Ambiguities of "collaborative competences" in adult education. Collaborative competences and practices of innovation.

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Ambiguities of "collaborative competences" in adult education: the case of *Animacoop* program.

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Abstract

This paper presents two aspects of a doctoral research on collaborative competences in innovative organizations and training systems: (1) a literature review that identifies the existing work and the ambiguities in the use of these terms in French and English research; (2) an exploratory analysis of a specific training program, called "Animacoop", which intends to develop cooperation between actors both face to face and at distance. Thus, the discussion examines theoretical and empirical approaches of the terms of cooperation and collaboration and their appropriation in this training program.

Key words: collaborative competences, cooperation, hybrid training, community of practice, innovative organizations.

French Abstract

Dans le cadre d'une recherche doctorale portant sur les compétences collaboratives dans les organisations et les formations dites « innovantes », cette communication présentera: (1) une revue de la littérature recensant les travaux existants et les ambiguïtés présentes dans l'usage de ces termes, tant dans les recherches francophones qu'anglophones ; (2) une analyse exploratoire d'un dispositif visant à développer la collaboration entre les acteurs, dans des modalités « hybrides », à la fois en présence et à distance. Une première discussion permettra d'examiner, tant au plan théorique qu'empirique, la pertinence de l'usage des termes de « coopération » et de « collaboration » dans de tels dispositifs de formation.

Mots-clés: compétences collaboratives, formation hybride, dispositifs de formation, communautés de pratique, organisations innovantes.

INTRODUCTION

Collaborative competences are considered as being necessary to conduct complex and innovative projects in network models, these latter characterizing our contemporary era (Choplin et al 2001. Blomqvist & Levy, 2006). Further, developing abilities to work in collaboration is also presented as a major challenge for training courses and tomorrow's organizations (Michinov & Michinov, 2013; Voogt & Pareja Roblin, 2012).

In France, there are only few references that evoke the term of "collaborative competences". Some exceptions give an idea of what they might cover, such as "learning to collaborate" and "working together" (Simeone & Eneau, 2009; Simonian & Manderscheid, 2012). The lack of a consensual definition suggests that this ability comes "naturally, as from the moment when people begin to work together". The illusion of this knowledge as being spontaneaous constitutes the source of our questioning on the knowledge, attitudes and skills which actors need to work collaboratively, this collaborative work being defined by Dejours (1993) as "building links to voluntarily achieve a joint work".

The challenge of the thesis we are currently working on is to make visible the specific professional training related to the ability of individuals to cooperate or collaborate. This article aims to report on our advancement in this work. For this, two aspects will be stressed. First, a literature review will try to put into light the ambiguity of the term "collaborative competences". Then, an exploratory analysis of a training program will introduce a more concrete approach of the same question. For that, we will discuss the first results of a survey carried on among designers and beneficiaries of *Animacoop*, which is a specific training program aiming to develop cooperation between actors, both in presence and at a distance. A former French version of these analysis, initially presented in the conference *"Cooperate?"* (CNAM, Paris), have been enhanced and translated to be available to the English-speaking community.

I. THE USE OF THE TERMS « COOPERATION/COLLABORATION »

The complexity of the concept of "collaborative competences" is reinforced by the fact that the two composite concepts are polysemous and elusive: the term "competence", in French (sometimes translated as "competence", "ability" or "skill") can have different meanings in different approaches and disciplines (Jonnaert, 2002); the same goes for the term "collaboration" (Thomson, 2006; Henry, Lundren-Cayrol, 2001).
On this semantic diversity we take the general definition of "competence" from the terminological dictionary of the Quebec Office of the French language: "an ability to act in a given context based on external and internal resources". Collaboration, will also be considered in the broadest sense of the term, in the words of Margaret Mead: "working together with a common goal" (Mead, 1937/2002).
Furthermore, Henri and Lundgren-Cayrol (2001) provide an explanation entailing that collaboration is based more on equalitarian and democratic relationships than cooperation: thus it gives more power to actors in a climate of openness and shared responsibility. The implication is that we prefer the term "collaborative" to connect with "competency". However, despite this "informed choice" we take responsibility to use interchangeably the words "collaborative" and "cooperative". As a consequence, we will us the expression "collaboration/cooperation".

