PerfEA: Ongoing counselling towards strategic planning processes to implement the agro-ecological transition

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Abstract
Since 2012 the French Ministry of Agriculture has launched an ambitious program called "Agro-Ecological Project for France". This program aims to facilitate and support the agro-ecological farming systems transition. For supporting the agro-ecological transition, on the one hand, school farms in the French educational system have to propose an agro-ecological strategy. On the other hand, teachers have to use didactic processes that helps learners to understand and manage agro-ecological systems. For one year, six farms within agricultural high schools have implemented a strategic accompaniment method called PerfEA[1] for helping them to build and manage a sustainable project for the school farm. On each farm, a group comprising teachers, school director, farm manager and farm technicians, has implemented the PerfEA methodology with the support of a facilitator. At the end of the exercise, the participating school farms have defined the values of the organization (e.g. *innovation, sustainability, transmit and share knowledge*), its missions (e.g. "*Farm is a support of learning process and technical demonstration for students and local farmers"*), and its vision of farm development (e.g. "*Being an organic farm open to territory and his actors").* A balanced scorecard, composed with some strategic indicators (e.g."*Protein autonomy", "Number of projects involving farm workers, students and teachers"*), was constructed in order to assess and to pilot the performance of the school farm. Thinking and designing the strategy and its management tools have to be seen as a learning process. This article discusses how the ongoing counselling methodology as offered by PerfEA, to implement management strategy and its tools are learning supports which facilitate the agro-ecological transition. These learning are individual and organizational. According to loop-learning theories, they address to different extents: improvement of practice, revisiting assumption or reconsider underlying values and beliefs.

1. The agro-ecological transition context in school farms
The French ministry of Agriculture has launched in 2012 an ambitious program called "Agro-ecological project for France". This program aims to facilitate and support the transition of conventional farming systems to agro-ecological ones. Based on seven action plans[2] and the support of collective action[3] this policy is designed to support the innovation and facilitate the agro-ecological transition.

In the educational system, this program is translated by the leitmotiv "learn to product differently". This program aims to improve the capacity of the agricultural educational system to integrate

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[1] PerfEA means Global performance of the farm

[2] Plan Ecophyto (aims to decrease the use of pesticides) ; Plan Ecoantibio (aims to decrease the use of antibiotics) ; Plan Apiculture durable (aims to preserve and enhance bees production) ; Programme Ambition bio 2017 (aims to develop organic production) ; Plan Azote/méthanisation (aims to have a better use of organic manure and to develop methanization) ; Plan Semences et agriculture durable (aims to develop the use of farm seeds) ; Plan Protéines végétales (aims to develop protein crops) ; Plan "Enseigner à produire autrement" ("teach to produce differently").

[3] The GIEE (groups of farmers and non farmers who are associated in order to collectively develop agro-ecological systems), could pretend to better financial support.

agro-ecology into programs and didactic process. Teachers are invited to enhance the capacity of students to be in a posture of problem finding versus problem solving (Mayen 2013). School farms related to agricultural high schools are also invited to propose agro-ecological farming systems. These farms have three main missions. Firstly, they should be supportive of diverse objectives of learning (experiment agricultural practice, learn to manage a project and learn to cope with complexity). Secondly, they should produce agriculture products and/or services to sustain their activities. Lastly, they should be a place for experimentation and they have to contribute to territorial development by taking part in local development projects.

We think that agro-ecological transition in the French educational system asks people to reflect on their practices (didactic or farming practices) and accordingly their relation to knowledge and to other actors. It also articulates different levels of change from field to territory. Obviously these changes are not always easy for actors. School farms are special places where the articulation between production, pedagogy, experimentation and local development can be discussed and built. In this way, the implementation of a strategic reflection about the project of the farm, in a participatory way, can provide a support for accompanied transition.

In this article we present the ongoing counselling process of six school farms which have chosen to implement PerfEA (Capitaine et al, 2012, 2013). PerfEA is a method to help farmers to build and to manage the strategic project of their farm. After asking how agro-ecological transition questions the educational system, the PerfEA methodology - its principles and some methodological aspects - are presented. Then we ask how this strategic accompaniment is a support of learning process and how these learning could facilitate the agro-ecological transition in agricultural high schools.

