EDUCATIONAL INTERVENTION FOR THE DEVELOPMENT OF ENGINEERING BY TRAINING EXPERTISE IN BURKINA FASO – *A FRENCH DISTANCE LEARNING MASTER DEGREE*[1]

INTERVENÇÃO EDUCATIVA PARA O DESENVOLVIMENTO DE ENGENHARIA POR EXPERIÊNCIA DE TREINAMENTO EM BURKINA FASO – UMA APRENDIZAGEM A DISTANCIA FRANCÊS DE MESTADO

INTERVENCIÓN EDUCATIVA PARA EL DESARROLLO DE LA INGENIERÍA POR EXPERIENCIA EN FORMACIÓN EN BURKINA FASO - UN GRADO DE APRENDIZAJE FRANCÉS A DISTANCIA

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Introduction

Since 1996, the Department of Educational Sciences of the University of Rouen (France) prepares to the Professional Master's Degree "Engineering and consultancy by training" in distance education. The name is borrowed from the Bologna Process. Launched in 1999 by the Ministers of Education and university leaders of 29 countries, the Bologna Process aims to create a European Higher Education Area (EHEA) by 2010; it has further developed into a major reform encompassing 46 countries. Taking part in the Bologna Process is a voluntary decision made by each country and its higher education community to endorse the principles underlined in the European Higher Education Area. The Bologna Process does not aim to harmonise national educational systems but rather to provide tools to connect them. Most importantly, all participating countries have agreed on a comparable three cycle degree system for undergraduates (Bachelor degrees) and graduates (Master and PhD degrees). The Professional Master's Degree is a graduate degree designed to allow students to pursue advanced training while simultaneously developing workplace skills.

Professional Master's Degree can be completed in two years of full-time study including an internship. The following research focuses on the second year of training : the professional Master2 « Engineering and consultancy by training » in a context of distance education. From 2001, this training takes place indeed within the consortium FORSE (Training and Resources in Educational Sciences). This digital campus consists of two French universities (University of Rouen, University of Lyon 2) and the National Centre for Distance Learning (CNED- Centre National d'Enseignement à Distance), offering distance learning in Bachelor, Professional and research Masters Degrees. It has trained more than 12,000 students. Since 2004, a partnership was established with the Academic Agency of La Francophonie, a french higher education and research association. The International Organisation of La Francophonie represents one of the biggest linguistic zones in the world. Its members share more than just a common language. The French language and its humanist values represent the two cornerstones on which the International Organisation of La Francophonie is based. Created in 1970, its mission is to embody the active solidarity between its 80 member states and governments (57 members and 23 observers), which together represent over one-third of the United Nations' member states and account for a population of over 890 million people, including 220 million French speakers. IOF organises political activities and actions of multilateral cooperation that benefit French-speaking populations. Its actions respect cultural and linguistic diversity and serve to promote the French language, peace and sustainable development. The Academic Agency of La Francophonie is one of the direct operators responsible for implementing the programs decided at the Summits. The Academic Agency of La Francophonie federates 781 establishments for further education and research in 94 countries.

This Professional Master's Degree "Engineering and consultancy by training" in distance education has a dual challenge in its modality : reach new publics through digital culture thanks to the flexibility and adaptation framework, and contribute to professional development and development of territories. Aware of the potential role of ICT, the teaching team built a device based on online courses, collaborative works on an e-learning platform, virtual classes, online research seminars and monitoring of professional situations internship (Amplitude of 16-28 weeks). Annually this Professional Master's Degree receives more than 300 applications for 60-80 places.

This partnership between our Department of Educational Sciences and the Academic Agency of La Francophonie found a favorable echo in francophone West Africa, specially in Burkina Faso, the majority of requests emanating from sub-Saharan African countries. The analysis of macroeconomic and social indicators of Burkina Faso show that the problem of education and

vocational training is in terms of access, efficiency, relevance, quality and adaptation of the providing training to economic and socio-cultural needs. Burkina Faso still faces a significant demographic challenge. Located in the heart of West Africa, the country has over 15 million inhabitants. Population growth is 3.4 % per year. More than 70% of the population is under 35 years. 72 % of the population can neither read nor write in a language. Economically, both sectors drove economic growth. This is the agro-forestry-pastoral sector and the crafts. The agro-forestry-pastoral sector contributes 32 % to the GDP (17 % agriculture, animal husbandry 12 %). This sector provides employment and income for 85 % of the workforce. It is the first provider of employment.