II. COOPERATION / COLLABORATION AS A THE OBJECT OF A RESEARCH

The difficulty in working on the cooperation/collaboration duet stems from the cultural heritage in which these terms are used and from the diversity of the scientific approaches treating them as objects of research. This chapter traces back these two sides of the problem.

II.1   Maturation of meanings

The *Historical Dictionary of the French Language* (Rey, 1998) highlights the theological origin of the term cooperation, which meant in the 15th century "do something together with someone", implying participation in the "divine work". The more "secular" use of the term appeared in the 16th century when its significance was fixed on the meaning "to operate together with anyone". It acquired in the 19th century a new economical meaning. In this sense, the term "cooperation" designated "a business management method based on the distribution of profits according to one's participation". In the 1960s, the use of the word extended to "the policy by which a country contributes to another country's development, often a decolonized one".

The term "collaborate" started being used later on and immediately took on the secular meaning. It appeared in the 17th century from the term *collaboratio* used in medieval law, which referred to "possession acquired by spouses in joint work". In that, to collaborate meant "to work together to share benefits". A more political meaning emerged during the Second World War by introducing a negative connotation of "working with the enemy". This impairment leads to difficulty in using this verb, if not its avoidance.

The border is blurred by the multiple dimensions of the words cooperate/collaborate. In both cases, the uses cover the same fields: practical life (the action of participating and doing jointly); economical and work organization (management methods); political action (development aid program or working in partnership). The use of these terms in the practice of this ongoing research does not yet clear everything up.

II.2   Historical background on Cooperation / Collaboration research

The historical approach to cooperation and collaboration research in human and social sciences highlights the fact that the use of cooperation is preferred. In French works, it is mentioned by Alter (2009) among others, but we prefer to rely on Argyle's (1991) sum-up to reveal the diversity of approaches.

Argyle differentiates the pre-World War II period and the post-war period in cooperation research. During the first period, cooperation was studied by a number of psychologists, anthropologists, sociologists and economists. Cooperation was mainly dealt with as the opposite to competition. This period culminated in the publication of a piece called *Competition and Cooperation* published in 1937 for the American Social Science Research Council. In this study, May and Doobs gather over two hundred references connected more or less directly with cooperative/competitive behaviors.

Moreover, Argil has observed that three research axes could be noted in the field of psychology: (1) human nature: is it inherently cooperative or competitive? (2) age, and the moments in human development during which cooperation and competition are developed; (3) In educational psychology, comparative efficiency of the competitive and cooperative models on learning results.

In anthropology, Margaret Mead's book, *Cooperation and Competition Among Primitive Peoples* (Mead, 1937/2002) is a significant contribution. Mead suggests that there is some form of originel cooperation in all primitive cultures. Although her approach to cooperation as a "cultural pattern" was heavily criticized, her work remains a significant reference. Similarly, the definition of cooperation as "the act of working together for a common goal" is often cited because it is broad enough to be easily agreed upon (Candau, 2012).

After World War II, cooperation/collaboration was indirectly addressed in related topics. In many realms, such as the operation and dynamics of groups or social interactions, or helping and altruism (manque un verbe mais je trouve pas la phrase en français). In many realms, and social psychology particularly, the dominant approach for many years was the theory of the *Prisoner's Dilemma Game* (PDG) and its renewed version in Axelrod's "win-win" games (1984). However, Deutsch (quoted by Johnson and Johnson, 2010) criticized this theory based on experimental research. He introduced the Social Interactions Theory to understand the mechanisms of cooperative, competitive or individualistic behaviors. Following, Johnson and Johnson (2010) produced works on collaborative behaviors that constitute today a reference on the subject (see for example: Michinov, 2004).