2. School farms: the core of the agro-ecological transition in educational system

In France, public agricultural high schools are mostly related to school farms or technical processing plants (cheese production, meat transformation, etc.). There are 190 public school farms and 33 technical processing plants in France. These farms are very diverse and production systems are representative of local agricultural systems: it could be horticulture, wine production, cropping systems, dairy production etc. These farms or processing plants must meet the three main missions discussed above and their governance is specific.

2.1 Main missions of the school farm in secondary schools

Schools farms have to be a support of learning for the students. Teachers can use the school farm support to organize practical works where students can experiment agricultural practices. Students learn how to milk a cow, how to feed, how to use specific material, how to recognize auxiliary and weeds, etc. It's a place where students can learn how to use diverse diagnostic tools for producing useful information for farm management. It provides a support for managing collective projects such as organize participation of the farm to agricultural manifestation. The school farm is also a support for economic or global studies who aims to understand the farming system in his specific environment; it's a way to learn how to think as a farmer.

School farms have to produce and sell agricultural products or services to sustain their activities. They must achieve economic viability with their own production. We could notice that it is not easy for this kind of farms who have employees (just the manager is a civil servant). Except for the investments that are decided and paid by the regional public authority, these farms have the same economic considerations as other private farms.

School farms have to offer an environment for experimentation and local development. They are invited to take part into national or local research networks. Additionally, they serve as a place for experimentation, innovation and extension in collaboration with local farmers. They could also take part in local development projects in relation with other actors of the territory (local institutions, farmers, etc.). For example, they can collaborate with other farmers, in a collective renewable energy facility (e.g. an anaerobic digester). In an urban context for instance, they can

contribute to create links between rural and urban: a place where people can have an easier contact with agricultural production.

2.2 Governance, organization and links with other actors of the local territory

Compared to commercial farms, the decision processes on school farms are quite different. The manager is a civil servant; he has to implement the national policy decided by the French ministry of agriculture. The investments, as in all other high schools, are decided at regional level. Investment decisions take time and are dependent of the regional policy. Consequently, the transition dynamic could be noticeably different in these farms. Moreover, due to their missions when they have to define and implement the strategy, school farm managers need to take into account many stakeholders. When an investment or technical decision is taken, it follows a consideration of the pedagogical effects with teaching community, the required approach with technician and workers and must consider the expectations of other farmers and/or local community. For instance, in a context of agro-ecological transition, school farms managers tell us that they have to take a measured approach to innovation if they want to be in coherence with agriculture reality of local farming systems.

As a place of pedagogy, experimentation and extension, school farms could play a very specific role in local agriculture and non agriculture development. They are more or less linked with local and regional education and extension institution. Similar to most commercial farms, they are stakeholders in diverse collective projects (GIEE[4]) or cooperative organizations (CUMA[5], etc). They have in consequence a very specific place in the local rural network. In a context of transition, this diversity of potential or existing relations with other actors could be seen as a major resource for collective innovation.

3. Agro-ecological transition at agricultural school level: an articulation of cognitive, technical, pedagogical and organizational change.

Agro-ecology could be seen as a scientific discipline, as practice and as a social movement (Wezel et al, 2009). As a scientific object or discipline, agro-ecology could be defined as "the application of ecological concepts and principles to the design and management of sustainable agro-ecosystems" (Gliessman, 1998). As a political project, agro-ecology emerges in a different context with the common objective to proposed alternative agricultural systems to conventional agriculture and its socio-ecological negative impacts. As a practice, agro-ecology is composed of great diversity in the production system. Nevertheless, agro-ecologic systems have common objectives: reduce the use of chemical products, maximize ecosystems services and protect biodiversity, insure food security, and enhance resilience of systems. Biggs et al (2012) and Duru et al (2015) identify three proprieties of socio-ecological systems i) the diversity of biological and social entities, ii) connectivity between biophysical entities as well as social entities, iii) the state of slow variable (e.g. soil organic matter, water resources, management agencies, social values) determined dynamics of fast variable values (e.g. field management, water withdrawals, income, etc). Duru et al (2015) also identified four governance principles for agro-ecological systems management: i) understand the social-ecological system as "complex adaptive system", ii) encourage learning and experimentation as a process for acquiring new knowledge, behavior, skills, values or preference, iii) develop participation of stakeholders in governance and management process, iv) promote polycentric subsystems of governance that structure debate and decision-making among different types of stakeholders. We think that these principles could be relevant for agro-ecological transition at agricultural school level and discuss this further in following paragraphs.

