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# COMMUNITY OF INQUIRY IN E-LEARNING: A CRITICAL ANALYSIS OF THE GARRISON AND ANDERSON MODEL

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## Abstract

This article is based on a constructively critical analysis of the *community of inquiry* model developed by Garrison and Anderson (2003) as part of their *e-learning* research. The authors claim that certain collaborative interactions create "distant presence" fostering the emergence of a *community of inquiry* which has a positive influence on individual and collective learning. More specifically, the article points out that until now the model's theoretical foundations had not been made explicit and provides important insights concerning these epistemological considerations. It also suggests a number of theoretical perspectives which strengthen the authors' presentation of the conceptual anchorings of the model. Thus the major contribution of this article is to show the potential of Garrison and Anderson's model for the research in the field of *e-learning*.

## Résumé

Cet article s'appuie sur une analyse critique et constructive du modèle de *community of inquiry* développé par Garrison et Anderson (2003) dans leurs travaux sur le *e-learning*. Les deux auteurs précisent que certaines interactions collaboratives permettent de créer une présence à distance qui, à son tour, favorise l'émergence et le développement d'une *community of inquiry* ; ce type de communauté ayant alors une influence positive sur les apprentissages individuels et collectifs. L'article met plus particulièrement en exergue la faible explicitation des soubassements théoriques de leur modèle. Il apporte ici des éléments importants sur ses fondements épistémologiques. Il propose également quelques perspectives pour conforter la présentation des assises conceptuelles du modèle. L'article contribue ainsi à montrer son potentiel pour la recherche sur le *e-learning*.

## Introduction

In an article that is still current today in France, Jacquinot (1993) suggested that "distance can be managed" and that "absence can be eliminated", in the specific field of distance education. Over the past few years, information technologies and communications technologies **FN1** offer us the possibility of simultaneously addressing these two challenges. On one hand, they

allow us to manage distance, at least in a spatio-temporal sense, with the use of synchronous and asynchronous means of communication supported by Internet tools. On the other hand, they allow us to deliver social interactions between instructors and learners, but also between instructors, themselves. They therefore contribute to eliminate the absence that was so dreaded during the previous decades. The absence/presence dichotomy is therefore lifted, at least from a technological stand point, notably in the case of *e-learning*. For a good number of authors, one of the main and current challenges facing *e-learning*, besides the mastering of these spatio-temporal aspects, is to create distant presence in order to foster learning (Garrison, 2000 ; Garrison, Anderson and Archer, 2000 ; Jacquinot, 2001 ; Linard, 2001 ; Garrison and Anderson, 2003; Jézégou, 2007).

In English-speaking Canada and in the United States, there has been a trend to develop studies of this specific question since the early 2000s. These studies mainly focus on the construction of a model that can help substantiate and qualify the concept of “presence” in the field of *e-learning*. The *community of inquiry* in *e-learning* model set out by Garrison and Anderson (2003) is certainly the most advanced to date. This model is not widely known in France. Furthermore, the French articles on the subject of this model, from both sides of the Atlantic, are extremely rare, if not inexistent. Yet, the model makes an interesting contribution in identifying the dimensions linked to presence in the specific context of *e-learning*. However, in their publications, the authors do not really develop the theoretical foundations of their model (Garrison, Anderson and Archer, 2000; Garrison and Anderson, 2003; Garrison and Arbaugh, 2007). Thus, in a summary paper — that serves today as a benchmark — entitled *e-learning in the 21st Century*, Garrison and Anderson (2003) present this model of *community of inquiry* by evoking its affiliation to the North American Anglophone philosophy of pragmatism. However, a number of researchers, little acculturated to this philosophical approach, notably in French-speaking countries, can encounter difficulties in appropriating themselves with the model and in subjecting it to empirical testing. This is the first main criticism that we put forth concerning their works and thereupon, the clarification works carried out by these authors. The second criticism, close in nature to the first, concerns the fact that Garrison and Anderson (2003) do not sufficiently make explicit the conceptual foundations of their model. They limit themselves to clarifying the fact that the model is based on research studies on constructivism, and in particular, on those stemming from socio-constructivism. They do not sufficiently develop the manner in which they integrate the results of these studies into their model.