Furthermore, developmental psychology continues research initiated by Piaget's studies on the age at which children develop their cooperative behavior. Despite the fact suggested by Piaget that cooperative games begin at the age of 7-8 years old, in the 80s, Marcus (cited in Argyle, 1991) evoked the age of 3 years old as the one when appear the behaviors of helping, dividing work, and achieving collective goals.

In parallel, cooperation was examined through a perspective based on evolution in studies on animal behavior. Two very different models of evolution have been developed. The first approach is that of inclusive fitness, developed by Hamilton in the 1960s, and which suggests that individuals act to promote the survival of their genes. It seems that humans cooperate better with those who share the same genes (Candau, 2012). The second model is that of reciprocal altruism. According to this approach, humans have an innate and exceptional ability to cooperate beyond kinship (Tomasello, 2009; Nowak & Highfield, 2011).

Works on social relationships introduced new theoretical paths in 1975-1980. Among them, a theory on exchange emerged to explain the dynamics of social relationships. Following this approach, human relationships are shaped by subjective cost-benefit analysis and by comparing alternatives. Exchange and negotiation, the basic concepts of this theory, were explored for example by D'Amour (1997) or Kosremelli-Asmar (2011) to explain interprofessional collaboration.

This theory, in turn, has been enriched by research on altruism, dedication, the importance of community relationships and by a renewed format of theories on reciprocity and gifts and counter-gifts. This renewal introduced a new approach to cooperation in which cooperation and collaboration were considered in terms of reciprocity and analyzed as a result of mutual gifts (Shoemaker, 1997). Since the 1990s, several authors have referred to this perspective in different fields: sociology (Terssac & Friedberg 1996; Alter 2009, Jobert 2014), economy (Akerlof, 1982; Eymard-Duvernet, 1994; Reynaud, 1996; Shoemaker 1997), psychology (Enriquez, 1990) or education (Labelle, 1996; Eneau, 2005, 2008).

Simultaneously, several research on interactions and communications have been developed. For example, since the 1960s, the contributions of the School of Palo Alto introduced language and interpersonal communication as crucial factors to study

coordination and joint actions. Later, these works inspired research which emerged with the arrival of recent technological advances and the exponential growth of Internet. Two schools of thought are particularly present in the analysis of cooperative/ collaborative works using asynchronous communication tools. The first is focused on a multidisciplinary scientific community, the Computer Supported Cooperative Work (CSCW: computer-supported cooperative work). This school addresses cooperation as a contextualized, or located, action. With this logic, the possibility of "unintentional" cooperation was evidenced. According to this view, a cooperation/collaboration could occur, without being necessarily conscious for the actors involved in the action (Cardon, 1997). The second school is the approach of located or distributed cognition (Hutchins 1993). Recently, Michinov & Michinov, (2013) reviewed and summarized the different theoretical and methodological frameworks on collective cognition. These researchers suggest that collaborative work can be explained by using a specific form of collective cognition which is Transactive Memory Systems (TMS). According to these authors, the TMS (based on the former work of Wegner) is a federative concept because it could provide elements to understand how people in groups organize and process information necessary for joint tasks.

Through this brief presentation of selective heterogeneous theoretical schools, we aim to highlight the diversity of viewpoints still active in the analysis of collaborative dynamics. What can be said of these different logics which are difficult to make converge in adult education research today?

III. DIFFERENT APPROACHES TO COLLABORATIVE COMPETENCES

In French-speaking education research, there are few references clearly presenting a definition of collaborative competences. The exploratory research in databases and search engines (e.g. Google Scholar, Eric Francis and Erudite) brings interesting statistics (Figure 1):
- since 2000, there is a constant increase in publications containing mentions of "collaborative competences";
- In educational science (e.g. ERIC) the French referrals are rare and in English, the term "collaborative skill" prevails.
- the most represented fields of application are management, teaching, medicine, information and communication.