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[4] The GIEE is a group of farmers and non-farmers who are associated in order to develop agro-ecological systems.
[5] A CUMA is a co-operative which gathers farmers together to buy agricultural equipment, to obtain specific subsidies, to improve their competitiveness and to organize their work for higher efficiency

Teaching how to produce in an agro-ecologic way is a major objective of the agro-ecological project for France[6]. Accordingly, curricula have evolved in order to have a better coherence with agro-ecologic principles. New curricula aim to adapt teaching and pedagogic practice to the complexity of farming system and decision about farming system management[7]. These new curricula underline the necessity to show diversity of agricultural systems, to understand their link with social, ecological and economic environment and to work in multidisciplinary.

Changing the way of teaching in order to integrate agro-ecology can be difficult for teachers. Actors we worked with identified several barriers or difficulties to change: the need of technical competence for teachers who in some case have a theory curricula, the difficulty to change pedagogic practices and habits, the distance with professional practices to students, the difficulty with a multidisciplinary approach, or a lack of recognition of the legitimacy of change by teachers themselves or by students. Moreover, changing the way of teaching could be seen as uncomfortable for the teacher because it introduces a risk for student and for their success in final exam. For Mayen (2013), teaching to learn to produce differently is not only teaching well-identified ways of thinking and actions pre-adapted to situations which are well defined, well categorized and therefore easily identifiable, but also learn to identify and define problematic situations, and to find and to adjust ways of thinking and acting which are not always even listed.

At the farm level, agro-ecological transition is quite a complex transformation process; it involves technical, social and cognitive change. Coquil (2014) shows that during transition: "Autonomous mixed-crop farmers manage new entities, which vary according to farmers: food autonomy of the herd, straw autonomy, animal health, food balance of the herd... They work by mobilizing new knowledge, new indicators are acquired step by step during the transition. Thus, farmers re-discovered on their farm resources for manage the transition (Coquil, 2014). Interested in the learning of the farmers engaged in inputs reduction in crop-culture Chantre (2011) exposes the same conclusion and highlights that the pragmatic judgments and the development of criteria performance evolved during transition. These examples highlight that agro-ecological transition is not only a technical concern; actors transformed their farming system representation and learned step by step during transition. Mayen (2013) notices that beyond knowledge and skills, the management of agro-ecological systems needs to invest a special attitude or state of mind characterized by a set of way of feeling, thinking, appreciating or acting. For Mayen (2013), this state of mind cannot be thought but can appear, evolve, transform. Additionally, it is viewed that it is possible to create a ground in favor of the development of a favorable state of mind for agro-ecology.

Based on these considerations, we hypothesize that agro-ecological transition in agricultural school is based on several learnings of educators (farm manager, workers, teachers, etc.). We propose to consider that this learning may have different levels of intensity and scope (Argyris & Schön 1978, Pahl-Wostl, 2009) and we propose to address this different level of learning in the triple-loop learning conception (Pahl-Wostl, 2009). The single loop-learning refers to an incremental improvement of action strategies without questioning the underlying assumption. In single-learning loops, actors question if they do thing right, in a strategic point of view, the aims of actions is not re-questioning. The double-loop learning refers to a revisiting of assumptions (e.g. about cause effect relationships) within a value-normative framework in double-loop learning, actors question if they do the right thing, in a strategic point of view the representation of performance is evolving. In triple-learning loop one starts to reconsider underlying values and beliefs, world view (reconsidering the way that knowledge and innovation is building, reconsidering the relation to others and to nature, etc.), what we propose to assimilate to state of mind.