The objective of the Professional Master's Degree is to train "multi-specialist" who will manage and supervise multidimensional training projects in the field of territorial policies, human resources or educational mediation. Two dimensions characterize the formation: engineering and consulting. Engineering on training refers to three main types. The engineering training policies: training systems as pedagogical practices take shape within broader frameworks that refer to political decisions, which themselves reflect more fundamental choices in the field of social and human resources. The engineering training systems: it is the frame construction and the training project translated into device. This dimension refers to the organized system of any project with the aim to optimize the act of learning system. This level is part of the contractual and legal framework taking into account of organizations. The pedagogical engineering who characterizes the educational work: the choice of media, content, trainers, the choice of logical exposition and learning methods. This dimension refers directly to the educational practices of trainers. The second dimension is the council, essential component of continuing education that requires support by qualified and recognized people. Council may apply to the people on the one hand and organizations on the other. The professional must be able to work well on both dimensions: engineering and consulting, for individuals and organizations in the logic of learning throughout life support by sciences of education. Training establishment and its realization in diverse environments queries the local change, social action and adult learning in distance. The issue of educational intervention is laid out on two levels: our own intervention with a specific audience (students of this Professional Master's Degree) in a given territory (Burkina Faso) and the impact of training and practices of educational interventions for these professionals in the field of adult education (Ardouin, 2014, Solar & Hébard, 2008). These actors are involved in the specific field of decentralized cooperation and capacity building (Gasse, 2011).

Our research questions the logic of professionalization of this actors and the impact on their environment through two questions: What kind of expertise in the fiels of education? What is the impact of the training program in distance education for participatory local development in a given area?

We present our theoretical framework of professionalization in a context with a wider scope reflection on local development. We question the specificities and characteristics of the public, their motivation to undertake this training, to remain in this training online and the gain in terms of employability. We question the expertise and recognition in connection with the environment.

Three levels of professionalism in interaction

The professionalization of actors and structures is questioned on the three levels: sociological, individual and pedagogical (Roche, 1999; Hébrard, 2004; Wittorski & Ardouin, 2012) in the field of engineering on training (Ardouin, Clenet, 2011; Ardouin, 2013).

The sociological dimension of professionalization is in line with the initial work on the sociology of professions. If it was developed in France later than in the Anglo-Saxon countries. Dubar and Tripier (1998) remind us that it is made in different approaches; first functionalist approach, in the 50s, where the company is treated as an organization that seeks to meet its needs in a free market, which is regulated by the professions. The profession is then defined by a set of key features: intellectual activity, high levels of knowledge related to formal training, a self-organizing capacity and integrating ethical level of individual responsibility. A second interactionist approach, in the 60s, where professional activity is thought to interact with the environment and is part of biographical and identity processes in order to promote a professional group. Both approaches highlight the existence of a number of attributes that are autonomy and the creation of a body that has the capacity to govern it; social recognition and level of social and / or financial compensation; ability of social negotiation; level of training and knowledge and high ethical dimension with the display of a service to the community. They are supplemented by French approaches more focused on diversity of forms of professionalization (Bourdoncle, 2000).

Individual dimension is the growing expertise, qualification and competence in a process of professional socialization. Socialization results from interactions within a double movement: the rise in skills and qualifications on the one hand; and recognition of the professionalism by his peers and the environment on the other hand. These interactions are part of a consistent identity process where the professional will have to show their professionalism in action. Professionalism appears to be the

result of two aspects of professionalization: the product of building work of the competence at the individual level and recognition of this result from a social point of view. Thus individual professionalization goes through professionalization activities (Bourdoncle, 2000).

