31,379	30.10	20,059	31.21
F2. Pedagogical management	43,758	41.96	26,039	40.52
F3. Didactic management	29,125	27.94	18,163	28.26
Total Discipline	104,262	100	64,261	100

For phase 1, the pedagogical field has the largest number of observations, 43,758/104,262, *i.e.* 41.97%, and the didactic field the lowest, 29,125/104,262, *i.e.* 27.93%. The same trend can be seen during phase 2 for a subsample of 41 teachers: the pedagogical field has the most observations (26,039/64,261), 40.52%, and the didactic field (18,163/64,261) is in 3rd place with 28.26% of observations.

In OPERA’s research, the results obtained after the exploitation of observations are compared with the first categorization (teachers’ professional background). These three components obtained are considered as new variables which can have meaning. Three profiles of teaching practices were identified following AMC for both the pedagogical field and didactic field.

A third categorization showed the profile of teaching practices with potential to have effects. The third level of categorization concerns the search for the level of effectiveness of teacher groups whose practices hold potential to have effects. It is the result of the comparison of the profiles of teaching practices (categorization 2) with students’ marks. The averages obtained by students in

2013-2014 serve as a benchmark. The analysis breaks down the annual averages into 3 categories: low, average and strong, depending on the average and the standard deviation. 18 out of the 41 teachers/classes which participated in the two observation phases have results of 5.53, with a standard deviation of 0.67.

These results have also been compared with the scores obtained by the PASEC tests in these classes. This brings to light which teachers have practices with potential to have effects. For the 3rd categorization based on practices with potential to have effects, additional processing, based on the research of Stallings and Bruns (2014), concerned the differentiation of the “active/passive teaching” dimensions to which OPERA added the crosscutting “organizational” dimension in order to identify teachers whose practices facilitate learning and others which hold it back. Contrasting case studies illustrate this 3rd category of teachers (Altet, Paré, Sall, 2015 OPERA report).

The general characteristics of practices which emerge following the 270 observations and the processing of data are as follows:

- There is a pervasive questioning and participatory classes: the researchers observed that in schools in Burkina Faso, teachers ask questions in order to teach, the student replies, and repeats in order to learn. The teacher talks all the time, the student listens, replies and learns. It is mainly a question of lessons based on dialogue. It essentially involves a series of simple questions with a low taxonomic level (knowledge, comprehension). The questions asked are closed-ended and factual and require the expected answer. This questioning constantly solicits students, who participate by replying to it. Open-ended questions have primarily been observed in the 6th year;
- Traces of TBO have also been identified: in pre-service training, teachers in Burkina Faso were only prepared for “Teaching By Objectives”. For the teacher, it involves defining the objectives to be reached, selecting methods to achieve them, and planning their evaluation. The teacher consequently uses learner-focused teaching, but which remains imposed by the teacher and the problem of the assimilation of objectives is not necessarily resolved. This teaching remains at a low taxonomic level of objectives: the activities proposed by teachers are generally at elementary taxonomic levels (knowledge, comprehension, application, repetition, memorization) and rarely go to the complex levels (analysis, synthesis, evaluation) of Bloom’s taxonomy.

The characteristics of the three constituent fields of the teaching practices observed:

- While the positive relational climate is an important factor in the classroom, as the students are very much solicited and actively participate, the pedagogical field of the management and organization of learning conditions is the field where there are the most observations: teachers in Burkina Faso are very concerned about the pragmatic component of the actions and interactions concerning the organization and management of learning conditions or of the class group. In contrast, the lowest number of observations are to be found at the didactic level. The issue of knowledge, of its construction, of its appropriation and of its integration, would not appear to be a primary concern and, for teachers, comes after the issue of pedagogical organization;
- The taxonomic level of the activities proposed is elementary: comprehension, repetition, application, restitution. The researchers identified a need to structure knowledge outside the highly present mnemonic fixing. They also observed that teachers intervene little to correct mistakes. This correction remains very general and collective and individual mistakes are corrected little. Teachers take an interest in the best students and tend to show less interest in the weakest. No teaching is established to deal with mistakes (Astolfi, 1997).

What is striking in all the mistakes made in all the classes is the importance of the positive relational climate and the few observations made in terms of the negative climate, reprimands, sanctions, punishments... For example, in these overcrowded classes (from 60 to 130 students), most teachers hold their class group, there are effectively calls to order, but the many operating rules play their role and the management of the class group is organized. As students are called on to answer a number of questions, classes appear to be lively and participatory, and a communicative working atmosphere characterizes these classes.