## **1. A Poorly Detailed Model with Regard to its Theoretical Foundations**

*E-learning*<sup>FN2</sup> refers to an array of teaching mechanisms that is widely characterized through “using multimedia and Internet technologies to enhance the quality of learning by facilitating access to resources and services, as well as distance exchanges and cooperation” (European Commission, 2000)<sup>FN3</sup>. Generally speaking, these mechanisms integrate an array of software tools that allow us to manage and follow-up on an on-line course, to access and consult interactive self-learning and multimedia resources and, to have access to a number of possible synchronous and asynchronous interactions through communication and cooperation tools. For many authors, the role played by these social interactions is first and foremost in *e-learning* (Archer, 2000; Henri and Lundgren - Cayrol, 2003; Moore and Anderson, 2003; Taurisson and Santini, 2003; Dillenbourg and al, 2003 ; Charlier and Peraya, 2003; Saba, 2003; Jézégou, 2008).

Garrison and Anderson (2003) herein make the following proposition: certain types of social interaction create a presence that encourages the emergence and the development of a *community of inquiry*; these interactions being mainly collaborative in nature. These communities then foster the individual and collective construction of knowledge. However, the authors do not sufficiently elaborate on the epistemological bases of the model. In our opinion, the explanation of these bases would allow for a clearer identification of the model's potential for research on *e-learning*.

To better describe this concept of *community of inquiry*, we must first determine what constitutes a community in general, so as to clarify its characteristics. Indeed, this first step is, to our meaning, indispensable in-so-far as in the context of *e-learning*, as aptly set forth by Dillenbourg, Poirier and Carles (2003), the term “virtual community” is often used to designate any group of people who interact at a distance, either synchronously and/or asynchronously, these interactions being carried out by way of online communication tools such as email, discussion forums, chat lines, wikis, interactive Web pages or others. This definition induces confusion on two levels. First, it does not characterize what a “virtual community” is and limits itself to referring to the communication modes found therein (Dillenbourg et al., 2003). Second, unless the concept of community is clarified, this definition can lead the term to be confused with other forms of social organization.

### 1.1. Community: A Special Form of Social Organization

According to Dillenbourg, Poirier and Carles (2003), it is fundamental to clearly distinguish three forms of social organization, often assimilated to one another:



*Figure 1. Definition of a community in comparison to other forms of social organization according to Dillenbourg, Poirier and Carles (2003).*

For these authors, the creation of a formal group stems from the initiative of one person. It can come from someone higher up in the hierarchy, an expert or also an instructor. This person predetermines the goals to be reached, the number of people forming the group, as well as their characteristics and chooses them on the basis of the needs that have been identified. This person plans and predefines the object and the form of communication between the members of the group or team. At the other end of the continuum, a group of friends is informal (Dillenbourg and al., 2003). The goals are not imposed by an outside source, no more than are the conditions for participating. People join on a voluntary basis by reason of shared personal affinity. These aspects also exist within a community. However, a community, contrary to a group of friends, forms around a common objective. Specifically, a community is a social organization that is relatively informal and flexible, directed towards a goal (Dillenbourg and al., 2005). The members of this community band together to build a collective experience that allows them to reach this goal while pursuing their own personal objectives (Kaye, 1992; Grossman, Wineburg, and Woolworth, 2001; Henri and Ludgren - Cayrol, 2003). From this co-construction is progressively born a micro-culture that is shared by its members and that relates to values, practices, conversational rules or even behaviour. (Preece and Maloney-Krichmar 2003; Dillenbourg and al., 2003). A community organizes itself around a common space of interactions and exchanges, mainly based on the logic of collaboration. As specified