The pedagogical dimension of professionalization apply to make a more professional training that is both more grounded and oriented towards socio-professional environment. At the same time allowing the individual to find, choose, keep or improve in a job or activity. Thus we identify three interrelated aspects of the pedagogical professionalization: 1) incorporate training in a specific socio-economic environment and therefore understand the context and content of this environment, ie the professional knowledge in order to keep account; 2) register training in operating professional dimensions while promoting step back and exploitation of theoretical and methodological dimensions acquired; 3) adapt and prepare the public training for its inclusion in employment related to the socio-economic environment.

Professionalization therefore asks these three levels. Professionalization is located in complex interaction and interdependence systems between the individual actor, collective actors and the organization in a given environment.

Endogenous local development

The results of this study notes the impact on the development of a territory, through the position of the actors at the interface between the project beneficiaries and training actions and institutions. The issue highlights local and endogenous development, with participatory target. This environment is favorable to the development of environmental expertise in a given area, starting from this formula initiated by Bachelard (1993, p.182.): *"It is the environment that shapes the perception of man".* Participatory local development is here seen as a desire to make operative actions between stakeholders to work to projects undertaken in the immediate environment. The concept of local development occurs in a critical context of centralizing vision of state initiatives and further developed at the global level without local impact. Late '50s endogenous development describes a proactive approach that sees the development as an approach from the local focusing on local resources as opposed to a linear model.

The participatory approach emphasizes the empowerment of the people like the concept popularized by the awareness of Brazilian educator, activist and theorist Paulo Freire in his 1970 work "Pedagogy of the Oppressed". The English term "conscientization" is a translation of the Portuguese term "conscientização", which is translated as "consciousness raising" and "critical

consciousness". Freire explains critical consciousness as a sociopolitical educative tool that learners engaged to question their historical and social circumstances: "reading the world". The goal of critical consciousness, according to Freire, should be acting as subjects in the establishment of a democratic society.

Participatory approaches suffer from being exploited by international agencies when the debate is moving on the effectiveness of development aid (Winters, 2010), focusing intentions of the voluntary commitments principle of decentralization and devolution on local structures. A main limitation of this approach, is that it often boils down to simple participatory "dialogues," ritualized exchanges where local actors are only validated at best power, and analyzes the choices made by external agents. Indeed, the constitutive ambiguity of "participatory" concept specifies the mandatory and central presence of an exogenous intervention involving local actors, which is very suitable for the emergence of an endogenous dynamic decision-making and planning. The autonomy of local actors is far from complete, whether in the formulation of problems in setting priorities or making decisions. The principle of endogeneity is to transform the local player in local decision maker. The rule is that technical support does not set prior to its objective support approach, if it is to be arranged at a joint decision-making on the territory.

Territorial planning is primarily a political, not technical implementation, which implies that, given the uncertainty of the future, the responsibility of choice, primarily political and ethical should be left to legitimate policy makers, according to the principle of a representative democracy, and the people in a participatory democracy. Burkina Faso is engaged since 2007 in a policy of decentralization of education and training. Agencies and institutions, partner networks as well as regions, communities, local authorities are part of a decentralization policy.

Only endogenous dynamics may become permanent and multiply on a reasonable scale without heavy and permanent external support. This is to install a local process and collective decision-making (decentralization and devolution orchestrated on regions, communities). The aid relationship assimilated to "sovereignty of substitution", "conditional aid", rocking to a partnership relationship contractualized (mutual recognition) based on a recognition of knowledge, perceptions and legitimacy of local actors.

This concept is the basis for most methods and tools developed in recent decades to support the development. In our context of Master's Degree with the goal of professionalization, the long-term goal is to strengthen the development of a territory, in a context where decentralization on agencies and institutions appears as a plea.

A qualitative approach

Our research conducted in 2013 on six cohorts of students in sub-Saharan Africa from this Professional Master's Degree of Sciences in education from the University of Rouen in distance education, covers 48 registered (2006-2012) with an average of 4 to 5 graduates.

Part of the training is done in groups on the site of the University of Ouagadougou (Burkina Faso). Our methodology is twofold: firstly we rely on a qualitative questionnaire whose objective is the knowledge of the target audience (N = 48) through the characteristics of these students for entry in distance education, their motivations, projects undertaken in training, the perceived impact on the ground, the impact on their future. Then in a second step, we organized a focus group (N = 10) in order to deepen the problems developed during lines project, missions engaged with the structures host, the impact spotted on the development of collective skills. It allows us to reflect on the expertise developed within institutions.

