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THE ECO PROJECT FOR E-TEACHING: SOCIAL MOOCS AT THE CROSSROADS OF ACTORS' COGNITIVE LOGICS AND STRATEGIES

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This communication examines personal and collective e-learning strategies and emergent uses and practices, based on the implementation of the European project ECO, for the e-training of teachers via MOOCs. ECO is financed within the framework of the program *Competitiveness and innovation Framework Programme* (CIP), Theme 2: *digital satisfied, open dated and creativity*. The main corpus consists of questionnaires, interviews, conversation threads in the forums and the social networks as well as exchanges between members of the teaching staffs of the experimental sMOOC *Step by Step*. The analysis focuses on several intercultural actors' logics: it connects universities, private and public schools, communication and information systems, all with different cultural origins (seven European countries). The project is itself an *open* co-creation that brings together several professional cultures (teachers, engineers, computer scientists, community managers, …). It also builds on a number of cognitive elements that buttress interaculturality and intercreativity and point to some important lessons for the management of interculturality and intercreativity in Europe and beyond.

This innovative framework leads to emergent practices in the training of teachers (the public targeted by the project). It affects in particular their learning style because it brings together the integration of the cognitive strategies of the teachers/trainers, and the collaborative practices between peers. The techno-pedagogical framework relies on participatory MOOCs (or sMOOCs) supported by a socio-constructivist and connectivist theory of learning. Specific to ECO, it allows the teachers / trainers to benefit from an intercultural learning situation, propitious to new cognitive logics; it enhances new strategies that place them in a position of producers and administrators of their resources.

ECO is based on the hypothesis that, in sMOOCs, interculturality meets intercreativity. Being creative in partnership with people outside one's culture, one's area of expertise and one's comfort zone builds community and understanding across cultures. It may also bring transformative changes when several cultures interact with each other. Interculturality is precisely defined by the process of exchanges between cultures in contact (Devereux, 1972; King, 1997; Demorgon, 1996; Ladmiral & Lipiansky, 1991). This contact implies a construction of culture as several layers of interactions that peel off like an onion: the national layer (e.g. language, politics), the institutional layer (e.g. school systems, teaching styles,

educational designs) and finally the professional layer (e.g. engineers, managers, designers, teacher/users) (Demorgon, 1999; Demorgon et al., 2003).

Interculturality implies both a dialogue where exchanges are identity-driven and a dialogue where exchanges are idea-driven, which may cloud or clarify the interactions. A double movement is created between "eagerness to understand" (vouloir comprendre) and "eagernes to be understood" (vouloir être compris) (de Vallescar, 2001; p.404). This double movement enables a horizontal dialogue between participants that calls on cognitive strategies for empathy, for tolerance, for reciprocal learning across cultures. It offers equal opportunities for learning between people who don't actually know each other.

In this intercultural context, cognition, defined as the mental processes that facilitate information processing and rely on attention, attribution and group dynamics, contributes to social learning (Frau-Meigs, 2011). This social cognition deals with the management of emotions, of experiences and knowledge to solve problems and to shape decisions, attitudes and values under the observation of others. Cognitive processes intertwine reason and emotion, and are related to empathy, which allows all actors to understand each others' feelings, to revise their values and their acquired knowledge and routines so as to justify their choices on the basis of cultural and professional constructs (Damasio, 1994; Decety & Ickes, 2009; LeDoux, 1996; Livet, 2002).

According to Donald Merlin (2001), cultures engineer *cognitive networks* that ensure the transmission of values, attitudes and institutions. He emphasizes cooperation as a means of showing that human wellbeing relies heavily on interactions with others. In the case of sMOOCs, mediated by ICT-driven media, the pedagogical design fosters the construction of communities of practice that interact with each other and build their knowledge through collaboration and interactions (Siemens, 2005; Osuna et al., 2016). This lead to the original idea of creating a reflexive sMOOC, the sMOOC *Step by Step*, in order to have an observable intercultural and intercreative situation that can be used as a template for other sMOOCs.

The sMOOC Step by Step: designing interculturality in teacher training

The design of the *sMOOC Step by Step* tests the process of interculturality in relation to intercreativity: it brings together six national cultures, ten hubs that represent local institutions and three major professional cultures (manager, user, computer engineer). These professionals have several profiles, including teachers, pedagogical engineers, facilitators, learners and community managers. Additionally, several disciplines come into play, such as management, education, communication and computer engineering.