Figure 1: The coexistence of "collaborative competences" in the literature

GOOGL SCHOLAR

Item / Année	Compétences Collaboratives	Collaborative competence		Collaborative skill		Collaborative capability
		competence	competencies	skill	skills	
Avnat 1990		6 (0)		90	214	3 (0)
1991-2000	1	59	49	108	1230	71
2001-2003	6	30	23	46	955	102
2004-2006	10	48	64	82	1430	168
2007-2009	16	111	121	123	2110	239
2010-2012	16	250	242	134	2630	281
2013	5	84	71	59	909	77

ERIC

Item / Année	Compétences Collaboratives	Collaborative competence		Collaborative skill		Collaborative capability
		competence	competencies	skill	skills	
Avnat 1990				2	13	1
1991-2000		2	1	1	46	58
2001-2003					9	20
2004-2006					17	27
2007-2009			4		12	41
2010-2012			4	1	23	52
2013					2	4

In North American and North European literature (Scandinavian countries in particular), the examples of collaborative competences framework are more abundant

(Morse & Stephens, 2012; Emerson & Smutko, 2011; Blomqvist & Levy 2006). The selection presented here explores specifically the meta-analyzes of factors for collaboration. We consider that these factors relate to the ability of actors to cooperate/collaborate.

III.1   I.1 Factors of collaborative competences

The report, produced in 1992 by Mattessich and Monsey for the Wilder Foundation, reviewed and summarized the existing research literature on factors which influence the success of collaboration. The scope of the search included the health, social science, education, and public affairs arenas. From a selection of 133 studies, 18 studies were reviewed in depth. In the end, the authors selected 19 factors facilitating collaboration, and classified them into six areas:

- factors related to the environment: history of collaboration or cooperation in the community; perception of the collaborative group as a leader in the community; favorable political and social climate
- factors related to membership characteristics: mutual respect; understanding and trust; appropriate cross-section of members; perception of collaboration as members' self-interest; ability to compromise.
- factors related to process and/or structure: members share a stake in both process and outcome; existence of multiple layers of decision-making ; flexibility; development of clear roles and policy guidelines; adaptability;
- communication-related factors: Open and frequent communication; formal and informal communication links.
- Factors related to purpose: concrete and achievable goals and objectives; shared vision; unique purpose.
- Factors related to resources: sufficient financial base; skilled convener.

Even though, as we have aforementioned, these cooperative and collaborative aspects were particularly studied since the advent of digital media tools, this synthesis provides an explanatory reading of collaborative events outside contexts marked by digital.

A more recent research by Thomson and Perry (2006) presents a similar classification. Apart from a solid theoretical foundation, these researchers collected and analyzed numerous data from empirical and longitudinal studies realized between 1995 and 2000. They developed a multidimensional model of collaboration and described the collaborative process as the Five-Dimension Collaboration Scale. Each of these dimensions provides the activities which are crucial to cooperate and all of them take commitment to process over time:

- Governance: making joint decisions on rules intended to govern the collaboration;
- Administration: an efficient operating system to move from governance to action, which clearly determines roles and effective communication channels;
- Organizational autonomy refers to an intrinsic tension between organizational self-interest and a collective interest. It covers the ability to address this implicit tension exhibited in collaborations between organizational self-interests and the collective interests of the group;
- Mutuality: it has its roots in interdependence; it includes the ability to "work through differences to arrive at mutually beneficial relationships";

- Norms are related to the trust and reciprocity modes.

Finally, the framework of Morse & Stephens (2012) differs from the previous two because it explicitly addresses cooperation in terms of collaborative competences. The authors advanced the idea that collaborative competences depend on the specifics of the action that is in the making. Thus, at first they identified a particular action process (e.g. collaborative governance) which they then applied to several grids created through academic and professional works. Finally they synthesized the most significant items in the collaborative competences scale adapted to the process that they analyzed (see Figure 2).