We must take into account the existence of limits to the extent that we act on our own device for distance learning, highlighting our proximity between our position as investigators and as teachers.

Students trained, motivated and experienced

Characteristics of students for entry into training: trained and experienced

The sample is 48 students, 4/5 of whom are men. The promotion consists of Burkinabe students (26/48) but also students from neighboring countries and Central Africa (22/48). The remote device is a great tool to reach a large audience geographically widespread. The average age of entry into the program is 41 years, which leads us to infer that these students already have professional know-how, coupled with an academic experience, entry level around 4th and 5th academic year in Humanities and Social Sciences or Business / Law or engineering Sciences, graduation for more than half outside the country. Experience in education and training is between 6 and 10 years. At entry into the program, all students are mostly employees working in the public sector (3/4) (Secondary, TVET, private companies (HRM sector) or independent consultants or affiliated with non-governmental organizations (NGOs) or intergovernmental organizations (IGOs).

Their sectors of activity covered rural development and crafts; health and social work; education and training; micro-finance.

The results of our investigation focuses on 15 Burkinabe students.

Motivated students

What is the logic underlying the entry in distance education? We investigated the professional projects expressed in Applications at the entry into the program. We rank the projects in order of importance:

① Internal demand to answer to business requirements.

This is to strengthen internal skills.

② Specialization in Engineering Training

The argument here is to promote professionalism in adult education through the acquisition of tools, proven methodologies in the field.

③ Recognition of a university Master's degree

Master logic here is privileged in terms of international recognition of a diploma, passport true mobility to work in agencies, institutions of belonging that are mostly of foreign origin and more specifically the European bilateral cooperation. This recognition by the degree is associated with a possible further studies in a doctoral degree.

④ Development and internal promotion

Finally, it is internal promotion that is targeted or a shift to other tasks in parallel consulting, consulting.

Through these projects, they express primarily the acquisition and capacity building in the perspective of professional recognition by further studies, with perspective of professional reconversion and personal development.

Inserted students

At three months of the end of the training, through graduate students, 6/15 is always positioned with changes in their missions. Three months after graduation, 6 out of 15 students are still in the same position but with changed missions. 7 out of 15 graduates benefit from an internal promotion to senior positions and record wage developments. Finally, 6/15 engage in entrepreneurship (engineering, consulting – training office) full-time or second job, maintaining their main job. At the end of the training, more than 2/3 undertake further studies at research level with the perspective of a PhD. 4/15 prepare a contest for the public service or in international organizations.

After a year of hindsight, 11/15 say their employment is directly related to the training received and especially their initial project.

Professionalism displayed by a valued training

The results uncover the logic of professionalization of the persons as a collective but also the changes outlined in the territorial and local development. Our work on identity and competence (Ardouin, 2014a) show that the relationship between the individual, training and work are complex and are especially at the confluence of three forces or origins. The first refers to the strength which each individual in his own report to work, his career and his social and professional identity. At the individual level, the course is also its relation to the training that is involved. The second force report challenges the professional group, as a profession or occupation, values, methods and knowledge as an expression of integrated a common or professional competence that is shared. The third force is related to the organization and its conception of the job, place and role in relation to the labor market in a changing professional environment.

Through their professional Master's Training Program, they undertake projects in different sectors during their internship: Human Resources, Department of Adult Education, Continuing Professional Development (CPD) in business or public institution, Health and Crafts. The nature of their missions is expressed in terms of: audit service, development consultancy and business support, evaluation and restructuring of training opportunities, evolution towards the Information and Communications Technology in Education (ICTE). The issues of their projects are invested in the development and integration of an engineering approach; motivation to enter in a training program; the efficiency and effectiveness of training; development of ICT; circuit analysis of financing and prospective studies. These aspects indicate a willingness professional with an effective capacity building in engineering and training consultancy. These issues are developed in-house with 11/15 projects conducted on the workplace or outside the home institutions (4/15). Activity on the e-learning platform for monitoring internships shows the networking of the students involved in local development through specific skills on engineering and training consultancy.