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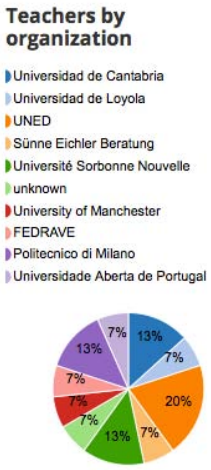

Figure 1. Teacher by organizations.
Nb: "unknown" category refers to outsiders of the project (volunteers, experts, partners)

This amount of interaction fosters a climate of intense exchanges that feed interculturality. Besides, the participants share a repertoire of online e-strategies such as gamification, content aggregation, sampling, multimedia creation and diffusion (text-image-sound), sharing of resources, networking, transmedia navigation and communication and peer-to-peer coordination (Jenkins, 2009; Frau-Meigs, 2011). This repertoire of e-strategies fosters collaboration, mutual attention and helps decision-making across cultures.

The overall design was devised by a single team representing all ten of the ECO hubs. The French and Spanish coordinators supervised the entire process and ensured continuity and collaboration. Each of the seven sessions in the sMOOC was created by two hubs working closely together and mixing languages and cultures: German/Spanish, French/Spanish, Italian/French, Portuguese/Spanish, French/Portuguese, English/French and English/Spanish. Since English was the lingua franca across hubs and teams, the English partner was entrusted with the task of supervising the quality of the English used in the sessions. Each country then translated from the English into its own language (See Table 1).

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Table 1: Intercultural teams: Hubs by sessions by tasks

	Institution / Session	UniCAN	UoMan	SE	Fedrave	Sorbonne	Loyola	UNED	UAB	POLIMI
Supervision	All									
Global pedagogical design	All									
Pedagogical design / session	1									
	2									
	3									
	4									
	5									
	6									
	7									
English quality control	All									
Translation and facilitation in each language	English									
	Spanish									
	French									
	German									
	Portuguese									
	Italian									

NB: the grey zones are zones of interaction between national teams

Interculturality was further facilitated by the openness of the resources and tools shared via Creative Commons. The teacher/trainers could thus upgrade their collaboration and increase their communities of practice. The use of the *Agile method* of management also improved interculturality during the three iterations of the project. The agile method is socio-cognitive by nature as it enhances problem-solving through experience, collaboration and with self-organizing, cross-functional teams. In ECO, the teams are not only cross-functional but also cross-cultural, so as to promote adaptive planning, rapid responses and context-based development (Beck et al., 2001).

Cognitive strategies in participatory sMOOCs

The results of the sMOOC Step by Step show some cognitive elements at play. The cognitive dimension implies distributed competences that are both individual and collective. It appears that the more intercultural people are, the more likely they are to solve problems unexpectedly and to support decision-making. Also the more diverse a community, the more likely it will be to generate original ideas and to modify traditional hierarchical structures and relations to information and knowledge. Besides, some kind of "policing" happens in intercultural situation that transforms stereotypes and generates positive behaviours as people learn about each other's cultures and clarify their positions, eager as they are to understand and be understood.

Among the major cognitive elements at play, the main ones are: attention (focus), empathy, tolerance of error and of ambiguity, and decentring. They are particularly important to intercultural cognitive agile management.

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Interventional and accidental focus: monitoring the entire environment and being ready to interact

Through the cognitive processes of attention and attribution, the online space of the sMOOC moved towards a transcultural laboratory experience with attention turned into intense "focus" activity. This activity was both conscious and interventional focus (the action of others impacts decisions by participants back in their own language), and accidental or serendipitous focus (the actions of others in previous and parallel MOOCs have an impact on the repertoire of actions and resources of *Step by Step*).

This dual focus exemplified the fact that cooperation and collaboration are not interchangeable terms, as suggested by Cerisier (1991). Cooperation works as a collective organisation where tasks are fragmented and distributed either horizontally among all actors or according to each person's competences. Collaboration on the other hand, relates to a working situation where the task and the goal are common, all the actors working in coordination. Bartel and Saavedra confirm that collaboration is indeed focused on a common goal and they add that this collective intelligence is enabled by digital tools and affordances. They also point to the importance of the diversity of participants as "source de performance et créatrice de valeur" (Bartel & Saavedra, 2000).

This conceptual distinction rests on the nature of the operations and the distribution of the tasks. According to this distinction, a working collective relies partly on a logic of cooperation and partly on a logic of collaboration. In the experience of the Step by Step, co-construction can use different combinations of collaboration and cooperation, either from the beginning, or through diverse iterations that provide perspectives on the reactions to the new resources and contributions.