We hypothesize that an effective and sustainable transition, requires mobilization of double or triple loop learning where actors reconsider and transform their representation, objectives or values. We also think that this loop-learning could be realized in dialogic reflection between

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[6] "Teach how to produce differently" is a national action plan composed of four axes: i) renovate curricula ii) mobilized school farm iii) enhance regional governance of local actions iv) train and support staff and organization in their transition
[7] Website of ministry of agriculture

actors of agricultural school. School farm by his hybrid aspects seem to be a good place for support dialogue and reflexivity.

4. Strategic accompaniment as learning process, a way to facilitate the agro-ecological transition?

4.1 PerfEA: an accompaniment method to build and design sustainable strategy in a participative way

PerfEA is a method for helping an organization to have a participatory reflection about its strategy and for helping the formalization and the implementation of a sustainable strategy. This is a counseling method which aims at developing actors' autonomy and aims to enhance the empowerment of actors' organization. In an epistemological point of view, this method takes his roots in socio-constructivism paradigm (Vygotsky, 1978). Interactions between actors and tools used for helping to design a collective representation of the behavior of the system are also articulate in order to supporting individual and collective learning.

4.1.1 An articulation of different tools for supporting dialogue, learning, decision and formalization of a strategy

The PerfEA methodology is composed of four main stages.

The first step is based on an analysis - by the members of reflection group - of the environment and the objectives of the group. A review of past successes and failures, the expression of a vision by projection into the future (3-4 years' time), the expression of values that drive the organization, and consideration of the school farm missions are different workshops to collect data from the stakeholders. This stage helps the members of the groups to exchange about the aims of the organization and to find way of improvement. A specific workshop is dedicated to identify the factors that improved or threatened the sustainability of the farm (see next part).

Using the elements identified by the group during the first step, the second step use the data collected at first stage to realize a causal mapping in order to help the group to defined strategic objectives which are used to build a balanced scorecard as a primary tool (Chabin, 2008). This scorecard can be multi-dimensional, integrating criteria that are financial and non-financial, short and long term, qualitative and quantitative, retrospective and prospective. Using the measurements produced, the scorecard reflects the degree of success of the strategy. It also aims at integrate non-financial indicators that are expected to provide a prospective overview of the company and its environment, which explains why we talk about a balanced scorecard (Kaplan and Norton, 2004). Building the balanced scorecard with actors is an occasion to discuss the objectives, their level of performance. It's a strong learning process helping them to build a shared representation of the global performance of the school farm.

The third step is dedicated to define an action plan (or a scenario of change) which defines the means (financial, technical, human, knowledge...) necessary to implement the strategy. We know that action planning have his limits, that action planning in a highly uncertain context is difficult (such as in agro-ecological transition), but this exercise is still relevant because even if actors couldn't plan the whole road they could discuss what is the next stage or how to organize to define it.

The fourth and last step is the implementation of the strategy. During this step, the actors put into practice the strategy. They organize implementation of actions and use balanced scorecards as assessments tool of the farm performance. The realization of objectives is discussed periodically by the actors. Thus, they can discuss action or experimentation efficiency or reconsider assumption about objectives.

4.1.2 Specific tools for helping to build a systemic and complex representation of the farm

Bossel framework for helping the construction of a systemic view of the sustainability of the farm

The Bossel framework (1999) is used during the first step of the method in order to analyze the situation of the farm within its environment and to identify which processes enhance sustainability of the farm and which factors are vulnerable. Based on a systemic approach to sustainability, Bossel's framework postulates that sustainable systems necessarily meet certain conditions as determined by the relationship between the system and its environment. In this perspective, the framework defines a set of six basic attributes characterizing the various types of relationships defining the sustainability of a system in its environment: the existence, effectiveness, security, adaptability, freedom of action and co-existence. For human systems Bossel (1999) completes his analysis framework with the following attributes: reproduction (or reproducibility), satisfaction of psychological needs and responsibility.