Our research highlights the individual development of students. This professional development is reflected by a statutory change with an internal promotion to senior positions (7/15) for those who were not yet in this position and wage developments; evolution as a freelance consultant trainer (5/15) or owners of businesses and consulting firm (4/15). Professionals who kept their jobs and status (7/15) saw their mission to strengthen and evolve positively. For the majority,
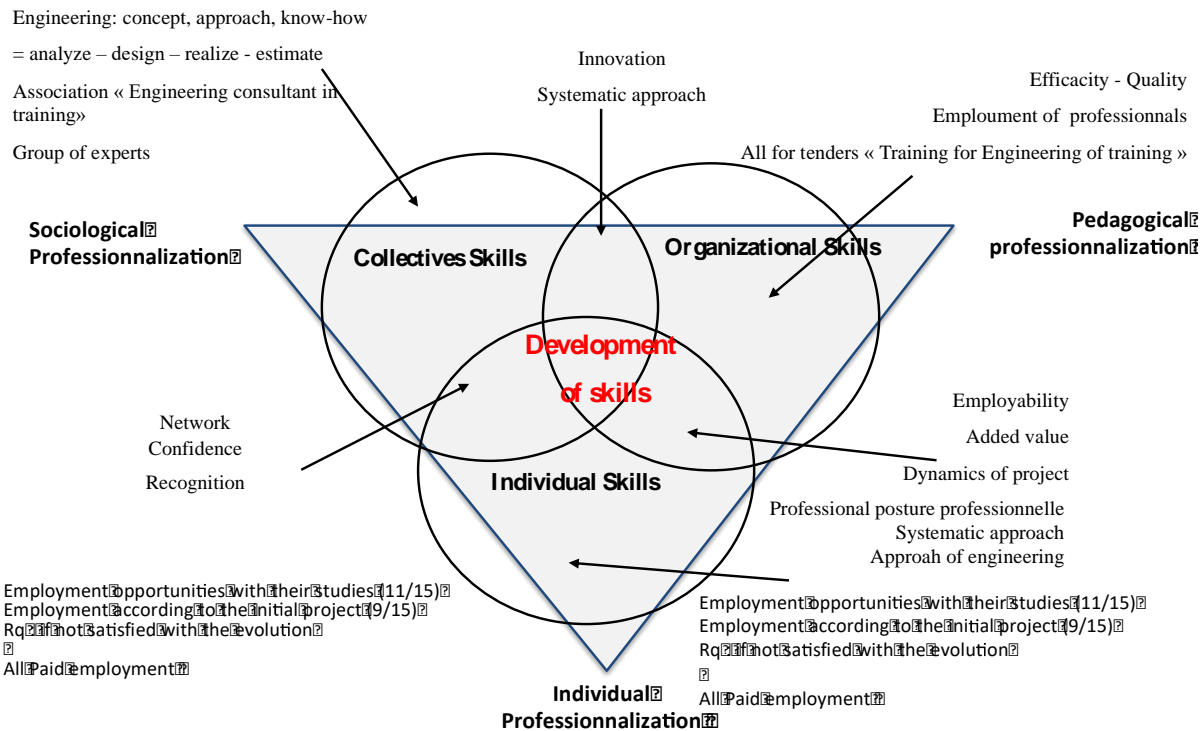
these jobs are directly related to training (11/15) and in connection with their initial project (9/15). They develop a "professional posture of consultant" based on knowledge theorized and modeled mainly systemic approach and engineering and methodological expertise resuming the process of engineering and its four phases: analysis, design, implement and evaluate. They display the title "consulting engineer in training" at the end of the program.

In terms of links with organizations and the labor market, they say they have increased their efficiency and quality of their services. They want to register their practices in a quality approach and dynamic project taking more account of the needs of the public, the expectations of organizations and environmental constraints.

The most important and interesting is the discovery of a collective dimension that crystallizes the professionalization of training in these different dimensions. Graduate students claim the title of "consulting engineer in training" and want to defend in an association. This association develops professional meetings. It is a space for exchange and dialogue between industry professionals and graduates. It seeks to enhance their visibility and show the diversity of practices. The association also wants to promote continuing professional education and professionalization of the sector, wants to allow the emergence of a group of experts in engineering and consultancy training which may be a link between national and international institutions. Graduates seeking to develop a network. This training online program, the graduation and enrollment in a network enhance their professional recognition and strengthen their self-confidence.