Both types of focus came with a certain amount of risk because they required a high level of management to mitigate the lack of understanding between professional cultures in particular (criteria of evaluation, cognitive scaffolding, weighting of the grades, quizzes, …). The proximity of some notions also led to confusions (units/modules, levels/paths, tasks /activities, rules/instructions). Diverse forms of cultural management due to national cultures created unease until the problems were identified and clarified. The solution consisted in creating regular weekly meetings after the first iteration. The persons in charge of certain tasks attributed more time to tutoring and moderating sessions.

Some countries are less propitious to a culture of participation and tend to be weary of the intervention focus. Some teams tended to wait for instructions and for requests regarding resources and regarding documents, whereas others took initiatives without waiting to be asked. Intervention elicited a certain amount of fear of judgment by others and the fear of making mistakes, in spite of the declared philosophy of experimentation by trial and error and the Agile method. Besides the process was somewhat asymmetrical, due to the heavy presence of partners from Spain, who had a de facto numerical advantage

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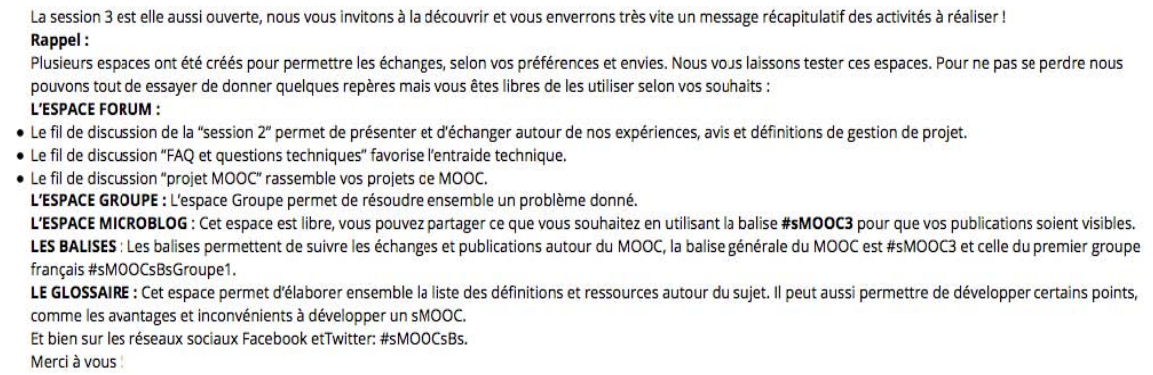
This asymmetry was counterbalanced by alliances across the teams and by efforts of greater communication between all teams. For instance, instructions were given on how to use communication spaces (groups, forums, micro-blogging, social networks…). At first each team was left to organize itself at will; but then the teams all started focusing on each other; and finally, due to serendipitous focus, they built "standard" instructions, on the basis of a French good practice, which led to a much improved management of all the spaces for exchange. (See below the French good practice and its adaptation in Italian.)

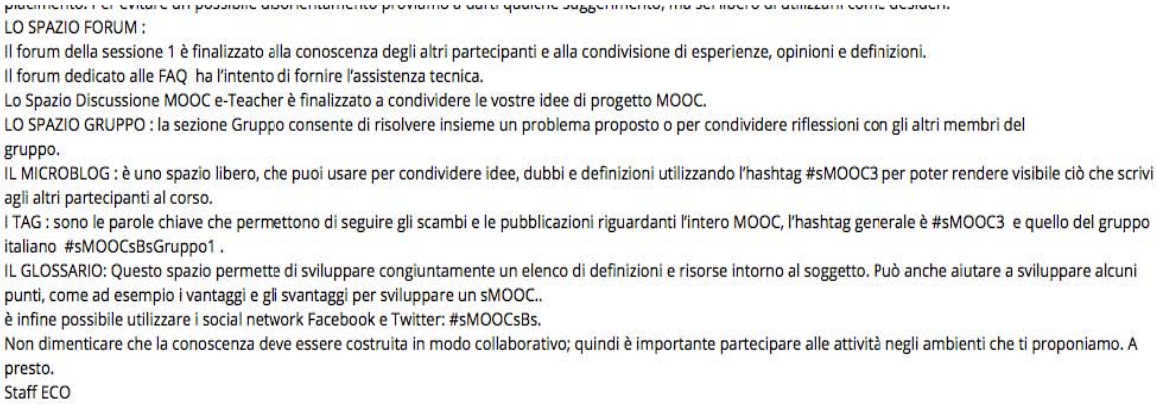


La session 3 est elle aussi ouverte, nous vous invitons à la découvrir et vous enverrons très vite un message récapitulatif des activités à réaliser !
Rappel :
Plusieurs espaces ont été créés pour permettre les échanges, selon vos préférences et envies. Nous vous laissons tester ces espaces. Pour ne pas se perdre nous pouvons tout de essayer de donner quelques repères mais vous êtes libres de les utiliser selon vos souhaits :
L'ESPACE FORUM :