Some teachers are, of course, not sufficiently present and find it more difficult to hold their class. In view of the large class sizes, it is necessary for the class to be highly organized: certain teachers move from the traditional method (all the students sitting on benches opposite the teacher) to attempts to do things differently (for example, students sitting in groups in a semi-circle with group leaders, etc.), or try to conduct group work, but the group work technique with the exploitation of what is produced is not implemented.

Similarly, few metacognitive practices have been observed in classes, or differentiated or individualized practices, given the number of students per class. Consequently, the OPERA researchers have managed to show that by conceptualizing and measuring three constituent fields of teaching practices, they have been able to characterize the practices and identify those which have the most effects on student results. The teaching-learning process, thereby analyzed on the basis of activities and teacher-student interactions, is one of the inputs that provides access to the many factors which make a teacher efficient. In addition, as also shown by Hamre or the OPEN network, these teacher-student interactions are the most important aspects of the teacher's work, no matter what the context. This research on primary school practices in Sub-Saharan Africa has shown that this three-field model is consistent in order to understand teaching-learning and functions no matter what the context – European, America, or African.

4. The contributions of OPERA's research to pre-service or in-service training for teachers and their professional development

For the OPERA researchers, the actual improvement in the teaching-learning provided is based on an analysis and clear understanding of the contexts of teaching in the classrooms, what is at play in them, the actual practices of teachers, and their interactions observed with their students.

In terms of training, the researchers assume that the gain in comprehensibility produced by the research concerning the knowledge of processes underlying teaching-learning practices makes it possible to devise and provide conceptual analysis tools for teachers, teacher trainers and supervisory staff. The latter can implement them as categories, interpretation grids, for example, in training systems such as the mechanisms to analyze practices (Altet, 1996, 2002, 2008, 2013; Paquay, Perrenoud), with a view to a professional development of teachers allowing an adaptation to change. It involves clarifying the representations, the main actions of the profession, and raising awareness of how they function and their effects on learning. It is not a question of providing ready-made solutions or practical advice to be applied, but of making teachers "lucid", reflexive about what they do, and of considering with them how to do things differently in order to overcome the difficulties observed.

However, the knowledge resulting from educational research on teaching practices is of a different nature than teachers' professional knowledge. It has shown that it cannot be applied as it stands and directly. In contrast, it appears to play a key role as categories for interpretation in order to analyze, raise awareness of, interpret differently and understand teaching-learning situations. This knowledge from research on teaching practices can become "knowledge tools" used by trainers in pre-service or in-service training and allow teachers to move from intuitive categories of understanding their own practices or the common sense, to grounded interpretation tools based on results, which help interpret professional situations differently, understand how practices function, and lead to any dogmatism being avoided (Altet, 2002).

Consequently, it involves not only making this knowledge from research on practices known to teachers, but also "transferring" it and "transposing" it into practice. This theme of the "pragmatic transposition" (P. Perrenoud, 2004) of theoretical knowledge in order to teach raises the issue of suitable systems for the vocational training curriculum, which will help teachers in pre-service or in-service training "mobilize" this knowledge gained from research correctly in the professional situations experienced.

Certain mechanisms, such as "the analysis of practices", are implemented using analysis tools produced from research in order to integrate the knowledge which results from this into other teacher knowledge and make contextualized practices more intelligible.

For the OPERA researchers, booklets of analysis sheets on the representations and practices established using knowledge produced from research make it possible to rebuild a different relation to practices and develop, through reflexivity, the construction of a professional judgment, questioning and discernment. They help teachers move away from ready-made opinions or misrepresentations on learning or on their actions.