The diagram (Ardouin, 2014a) below summarizes the relationship between professionalization and development of individual, collective and organizational skills uncovering the emergence of effective collective dimension for graduates of this Professional Master's Degree.

Individual, collective, organizational skills and professionalization
A brought to light collective dimension.
An expertise " engineering consultant in training " claimed

Engineering: concept, approach, know-how

= analyze – design – realize - estimate

Association « Engineering consultant in training»

Group of experts

Innovation

Systematic approach

Efficacity - Quality

Emploment of professionnals

All for tenders « Training for Engineering of training »

Sociological Professionnalization

Pedagogical professionnalization

Collectives Skills

Organizational Skills

Development of skills

Network
Confidence

Recognition

Employability

Added value

Dynamics of project

Individual Skills

Professional posture professionnelle
Systematic approach
Approah of engineering

Employment opportunities with their studies (11/15)
Employment according to the initial project (9/15)
Rq : if not satisfied with the evolution

All Paid employment

Employment opportunities with their studies (11/15)
Employment according to the initial project (9/15)
Rq : if not satisfied with the evolution

All Paid employment

Individual Professionnalization

Ardouin define competence as: the formalization of a complex dynamic, a structured set of knowledge (knowledge, skills, how to be, how to act, social and cultural knowledge, experiential knowledge), finalized and mobilized so operating in a particular context. Competence is the result of socially recognized the interaction between the individual and the environment.

The individual field (individual proficiency) covers the dimensions of the history of the person with its singularity, its culture, knowledge, skills, projects, habitus and values. Individual skills include the person's resources and commitment into action. At this level, individual skills are in resonance, both as a product (the result) and as process (individual learning). Students develop a new professional approach based on systems engineering and process approach.

The organizational field (organizational skills) is the operation of the institution or company, with its rules and different levels related to its history, its business and its values. Here we find the strategic and organizational skills from the past, opportunities taken or left, techniques, territories, and men and women who make up the organization. The organization and organizational skills fit together from a combination of physical, human and organizational that is to say the structure,

culture and strategy. We find, also, the existence of the organization's resources and its strategic decisions. At Burkina Faso, we see that the term engineering is increasingly present with a search for efficiency and quality expressed. This is illustrated by the launch of an offering (2013-007 / MJFPE) appeal from the Department for the training of professionals in engineering training.

The collective field (collective skills) refers to the standards and characteristics of a group or social or professional body that exists outside of the organization and the individual. These skills are not implemented in the organization, but these particular occupations identified, having to defend or promote a social image. These professionals or citizens (as individuals belonging to the city) act as collective actors with the business standards, specific know-how, ethics, values or courses of initial and continuing training that meets or mobilize. Students in our study recognize engineering training and his approach to four key steps: analyze, design, implement and evaluate. To be more visible and recognized, they created an association. They claim and are termed as "Consulting engineer in training." They want to develop a real expertise and be recognized as a group of experts.

Thus, the various facets of competence are available at the intersection of these three skills. These interactions illustrate the confrontation between different elements: individual, group and organization, and lead negotiations, regulations and assessments, where each "block" analyzes the relationship between contribution and reward to achieve a maximum or optimal interest, ie is always contingent.

Interactions individual - collective produce a certain type of attitudes and functioning of the person. The individual draws from these interactions resources to its identity and action, just as they will in the standards. These integrated collective skills involved in the construction of identity, and correspond to the perception of self in the collective and the vision of what a "good professional". Here are groupal and professional standards. Vocational qualifications are based on a network that strengthens their confidence in themselves and allows external recognition as "consulting engineers in training".

Individual skills in the organization correspond to interactions between the individual and the organization. They are confronting the image returned by all stakeholders of the organization (peers, colleagues, management), and the analysis of the set position (organization) in the structure and the "implied status" (signs of existing recovery or not). It is also the relationship between the coherence of the organization and the individual values. The "training consultancy engineers" think they can bring added value to the organization including their expertise in project management. Individually, these skills enhance their employability.