Figure 2: Collaborative competences (from Morse & Stephens (2012, p. 572))

Assessment	Initiation	Deliberation	Implementation
Issue analysis Environmental assessment Stakeholder identification Strategic thinking	Stakeholder engagement Political/community organizing Building social capital Process design	Group facilitation Team building and group dynamics Listening Consensus building Interest-based negotiation	Developing action plans Designing governance structures Public engagement Network management Conflict resolution Performance evaluation
Meta-competences			
Collaborative mind-set Passion for creating public value Systems thinking		Openness and risk taking Sense of mutuality and connectedness Humility or measured ego	

The interest of this presentation is the fact that collaborative competences are dealt with as behaviors adapted to the dynamics of the process in which they operate. In other contexts (e.g. the practice of collaborative learning) observed collaborative competences would be different.

I.2 Collaborative competences and levels of collaboration.

According to another point of view, collaborative competences are considered by levels of collaborative action or group population size.

Thus, Blomqvist & Levy (2006) defend the idea that collaborative action depends on the nature of collaborative groups and identify four levels of class. For each level, they combine different items and concepts:

- At the interpersonal level: interpersonal skills with the dominance of trust, commitment and satisfaction.
- At the dyad: partnership, long-term vision, ability to cooperate, relational capital.
- At the teams level: collective skills of problem solving.
- At the organizations level: integration of cooperation, networking, alliances.

The nature of the interactions, and therefore, the collaborative competences, varies in relation with the number of participants in a collaborative action (Blomqvist & Levy, 2006).

A similar view is proposed by D'Amour (1997) and adopted by Kosremelli-Asmar (2011). These researchers stressed the importance of organisational level-structures. The factors of collaboration are considered as an interprofessional practice on three levels:

The *micro* factors are associated with interpersonal relationships between team members. These factors include:

- The willingness to collaborate constitutes the most important factor in the development of collaborative practice. It hypothetically depends on education, on similar experiences from one's past, and an individual's maturity.
- Mutual trust depends on individual skills. Trust is a central component of collaboration because it helps to understand and accept the different levels of expertise, roles, and individuals' maturity.
- Communication influences the degree of collaboration and it is a vehicle for other factors such as mutual respect and sharing.
- Respect is a prerequisite for collaboration, this means that members recognize and understand the complementarity of their expertise and roles.

The *meso* factors related to the organizational context. Kosremelli-Asmar (2011) pinpoints:

- Flat organizational structure;
- Philosophy of the organization that promotes participation, fairness, freedom of expression and interdependence;
- Administrative support, that provides the resources, the time to share and leadership based on participation and collaboration;
- Existence of coordination and communication mechanisms;

The *macro* factors are external to organizations and this includes:

- The social system: identified as a potential obstacle to cooperation, because power relations between actors find their origins in the social system.
- The cultural system: some values are deeply rooted in the minds of actors, so that negotiation and mutual adjustments become difficult, if not impossible.
- The professional system, which can challenge the logic of interprofessional collaboration, especially when this system is based on power and authority.

Kosremelli-Asmar's approach enables dealing with the diversity of issues that advances research in the field of collaboration.

Moreover, the three levels - micro, meso, macro - are usually employed in the field of adults' education, in France at least, and they resonate in training practices in the system *Animacoop* which will now be discussed.

II. THE CASE OF THE TRAINING PROGRAM *ANIMACOOP*

The exploratory data of this investigation on collaborative competences are based on the training program called *Animacoop* observed since its experimental phase and throughout two years of implementation (Sanojca, 2013).

Animacoop was prepared in response to the call for projects by the French government, by the association Outils-Réseaux in 2010. It was developed as an "education in action" program on facilitating collaborative projects. After 13 delivered sessions, 197 adults had participated in this training, many of whom were working as community organizers in local communities or with special groups such as youth or various social movements.

The program proposed an combination of periodic two-day face-to-face workshops, online support, and time and space for experimentation, and was held together with a Wiki platform, all of that over a period of 14 weeks.