During the first step, the group is invited to identify for each basic attributes the positive or negative aspects of the farm. Then the group discusses if the organization is in control or not of the identified elements. Thus they can produce a synthetic tool that shows the opportunity/threat and strengths/weaknesses of the farm. This collective inquiry is a way to exchange different representation and to discuss about performance processes.

Causal mapping: synthetic, analytic and reflective tool

The second tool used to help the members of the groups to have a systemic vision of the farm and to cope with complexity, is causal mapping. This tool is used to ensure the link between the strategic analyze and the step of the formalization of the strategy. In practical terms, causal maps are elaborated by the facilitator of the strategic reflection from notes or recording of the discourses of actors during the workshops. It is a graphical representation which shows ideas or concepts expressed by actors and the causal link between them.

The representation of elements in a map helps to clarify their meaning. It shows the causal relationships and the reasoning behind decisions taken. The causal map is both a tool for communication with others and an analysis tool (Cossette, 2003). Therefore, the causal map is a mediation support tool that clarifies thinking and decision making and facilitates agreement on a strategy and the creation of a vision. The use of causal map to explore the cognitive structures of an organization is now widespread in management research (Huff, 1990; Laukkanen M., 1998). Particularly suitable for strategic approaches (Eden, 1988; Cossette, 2003), the causal map helps to formalize individual and collective representations.

In the accompaniment method, the causal mapping is use for synthesize the diversity of idea, and representations expressed by the different members of the group during the first stage of the strategic reflection.
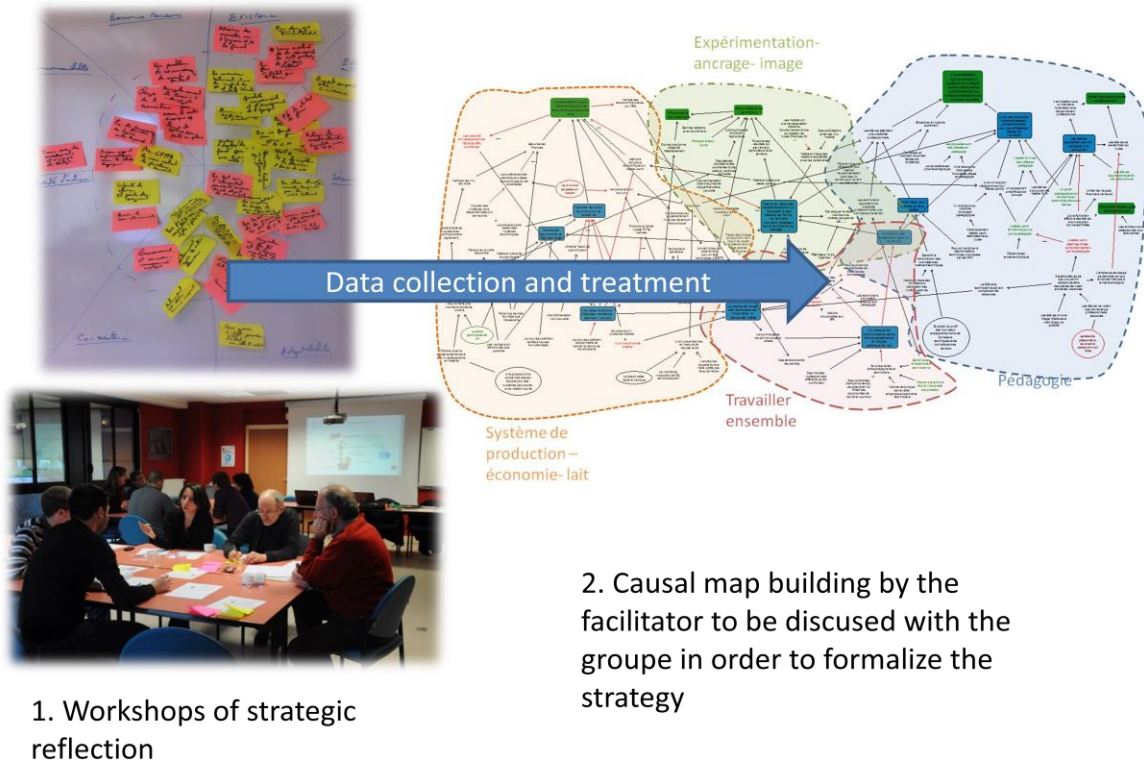
Figure 1: place of causal mapping in the accompaniment methodology