The collective skills in the organization correspond to interactions between the collective and the organization. They refer to the collective resources used and the organization on the one hand, and to the image, the place and role of the professional provided by the organization include the autonomy given to the subject on the other hand. It is through this interaction with the organization that the collective will draw its recognition and social and professional status. The group is part of a professional engineering approach involving innovation and systemic approach. In this professional confrontation as exchanges, there is research and use of mutual resources, which are transformed into skills to the organization, and building expertise to the collective.

Ultimately, responsibility acts are at the heart of these interactions. Individual skills into action are the actual practice of the person giving it to see the skills, attitudes and performance. Collective action skills are technical, knowledge and expertise of a professional group, profession or group, effectively implemented by mobilizing those concerned in connection with the organization. Organizational skills in action are the procedures, process, system and organizational work implemented by the structure, as well as decisions and feedback from stakeholders, expectations and adaptation to internal and external developments. Our audience of professionals, students Master 2 engaged in distance education, clearly show the existence and the claim of these three types of skills.

Impact of training and local development

Beyond the methodological limits set above, this research responds to our questions. Students from the professional Master's Degree "Engineering and consultancy training" engaged in distance education enroll in a process of professionalization, first individual then collective. Strengthening their professionalism can put in tension with organizations and institutions producing a "post-conflict training". Research shows they rely on the network, the knowledge acquired, proven methodologies, peer recognition and certification outside boundary, ie the collective dimension of job that allows them to claim and name "consulting engineer in training".

This training program as an impact on organizations by strengthening training and skills development. We cannot say there is a direct link, however we note that the field of engineering training grows in Burkina Faso as shown by the launch of a tender to train professionals.

Missioned students are actors at the interface between the system (the institution they represent) and its immediate surroundings (the beneficiaries of projects and initiatives). Participatory dynamic animates (as voluntary stakeholder meeting on an area to consider the future) as well as strengthening their position and visibility as experts. Indeed, the tasks performed during the

internship (7 in the capital Ouagadougou and distributed in 8 countries) contribute to this aim through four basic characteristics:

- The establishment of an information system and decision support (support process, activities in the field of health and social);

- Capacity building (support the emergence of devices, management of knowledge, skills within the company, management of jobs and skills);

- Investment support (micro-credit, consulting on financing deals);

- The contribution to the relationship between sectoral approaches and process development of territories (here with vocational training relationship - employment).

This dual immersion movement (professional world of education and training) and distance (student in distance education) gives rise to tensions that involve strengthening the comprehensive systemic vision. Well-positioned reflective practitioner, professional uses reflection and action to solve problems in the workplace and develop their skills and enhance their professional posture. According to Schön, "*The challenge is to rehabilitate the practical reason, knowledge of action and experience, intuition, expertise based on a dialogue with reality and reflection in action and on the action, that is to say, reflective practice*" (Schön, 1983, p.96).

Conclusion

We will continue this research and wish to view these first results with other environments. This research brings us some recommendations. The first is *pedagogical* and due to our remote device. We found that student success in distance education is mainly due to the effective presence of a referent, real bridge between the university students and the environment on the one hand and the existence of a group formed that promotes peer interaction and progression in learning on the other hand. The place and role of the referent are confirmed when it is in regular contact with the head teacher and the head of the Digital Campus including meetings on site. This group, the certification and the network involve in this process of professionalization. The second is *structural*, it seeks to promote the establishment of a particular group by maintaining and developing a partnership for continuity. Dusting and discontinuity do not allow this professional identity construction. The third is *institutional* order to the university and in line with its mission to maintain and promote North-South exchanges and enable teachers to continue interactions with groups on site to promote the device and the professionalization of the sector of adult education. In terms of

research, we are continuing our investigations from dissertations and missions performed by the students on the engineering approach implemented in the plurality of situations of adult education.

Ultimately, the integration of engineering in the field of sciences of education makes perfect sense in a logic of continuity and comprehensiveness between education and training throughout life. This integration joined the educational, formative and cognitive ambition to create reliance between the worlds of education, work and society. It is also trying to maintain tension in the impossible equation humanistic training as a vehicle for social change and human adaptation to the environment.

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