The analysis of the content and learning practices observed in *Animacoop*, reveals three paradoxes of teaching to collaborate/cooperate.

II.1 First paradox: the collaborative competences are invisible but very present

It is interesting to note here that the objectives don't explicitly name the collaborative competences. The operational goals refer to initiation and deliberation in network groups, to use of collaborative tools and teleworking.

In 2012, a survey conducted among 71 participants showed that only 10% of them read the course throughout the training course (Sanojca, 2013). Yet, the satisfaction of these participants at the end of the program is very positive and persons evoked a real learning of collaboration.

The analysis of the training structures and contents can explain the understanding of this learning despite that this goal was not clearly displayed and in spite of the lack of a real appropriation of the contents of the training course.

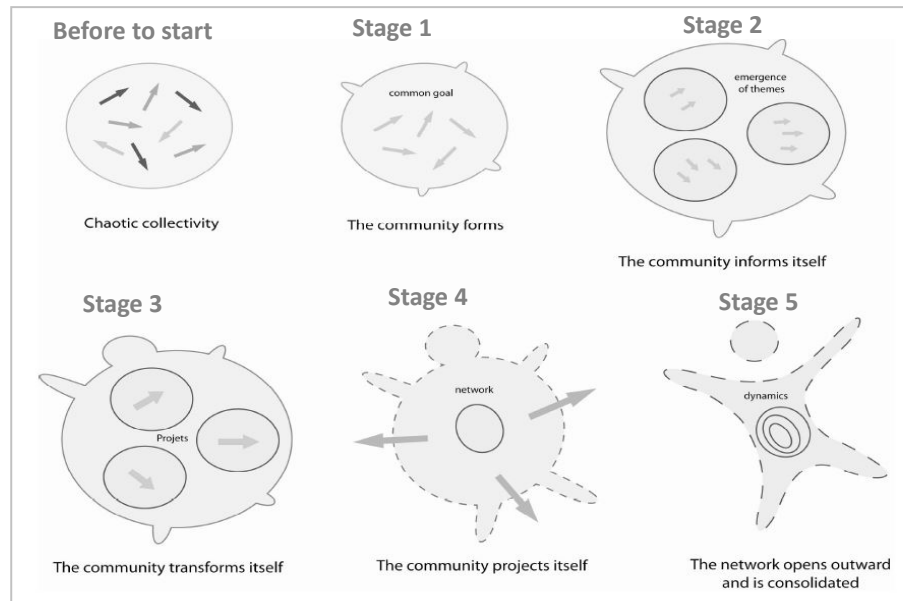Thus three modalities of learning to collaborate were implemented through the course:

- Individual learning modality: each learner has to take in the uploaded content every week.
- Collective learning modality: activities are structured so as to bring the participants to progressively write a paper to be published on the Internet.
- learning through the project modality: one of the prerequisites to participate in the program was to have a specific project in mind that would serve as a test bed to apply the course content

Although in most cases, the learners only put their mind to the modality of "collective learning", the engineering of a three-ways learning remains interesting. It is conceivable that the "learning to collaborate" was realized in the combination of these three modalities.

II.2 Second paradox: method which in spite of being informal are nevertheless very structured

In terms of the content's structure, the course was designed so that participants would experience all the stages in the life cycle of a network as they themselves worked together over 14 weeks (see Figure 3).
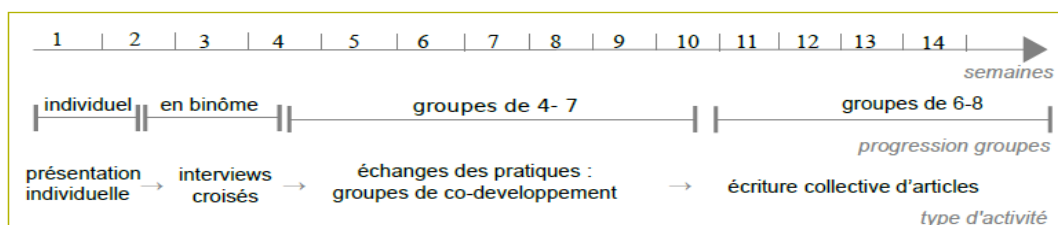
Figure 3: Structure of content according to the stages of community development