The structure of the map serves as an analytical support. It identifies causal links between different entities (ideas, concepts, objectives) and thus facilitates the identification of the processes involved in the structure. It is possible to identify multiple links (more or less interdependent, more or less competitive, more or less contradictory, more or less important) that lead to the achievement of the same objective. These links are part of different coherent sets on the basis of which the strategy will be developed. On farms owned by agricultural education institutions, coherent sets of goals emerge. They are focused on economic, educational and local commitment challenges. These links can also identify the strategic areas that form the basis for the implementation of the farm management project. In addition, the causal map provides multiple analyses that can be used as part of a strategic approach. Therefore, it is possible to perform statistical analysis based on the map. One possible analysis highlights the entities that are essential to the strategy. This analysis provides indicators that will be used to build the balanced scorecard. Causal mapping takes a central place in the PerfEA method because it is:

- a support tool that acts as an intermediary (Vinck, 2000), facilitating the cognitive process;
- an aid that provides a representation of the processes implemented in a structure and facilitates the identification of the core elements of the strategy;
- a tool that takes complexity into account without removing it (Axelrod, 1976);
- a mediation tool that helps to ensure that a group has a shared vision of a given strategy (Eden, 1988).

4.1 Collective strategic reflection

In order to help agricultural high schools to build and manage a strategic project for their farm, the local Agricultural Agency in the Rhône-Alpes region, supported the implementation of the strategic ongoing counselling method PerfEA. Six farms from agricultural high schools chose to take part in the project from September 2014 to March 2016. On each farm, a group composed of

teachers, school director, farm manager and farm technicians implemented the PerfEA methodology with the support of an external facilitator[8]. In charge of the implementation of the different workshops with actors, the facilitator is neutral. He/She organizes and regulates the discussion between actors, he helps the explanation of ideas. He/She also produces some intermediary tools for helping actors' thinking and helps them to formalize the project.

Table 1: Type of farms and collective engaged in the collective reflection

School farms	A	B	C	D	E	F
Type of production	Dairy production, Crop, Sheep, Kennels	Dairy production, Beef production Crop, Poultry,	Goat production, Beef production	Dairy production, Crop, Poultry,	Dairy production	Riding center
Description of participants and average numbers in workshop	School director, farm manager, teachers (4), Farm worker (1)	School director, farm manager, teachers (7) Farm workers (4)	School director, farm manager, teachers (3) Farm worker (1)	School director, farm manager, teachers (4) Farm worker (2), Student (1)	School director, farm manager, teachers (3) Farm worker (1)	School director, farm manager, teachers (2) Riding animator

Moreover, for maximizing feedback about the implementation of the accompaniment methodology a peer group composed of representatives of the six farms was also created. Five workshops were organized to gather the peer group during the project. These workshops were dedicated to debate about decision making, management difficulties, and to elaborate synergies between school farms. The first workshop discussed what participants expect from the project and defined the way to implement the method on each farm. During the second workshop, each representative explained and discussed the main strategic option identified by the group. The groups also discussed how the causal mapping could be used for designing the strategy. During the third workshop each farm manager explained its strategy with the support of their balanced scorecard. The fourth workshop was the occasion to discuss the different action plans. The fifth workshop gave a global feedback about the strategies of implementation.

5. Learning and changes during the process:

In order to have an overview about learning process during the implementation of the PerfEA methodology, we use different sources of information. The first source are the elements produced by the organizations during the strategic reflection (intermediary tools such as causal mapping) and the project formalized at the end of the process. The second are the elements produced by the peers groups during reflexive workshops where farm managers and school directors involved in experimentation have feedback discussion. The third is an online survey sent to every actor at the end of the process where they can express what they think about the process which they took part.