- Le fil de discussion de la "session 2" permet de présenter et d'échanger autour de nos expériences, avis et définitions de gestion de projet.
- Le fil de discussion "FAQ et questions techniques" favorise l'entraide technique.
- Le fil de discussion "projet MOOC" rassemble vos projets ce MOOC.

L'ESPACE GROUPE : L'espace Groupe permet de résoudre ensemble un problème donné.
L'ESPACE MICROBLOG : Cet espace est libre, vous pouvez partager ce que vous souhaitez en utilisant la balise **#sMOOC3** pour que vos publications soient visibles.
LES BALISES : Les balises permettent de suivre les échanges et publications autour du MOOC, la balise générale du MOOC est #sMOOC3 et celle du premier groupe français #sMOOCsBsGroupe1.
LE GLOSSAIRE : Cet espace permet d'élaborer ensemble la liste des définitions et ressources autour du sujet. Il peut aussi permettre de développer certains points, comme les avantages et inconvénients à développer un sMOOC.
Et bien sur les réseaux sociaux Facebook etTwitter: #sMOOCsBs.
Merci à vous !

Figure 2. French good practice



LO SPAZIO FORUM :

- Il forum della sessione 1 è finalizzato alla conoscenza degli altri partecipanti e alla condivisione di esperienze, opinioni e definizioni.
- Il forum dedicato alle FAQ ha l'intento di fornire l'assistenza tecnica.
- Lo Spazio Discussione MOOC e-Teacher è finalizzato a condividere le vostre idee di progetto MOOC.

LO SPAZIO GRUPPO : la sezione Gruppo consente di risolvere insieme un problema proposto o per condividere riflessioni con gli altri membri del gruppo.
IL MICROBLOG : è uno spazio libero, che puoi usare per condividere idee, dubbi e definizioni utilizzando l'hashtag #sMOOC3 per poter rendere visibile ciò che scrivi agli altri partecipanti al corso.
I TAG : sono le parole chiave che permettono di seguire gli scambi e le pubblicazioni riguardanti l'intero MOOC, l'hashtag generale è #sMOOC3 e quello del gruppo italiano #sMOOCsBsGruppo1 .
IL GLOSSARIO: Questo spazio permette di sviluppare congiuntamente un elenco di definizioni e risorse intorno al soggetto. Può anche aiutare a sviluppare alcuni punti, come ad esempio i vantaggi e gli svantaggi per sviluppare un sMOOC..
è infine possibile utilizzare i social network Facebook e Twitter: #sMOOCsBs.
Non dimenticare che la conoscenza deve essere costruita in modo collaborativo; quindi è importante partecipare alle attività negli ambienti che ti proponiamo. A presto.
Staff ECO

Figure 3. Italian copy of good practice

In a similar serendipitous manner, while looking for means of optimizing facilitation in the management spaces, the French coordinator noticed that the Italian team was suggesting the creation of new *hashtags* (for instance #PLB) to federate participants. This casual observation made while browsing the messages in the forums finally led to similar practices being adopted by the other facilitation teams. This benefited also the collective since the #sMOOCsBs enabled everybody to follow the exchanges in all languages, thus priming attention to the whole community.

However, in spite of the use English as the lingua franca (while there was only an English team), not all teams integrated at the same speed. The need for intercultural management and intercultural participation appeared as important skills and competences to put in place for further experimentation.

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Empathy: being conscious of the situation of others

Empathy is central to reducing intercultural barriers. It is the ability to recognize the feelings and the standpoint of others and also to react emotionally and cognitively to other people's emotions and situations (Brome, 2009). Interculturality creates opportunities for empathy as it provides access to different national or professional frameworks and exacerbates the exploration of alternatives. All the participants are in relatively horizontal relations, with not one particularly above the other, thus fostering situations conducive to constructive compromises.