- Stage 1: Forming the community: individual presentations and definition of their projects;
- Stage 2: Informing the community: exchanges and leading to the emergence of common experiences and problems;
- Stage 3: Transforming the community: working collaboratively, either in small groups or as one group;
- Stage 4: Making the community visible: diffusing the results of cooperative work outside the community;
- Stage 5: Consolidating community: evaluating and reflecting on how to open the dynamic to others.

Structuring group activities is another way of understanding the modality of learning to collaborate /cooperate. Indeed, the activities are conducted with groups where the number of participants was increased gradually (Figure 4).

Figure 4: Modality of "collective learning" (from Sanojca (2013))

Despite the fact that the training objectives for developing collaborative competences are not clearly put into words, the fact is that the pedagogical structures were designed so that participants would learn about cooperation and collaboration.

II.3 Third paradox: a combination of pedagogical expertise and "do-it-yourself"

The term used by *Animacoop*'s designers to describe their practice is *"action-education-action"* ant that reflects their point of view on their profession. Indeed they experiment practices and tools without imposing a particular result.
Also, they work from a "logic of attention" rather than a "logic of intention": *Animacoop*'s trainers propose conceptual and technical tools in ways to encourage starting small and simple, encouraging their learners to reflect on their practices and on the needs of their individual projects. This attention conduct to innovate both of them: the trainers experiment new attentional ways and participants became designers in their own right.

In this idea of "action- education-action" *Animacoop*'s designers have aimed to name the collaborative competences to be developed in their program. They associated the 12 action verbs to 12 key-concepts proposed during the courses (see Figure 5).

Figure 5: key-concepts and collaborative action verbs

key concepts				know to act			
Abundance	Contraintes	Legitimacy	Exchange	produce of resources	Produce of methodes	Organize events	Scale-Up – Moving
Groupe size	Vocation	Maturity	Culture	Deliberat	Team building	Conflict resolution	Self-assessment of functioning
Convergence	Implication	Awareness	Coordination	Join the group	Adopt a collaborative behaviour ,	organize information	Self - assess of role

environnement (row 1), *groupe* (row 2), *individual* (row 3)

This classification proposes the distinction of the three levels where collaborative competences could be practiced. However, we note some ambiguities: first, individual-level skills relate to the leader's skills and group dynamics. Then, the environment-level skills -e.g. "collective production of resources and methods" relate to process group. However, this effort of formalization of collaborative competences, although imperfect, is relatively rare in professional training. Thus, that demonstrates a real interest by the practitioners to formalize how to learn to collaborate/cooperate.

III. DISCUSSION AND DIRECTIONS FOR FUTURE RESEARCH

In a society operating in open networks, the development of collaborative competences becomes a major challenge for training, especially in programs that use technical tools, and hybrid forms of teaching methods.

As shown in the first part of this article, there are several models on collaborative competences and the consequence is that it is difficult to prefer one model. Nevertheless, it can be suggested that this model could be derived from a cross-disciplinary approach and a systematic analysis of multiple dimensions.

III.1 Literature lighting for the concept of "collaborative competences"

Several researches revealed two logics that could facilitate the understanding of collaborative competences. Firstly and foremost, the factors of collaboration constitute several indicators for naming skills and abilities required to cooperate/collaborate.

Despite the fact that they remain highly variable, they refer to three components of the collaborative process: antecedent, i.e. the favorable conditions; the process, related to collective action; and the results, which include the common productions.

On these grounds, this structure of collaborative process can be compared to a "systemic model of work activity" (Aubé, Rousseau, & Savoie, 2006; Thomson & Perry, 2006) particularly relevant to design training devices to be taken into account and to develop collaborative competences.