5.1 Formalization of tools for strategic management

Each school farm engaged in the experimentation has produced intermediary tools (Bossel's framework analyze, strategic causal maps, etc.) to help them to formalize their project. At the end of the process each school farm has defined the values of the organization (e.g. *innovation, sustainability, transmit and share knowledge*), its missions (e.g. "*Farm is a support of learning*

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[8] The facilitator was the first author of the article.

process and technical demonstration for students and local farmers"), and its vision of farm development (e.g. "*Being an organic farm open to territory and his actors").* A balanced scorecard, composed of few strategic indicators (e.g."*Protein autonomy", "Number of project involving farm workers, students and teachers"*), was constructed in order to assess the performance of the school farm (cf. figure 2, for an example). Those documents are seen by the farm manager as tool of assessment of the farm performance which can be used to discuss the results and exchange about the efficiency of the farm management process. They are also a communication tool using by managers to explain the farm project development to a diversity of stakeholders.

Table 2: example of balanced scorecard of a school farm

Strategic objectives	Strategic Indicators	State of indicators	Desired state for indicator
Improving economic situation	*safety margin=GOP-annuity*	- 50 000 euros	*-25 000 euros before 5 ans*
Securing the sale of organic products	*% Reservation before slaughter by cow*	40%	100% in 2020
	Net margin/product type sold	To calulate	Define step by step
Improving alimentary autonomy	*Amount of concentratre / Liter of goat milk*	~ 170g/ L of goat milk	To define step by step
Being an certified organic farm	*Be recertify as organic farm*	Certify	Certify
Participate in the development of the territory	*Number of day with demonstration activities or thematic workshops for local stakeholders*	7 days	Maintain existing actions and develop actions for agricultural professionals
Maintain and develop the network	*Number of external action in which the farm is involved*	**3 :** one research program on organic farming, a pedagogic program on organic teaching, a comity about local development	
Strengthen the educational role of farm for all educative sector	*Number of hour/student/year of utilisation of farm support for educational activity in i) doing agricultuarl task ii) technical pedagogie iii) economic and global analyse*	To calulate	Enhance the economic and global analyse
Being in a project dynamic (technical and educational) widely shared internally and externally	*Number of project involving farm workers, students and teachers*	4 projects	At least 3 per year
Promote technical, educational and organizational innovation	*Number of innovative action per year*	2 actions	At least an innovative action per year

5.2. Learning process

Methodological details:

The collective workshops organized with the *ad hoc* groups on school farms were occasions of several learning. According to loop-learning theories (Argyris & Schön 1978, Pahl-Wostl 2009) we propose to have a special focus on double loop learning (reconsidering objectives) and triple loop learning (paradigm, world view, values, in a word: state of mind) because we hypothesize that these levels of learning are necessary to agro-ecological transition in educational system. Moreover, we propose to distinguish two types of learning, the first is individual; it could be single-double or triple-loop. The second is collective or organizational, it corresponds to an evolution of the dynamic interaction between actors (new working group, better relation between actors, change of the boundaries of the social-system considering, etc.). Based on the survey we

administered, and material products by the peers groups and groups of reflection we try to highlighting what participants have learned.

If the ongoing counselling process has produced a balanced scorecard to manage the farm for the next 4 or 5 years, it also a learning process.

For most of the participant the main interest of the process is that it allowed them to exchange ideas and knowledge with other actors. They[9] also highlighted that they have developed better knowledge of the overall operation of the farm, from a technical, but also organizational and human point of view (e.g. a school director:"*I realized the importance of human relation between farm technician and teacher").* They have a better view and understanding of the key point for farm performance and strategic option for the farm development. Teachers notice that this proximity to the farm allows them to better support students' work on the farm. Teachers in economics who participate to the strategic thinking notice that the collective and the formalized strategy of the farm is a good support for working with student about farm management. Hence, actors' representation in farm management or educational activities have changed.