All contributors to the *Step by Step* had already experienced working on ECO MOOCs in their national contexts. They had already been confronted to decision-making, problem-solving and community management in accordance to ECO's participatory pedagogical design. So they each brought their experience to the sMOOC and their own reflexivity, which made it easier to feel empathy with the situations that came up. It also made it easier and faster to take decisions (no need to go over the reasons, the consequences, the rationales…) without necessarily verbalizing them. But it also allowed the contributors to discover the behaviours, decisions, attitudes made by others in similar circumstances and to go over them to understand the context and the reasoning behind the ultimate choices.

Similarities in the team creation also brought rapprochements with individuals that were not foreseen. Some participants started with the feeling that they were asked too much or that they were "solo" as in the German case. But due to continuous exchanges, they soon realized that most teams had a feeling of having to respond to many demands in a complex situation of constant pedagogical innovation. By realizing that they were not alone and that others felt alike, the level of engagement and of understanding changed as they felt they had been understood and they had understood others.

The sMOOC *Step by Step* tested everybody's capacity for empathy as it was a a-typical situation that required to be available for work at odd times (week-ends, nights,…). This had incidences on family situations, on leisure activities, etc. It resulted in reinforcing solidarity across the teams as some rapprochement was induced by having to make decisions at unexpected moments. Better understanding of habits, ways of work, cultural values was gained by such insights.

Tolerance of error: being able to change roles and to find playful solutions Raison

Attention and attribution are also important in taking care of error and knowing how to manage it. Cognitive biases are part of intercultural relations and zones of tolerance to such biases can actually be positive, especially when dealing with uncertainty as is the case in sMOOCs (Haselton & Galperin, 2013). Some situations of the Step by Step showed that some responses and resources were not adapted for all cultures. For instance, sending mails massively in one language as was one by the Spanish team at the beginning only served to show the frustration of the other contributing teams. They felt that these messages were ill

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suited to their learning situation. The management team reflected on this and organized their messages in such a way as to satisfy the Spanish teams and the others, and improve their national learning situations (see below). The presence and use of some social media rather than others also illustrates the tolerance of error: some teams first perceived that using commercial networks external to the OPENMOOC platform was abusive; but after several exchanges they came to the collective decision to add them to their cultural practices, having measured the pros and cons.

Figure 4. From one massive message in one language (Spanish)

Figure 5. To modified massive message in collective objective in all languages

Tolerance of error was particularly put to the test between the pedagogical teams and the engineering teams of ECO. At first the teaching staff was obliged to accept the platform bugs, the technological inconsistencies and errors. They finally reached temporary consensus to "carve out" solutions that would respond to their specific pedagogical needs (like including images in documents when the platform functionalities did not facilitate this insertion). Some of the frustrated participants ended up being *advisors* to the engineers, translating the other teams' needs and encouraged by them. Their role changed to *improvers* of the learning experience mediated by technology. This is a fundamental change of role in sMOOCs: one does not render a service as much as one produces an experience that all the other participants can influence all along the process, for the benefit of the collective activity. As everybody sees the work of the other teams, all the participants end up accepting the gaze of other professionals and they change their perspective: it is no longer surveillance but help. This

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tolerance also makes it possible to accept judgment and criticism as important parts of the iterative process. However, communication skills are very important so as to express these without hurting people's feelings and enabling them to incorporate criticism into their own work ethics.

Tolerance of ambiguity: being capable of perceiving differences in others' values

Tolerance of ambiguity has been defined as the tendency to perceive ambiguous situations as "desirable" instead of "sources of threat" (Budner, 1962). In the *Step by Step*, facilitation messages can require very short delays and bring up expectations of quick adaptation and contextualisation, that appeared at the beginning of the process as very incoherent as the participants had not adjusted to it yet. So some missed the main objectives and did not perceive all the dimensions of being part of an intercultural pedagogical team.

The pedagogical design evolved progressively over the three iterations. Many back and forth happened to revise prior proposals and resources. Participants needed to keep an open or neutral perspective and to accept external gazes to validate a choice that was not always pertinent at the beginning. When each team found its footing in the community, then the process was made easier as exchanges and modifications were more easily tolerated, with much reciprocity. This was particularly the case with the order of sessions in the sMOOC that did not find unanimity at first and then was agreed upon.

Pedagogical contributors realized the value of accepting to make space for others. The ideas for activities, contents and resources stemmed from bi-cultural teams, and the others had to *accept* their propositions and then feedback for improvements for the next iterations. Such notions as trust and competence came into play, as participants were aware that they engaged themselves and their community. Some people were called upon because they had transversal competences, others because they had a more comprehensive perspective. For instance the arrival of a new facilitator in the English team took some adjusting time, until he became one of the major references for translation.