Secondly, we have stressed these competences in relation to the particular situation and action; so that, they are doubly located: because the nature of competences themselves can be revealed only in specific situations, the nature of cooperation/collaboration is to "make whole". As we have suggested, the collaborative competences are mobilized differently according to their action (e.g. designing, learning or governance). Thus, before going on to develop the collaborative competences in training, it is more appropriate to discern the process of collective action in which the persons are implicated and only after that adopt the most convenient competences to be consolidated. The example of the work of Morse & Stephens (2009) stresses this point of view.

Finally, those contextualized and identified competences could be observed in three different contexts in which they operate: (1) in the interactions between individuals (micro); (2) in the organizational structures (meso), correlated with the capacity to organize the non-hierarchical models, to manage and share resources; (3) in the external environment (macro), connected with the political and cultural context.

Thus, we suggest combining three logics to analyze the collaborative competences: sequential analyses: (input-process-output), dynamics analyses (linked to action) and gradual (by levels).

III.2 From the formation project to the development of collaborative competences

The program Animacoop can be analyzed as an attempt to develop collaborative competences. Although as we have seen, they are not explicitly included in the training program, factly, they are developed by learners through group work. Progress of learning to cooperate/collaborate through the five stages of a network life is comparable to the "process approach" described by Morse & Stephens (2009). It seems to indicate that this process is artificial in the *Animacoop* program: the participants refer to five stages of a network life during the collective presentations yet they did not adopt that in their work. Moreover this structure of courses in a framnetwork life, is not connected with two other modalities of learning: "collective learning" and "learning in the project". This pragmatic approach to conceptualizing training programs should be explored in future works.

The exercises "group size scaling extended" could be underlined as another form of learning cooperation/collaboration. Thus, staff experimented the idea of character "aggregative" social networks. As Proulx suggests (2008), the use of digital technologies strongly influence identity development of virtual communities; they are more an "ephemeral aggregations of individuals," formed around similar interests, sparking partial participation. The ability of people to aggregate/disaggregate seems to develop through interactions in groups of different sizes, constituted gradually: two, four or eight participants.

However this point needs to be examined in greater depth in future research because a number of other issues remain unresolved: "Ability to aggregate", is a particular goal really fixed by instructors? Would the participants benefit from teaching in this exercise? Is this specific ability really significative to develop collaborative competences? If this was the case, could we appoint specific competences according to the level on which a cooperation/collaboration is realized, as suggested by Blomqvist & Levy (2006)?

Thus, to continue the ongoing research, we will first check the adequacy of available models and, in particular, the collaborative competences scale of Morse and Stephens. A questionnaire distributed to 197 participants of Animcoop with twenty-five indicators proposed by these authors is currently analyzed.

The next phase of the survey is to interview in greater depth, the training programed methods that facilitate to work in common. This point is addressed currently by a series of semi-structured interviews, with a sample of thirty trainees.

As we interest ourselves in the working contexts of Animacoop's participants after their training, we want to know, amongst others, how they have reinvested or not these collaborative competences. The first results suggest that adult learners, prior to cooperating/ collaborating actually, once they return to their workplace, begin to transmit to their colleagues what they learned during the training. It seems that, as well as collaborative competences being acquired in the training-action, they reinvest in a particular process of action-training. This perspective reveals the attitude of "improvisation" and "creativity" as much in the training process as in the professional activity. We will examine this in depth.

The expected results will allow us to validate a collaborative skill scale built from the work of Morse and Stephens (2009).

However, the challenge of this work lies not in the design of repository of collaborative competences. We prefer to apprehend these competences like "know to act" to facilitate the necessary adaptation to a changing environment (Voogt & Pareja Roblin, 2012; Sennett, 2013). In other words, the ability to cooperate/collaborate seems like the forefront of competences to be acquired, in contemporary professional work.

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