Indeed, in the case studies, the post-session interviews show that teachers who have little training or simply theoretical training have trouble making a professional judgment about their practices,

and each time find them systematically “adequate”, or experience difficulties in exercising good judgment, as they are “satisfied” with everything they have done and do not envisage making the slightest adjustment. They do not know how to express their “feeling of self-efficacy”, or the effect that their practices have on their students’ learning. Yet, although cultural factors may account for the difficulty in making an “objective” judgment of oneself (UNESCO, 2015), according to Bandura’s social cognitive theory (1986), the feeling of self-efficacy, the perception that individuals have of their own capacity to accomplish a task or not, is a prerequisite for any type of change. For example, research has shown that in the field of education, students’ feeling of self-efficacy has a major influence on their educational outcomes and on their behavior. In addition, TALIS (OECD, 2014, p. 168), referring to Caprara *et al.* (2006) and Klassen and Chiu (2010), points out that:

“An increasing number of data indicate that teachers’ feeling of self-efficacy, which corresponds to their efficacy in terms of teaching, student involvement and classroom management, also has a significant impact on the educational outcomes of students, while improving their professional satisfaction”.

It is for this reason that mechanisms, comprising working sheets and tools on the representations and analysis of practices, and interpretation grids from the research diagnostic, are devised in order to help each teacher become aware of the complexity of practices and bring them to a certain understanding of their functioning. The teacher’s realization of the fact that they could do things differently is the starting point for improving their practices. These tools and booklets of sheets that are consequently built aim to professionalize teachers by developing a posture of reflexivity, bringing them to a certain lucidity in order to question, as they move in this direction, the way in which they conduct their own practices.

Yet there is no analysis of formative practices without “implemented **practices**” on which the analysis is based (the sessions observed), without “**theory**”, *i.e.* without theoretical references from the research or formalized references based on practices. These theoretical interpretation grids are “means” for reflection and “knowledge tools”. However, the analysis also requires the presence of a **trainer-coach or peers**, who help a teacher conduct the analysis through reflection using these tools in which they are proficient (by the supervisory staff who are members of the local team). This is what Perrenoud (2005) called “the paradox” of the analysis of practices “*It is the practitioner who has knowledge of the situation and practices*”, but he needs his peers, a trainer and tools, sheets, and interpretation grids to understand his action, to “rebuild” his understanding of the situation and of the action. Consequently, the change firstly comes about through the teacher, the awareness of his conceptions, his actions, and of the teacher trainers who transfer this scientific knowledge into an interpretation grid to help them understand and characterize their practices.

The OPERA research is based on the principle that research and training can be mutually enhanced and that the professional teacher can feed into his judgment and his discernment using the results of the research, strengthen his feeling of self-efficacy, the cornerstone of sustainable professional development, and change using the awareness of his actual representations and practices. According to the OECD TALIS survey (2014, p. 183), recent research work develops this issue:

“One of the components is that the pre-service teacher training programs need to look at the ideas that teachers have of the nature of teaching and learning before starting to teach. Consequently, these programs can train teachers to base the lesson on the learner, i.e. expose students to forms of learning based on observation and investigation. Teachers who have received pre-service training on the basis of this model are likely to adopt (or adhere to) more constructivist forms of learning based on students. Indeed, it is recognized that teachers’ convictions, as well as pedagogical content and knowledge, can influence student learning (Darling-Hammond, 1998; Staub and Stern, 2002; Tatto and Coupland, 2003).”

Consequently, in addition to research on the teaching practices required to professionalize the teaching profession, there is the recent research on training which also helps gain a better understanding of the learning and professional development process.

5. Potential avenues for training and change using analysis tools

For teacher training, the objective of the research approach based on the observation of teaching practices and the outcomes of OPERA’s research on teaching practices was to propose conceptual tools to analyze the teaching-learning process to teachers, teacher trainers, and supervisory staff and develop their reflexivity in order to help them adapt.

It involves helping teachers to “know-analyze” their own practices by looking at the effects they have on student learning, and understanding how practices function and their effects on student learning.

The outcomes of OPERA’s research identify three main thematic areas for the design of training tools. Three booklets of sheets have been designed for pre-service and in-service training and are intended for teachers, staff and supervisors. Each team of designers has produced tools for one of the three following thematic areas:

- **Classroom organization and management**: Classroom organization and management is a fundamental organizational and relational skill for the teaching profession which creates and maintains an environment and climate conducive to learning. It covers several dimensions including:

- Classroom organization with time management, the planning of space (layout, decoration, in and outside the classroom), depending on the level and class size, the choice and use of educational resources and material;
- The management of the class group dynamics, the climate, relations, operating rules, discipline, conflicts;
- The organization of the students’ work, the types of group organization (group work, inclusion);
- The styles of class management, authority, leadership;

- **The organization and management of teaching-learning**: The organization and management of teaching-learning correspond to the fundamental pedagogical skill of the teaching profession in order to ensure that lessons are learned, and cover several dimensions including:

- The linkage between the teaching process and the different learning theories, an interactive teaching-learning process;

- The organization of learning conditions, factors which facilitate learning, involvement, the organization of activities, students' commitment to the task;
- The choice of different strategies, modalities, active methods or other methods, situations-problems, projects, and not only questioning;
- The forms of evaluation, formative evaluation;

- **The organization and management of knowledge and learning:** The organization and management of knowledge and learning correspond to the fundamental pedagogical skill of the teaching profession in order to ensure that lessons are learned, and cover several dimensions including:

- The structuring of content, notions, knowledge to teach, their transposition and the pedagogical progression during the sessions;
- The choice of instructions, tasks, activities for students;
- The management and correction of mistakes (collective, individualized), the individual remediation;
- The knowledge acquisition methods (fixing, production, structuring), differentiation, transfer, integration, reflexivity, metacognition, the meaning of learning;

a) Tools, training sheets to conduct an analysis of representations

The designers of OPERA tools have designed tools in the form of reflection sheets, questioning (*e.g.* Q-Sort) for teachers and pedagogical staff in training in the pre-service or in-service training structures (students-teachers, supervisors) who already have representations of “what teaching-learning is”, defined on the basis of their previous educational experiences or their reading. It involves bringing out their representations on the basis of the three thematic areas described above.

These tools should bring out their different conceptions. This awareness of representations is the starting point for changes in the practices and vocational training of the teacher.

b) Tools, training sheets for self-observation and the analysis of practices in order to improve them

Based on anonymized paper transcripts of the CP2 and CM2 sessions observed, it involves getting groups of teachers with a trainer to analyze the practices described, understand how a practice functions by analyzing its 3 constituent fields, and establishing the link between the teaching practice and the effects on student learning.

These mechanisms aim to establish a professionalizing training by “analyzing practices” and reflexivity, with a focus on practices, *via* an approach which moves away from action and allows a clarification of the pedagogical and educational variables at play, an attempt at clarification, and actions to be put into words, then, in the analysis stage, a comparison of factors in terms of student learning.

This type of training aims to professionalize and acts as a driver for changes in representations and awareness of practices, and promotes the construction of a professional judgment and development. For the teacher, it involves moving from questioning to the organization of active situations, problems, by proposing to the student a complex task, a problem which for him is “an

obstacle”, a real learning opportunity. It is this concern for taking knowledge into account which is targeted and which requires the teacher to fully command the knowledge of the curricula he wants the student to have access to.

c) Video training tools, short films on various thematic areas:

Video sequences have been recorded, which illustrate different ways of teaching-learning. These sessions provide support for the analysis of the pedagogical or educational aspects which need to be worked on. The video sequences are combined with questions.

Each of these types of tools, which constitute the phases of training based on the analysis of representations, then including the analysis of actual practices, then the definition of new practices, **is combined with additional thematic theoretical inputs**, which meet the theoretical training needs for teaching-learning. They are based on the current resources of educational science (review of the literature). The tools produced are combined with scenarios and illustrations for their practical implementation and are currently being tested in various training courses in three regions.

6. Conclusion

Consequently, this choice of training tools based on the actual practices analyzed in day-today classroom situations in order to implement a reform contrasts with the usual practices which often apply ready-made reforms or instructions for change. These tools combining research and training are intended to achieve a professional development of teachers who are capable of professional judgment, reflexivity and adaptation to change. The aim is indeed to offer teachers training focused on their representations and their practices, develop their ability to analyze them, identify the rationale for their teaching processes, and show the limits in order to be able to adopt new practices that are conducive to learning, and thereby encourage them to build a professional judgment. This prepares them to do their job more effectively for students in a constantly changing world. While this transformation in practices *via* professional development is a longer process than the implementation of an imported top-down reform, it is a promising model as it is grounded in its context and led by stakeholders in the system in the context of in-service training and with a view to their professional development: trainers and teachers change the training. However, the fact remains that the OPERA approach needs to be taken on board at all levels in the education system – in both pre-service and in-service training institutes – while ensuring it is periodically updated by stakeholders in the different contexts. The IFADEM approach, *i.e.* the use of distance resources and learning, is one of the potential avenues planned in order to disseminate and secure the sustainability of the professionalization approach, on the basis of observed practices as shown by OPERA.

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