Decentring process: being distant in relation to oneself with new roles

In cognition, decentring is the ability to consider one's thoughts and feelings as temporary events in the mind and to see them as objective and not subjective. "The reality of the moment is not absolute, immutable, or unalterable..." (Safran & Segal, 1990; p.117). In intercultural situations this allows for reappraisal of comments or situations without feeling diminished or ill-considered, which reinforces empathy and tolerance.

Decentring also ensures that there is no avoidance of the situation as it is perceived as mutable, iterative and not everlasting. It makes it possible for all participants eventually to find their place. It entails the capacity to be self-reflexive and to put decisions and content at a distance and under the gaze of others.

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The analysis of the satisfaction questionnaires submitted by the participants has allowed decentring because they lay the emphasis on the value of the service provided, on the learning experience offered, as well as the social, technical and pedagogical experience. The deliverables and the meetings are also means to gain distance and reflexivity. The collective debriefing of situations, behaviours, responses leads to the sense that the sMOOC is a temporary event, with room for improvement.

The possibility of identifying the members of the teams, with pictures, photographs and avatars also enabled decentring as each participant could identify others and himself or herself in the techno-pedagogical framework (see below). Thus the translation of a message for facilitation was no longer perceived simply as a simple translation but as a message belonging to the whole facilitation process. This in turn has led to optimization as each person knew the value of producing the same message across all languages with the least possible delay, for the sake of the whole team.

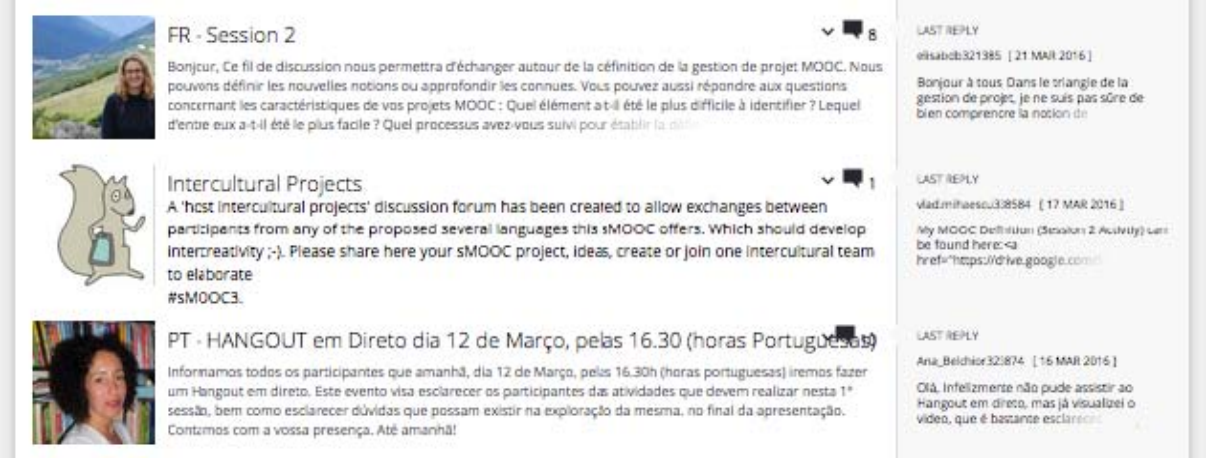

Figure 6. View of mixed forum

In conclusion, the implications for intercultural management and intercreativity are apparent. The Agile Method is partly dependent on collaborative tools and competences. The Step by Step sMOOC proved to be a performance in open interculturality with strong cognitive processes at work: interventional or accidental focus, empathy, tolerance of error, decentring, tolerance of ambiguity.

The intercultural management is a process thanks to collaboration and cooperation as suggested by Cerisier. It enables exchanges of information by all the members, and develops a collective intelligence focused on specific tasks. The ECO project also supports (Bartel & Saavedra, 2000) this collective intelligence enabled by digital tools and affordances and it is a source of performance that creates value. Digital tools have embedded and implicit managerial potential that needs to be deployed and appropriated explicitly by the team members The managerial potential is turned in working reality when it makes various gazes and focuses possible.

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However this potential also needs to incorporate cultural and cognitive factors to manage uncertainty, innovation and foster interculturality and intercreativity. Cognitive and affective processes need to be made transparent and be shared across cultures and learning strategies. They are part of a pedagogy of participation that mixes social-constructivism, connectivism and collaboration. Intercultural competencies are an added value and create value.

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