Therefore, each farm has produced their new management tools used for performance assessment: the balance scorecard and an action plan. The use of this new management tool is itself an organizational change. It can help the organization to manage the global performance of the farm. We could also think that the representation of the performance changed during the strategic thinking. Indeed, objectives evolved and were redefined. For example a school farm planned to change from a "*maize/herb system*" to a "*herb/maize system*" in order to enhance the proteins autonomy of the farm whether than milk production. From the initial judgment of "*a lack of exchange between entities*" and "*a lack of internal and external communication about farm project"* the "*number of inter-entities projects in which farm is a stakeholder per year"* become a farm performance indicator. In other words, this farm should be a place that helps to mixed up activities. Finally, we can argue that the balanced scorecard is a strong lever to ease double-loop learning process.

Many actions or changes planned[10] by the groups are actions related to organizational aspects and information or knowledge management: establish steering group or multi-stakeholder focus group to dig a theme; implementations of analytic accounting or of software for manage information about animal systems; recording and sharing level of educational activities; etc.
Strategies also underline the importance of innovation networks and external partnership (e.g. with local farmers or with public collectivities) for the global performance of the school farms. Actors underline that participating to this networks is a way to develop innovative project (e.g. on conservation agriculture, on organic farming, etc.) or to develop experimentation which can help the transition in a technical or pedagogical perspective. It's also a way to show the dynamic of the farm and the school and to improve his image.

At the end of the process, the peer groups underlined that "*participative reflection enhances the collective mobilization of the actors of the organization*". Nevertheless the mobilization effect was more or less important in the different situation. They also highlighted that the strategic reflection *"was a way to have an interdisciplinary work"* and a way "*to organize dialogue between actors who have not many occasion of working together*". They notice that actors have a better understanding of the different mission of the farm and a better understanding of the role of different actors. Actors also argued that *"having a shared project, a shared course of action, give assurance and help to have step back"*. The farm managers and school directors think that the participatory building of the strategy enhances the legitimacy of the management function.

Finally, during the third peer group workshop, some actors[11] had a reflection about the coherence between agro-ecological transition of the farm and the pedagogic transition to teach how to

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[9] Most of farm manager say that had already a good global overview of the farm. This point is highlight by other actors.
[10] Of course some of this actions were reveal by the reflection, and other are new
[11] 4 school directors, 2 teachers, 5 farm managers, a civil servant of ministry of agriculture and the facilitator

produce in an agro-ecologic way. The two transitions are linked and feed each other. But for actors they are both based on a common ground: "The producer at the heart of production and learners at the heart of his learning." For actors, both transitions mobilize the same principles which are "accepted uncertainty, accepted that solutions are not always known, accepted risk and the necessity to experiment, the right to error but the need for reflexivity, the necessity to work with multi-disciplinary and with networks, etc." According to these principles, we think that strategic thinking with PerfEA -but other tool could be efficient- is a way to facilitate adoption of this state of mind. But we are conscious that a discourse about principles is different than the adoption of these principles and it is difficult for us to have a view about this level of learning.

VI. Conclusion

In a context of agro-ecological transition, the school farms are at the heart of the transition. We show that PerfEA methodology, by supporting inter-personal dialogue, by helping to cope with complexity, can facilitate individual and collective learning. Actors of organization have a better comprehension of school farm missions and of its project. Teachers can easily identify some issues of the farm they can use with their students. In an organizational point of view the implementation of a participatory strategy thinking, support by an extern facilitator, is seeing by actors as a way to facilitate exchange of knowledge between actors and to increase empowerment of actors.

The agro-ecological transition mobilizes technical changes but takes its roots in actor's representation, world view and beliefs. Agro-ecological transition is questioning farmers as well as education and extension system. For both case (farmers, teachers, advisers) the transition request different level of learning. We think that there is a common ground, a quite common state of mind which is in a part the change from a command and control paradigm to a complexity paradigm (Morin, 1990). Actors need to accept uncertainty, complexity, ambiguity and unpredictability.

To conclude we propose to consider advisory in a pedagogical perspective. We think that ongoing counseling process as praxis is a useful state of mind for helping actors and organization to evolve. In a context of transition, where knowledge, governance, world view evolved, the advisory activity is transformed. In this context, advisors who facilitate individual and collective learning in organization seem to be very useful.

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