by Henri and Lundgren - Cayrol (2003), such logic is characterized by, among others, equality in the members' standing and their participation in the interactions, as well as the fact that they jointly carry out activities that they determined together. Also, they actively participate and have access to common resources, while ensuring reciprocity of information, of support and of services (Preece and Maloney-Krichmar, 2003). This logic of collaboration differs from the logic of cooperation which relies, for its part, on the structuring of the activity in parts, on a division of tasks to be carried out and on responsibilities among the group (Henri and Ludgren - Cayrol, 2003). This structuring better evokes a formal group than a community, as the interactions therein are dominated, more or less, by a member of the group over the various sequences in the elaboration of the activity.

A learning community, whether virtual or not, has most of the general characteristics of a community in the wider sense. It constitutes “a group of people, who are voluntary members with varying experience of equal value, that are constantly learning together in order to solve problems<sup>FN4</sup>”. Similarly, for Charlier and Peraya (2003), “a learning community is based on a process of activity learning, finalized according to projects, often trans-disciplinary, including problem solving and based on cooperation/collaboration among learners.” This kind of community refers us, among others, to the theoretical perspective of constructivism. One of the major themes developed by constructivism is the central role played by the learner in the elaboration, the refinement of his own knowledge. In this context, learning is first and foremost an active process that is largely dependent on the initiative given to the learner. In respect of *e-learning*, technologies offer the learner, maybe more than any other learning modality, the opportunity to build and to take action on his own knowledge, to interact with his learning environment and to maintain a dialogue with others. Many lines of research, amongst which socio-constructivism, have shown the overriding role played here by social interactions between peers in learning and therefore, in the construction of knowledge. They show that such a construction is encouraged when learners enter into a collaboration process together in order to form a learning community. A *community of inquiry* possesses all of these characteristics, but it also integrates an additional dimension.

## 1.2. Specificity of a *Community of Inquiry*

The French translation of *community of inquiry* could, at best, be a “communauté d'enquête” (Delebarre, 1998) or a “communauté de recherché” (Agnostini, 2007). This concept is very little known in France and we have not been able to find French terms that accurately translate the numerous subtleties linked to this expression; subtleties that Garrison and Anderson (2003) do not sufficiently develop in the presentation of their model. Thus, they do not really explain in detail the bases that would allow a characterization of this specific concept. At best, they mention that it refers to the founding principles of the transactional perspective of the pragmatism philosophy.

The pragmatism philosophy<sup>FN5</sup> is a major line of thought in North America, notably in the United States. The transactional perspective of this line of thought was mainly developed by Dewey and Bentley (1949). The detailed presentation of their works cannot be made within this article. However, we suggest a presentation of the most relevant points in order to clarify what is encompassed by a *community of inquiry*.

Pragmatism means the “transaction” of the creative processes of confrontation and criss-crossing of points of view, of mutual adjustments, of accommodations geared at creating realms of common knowledge and shared meanings. It encompasses communicational realms

where the members — whether learned or neophytes — are involved and are interdependent. Such processes are founded on joint and common actions relating to the identification of problem situations, the formulating of hypotheses, the carrying out of problem solving processes, the application of solutions and the study of the results. A *community of inquiry* is first and foremost a learning community whose specificity is that it relies on a problem solving process based on the general principles of the scientific method; according to Dewey and Bentley (1949), this method furthermore fosters the individual and collective construction of knowledge, but also of critical thinking. Also, Dewey (1916) indicates that the emergence and the development of these communities is at the basis of democracy not only because of the way they function, but also and mostly because of the participation of their members in the handling of social, economic or even educational problems that concern them and/or preoccupy them.

In respect of all of these elements, we suggest that a *community of inquiry* be defined as follows: “a group of people, who are voluntary members with various expertise of equal value, who are jointly involved in a problem solving process based on the general principles of the scientific method and in a collaborative learning process; these combined processes facilitate the individual and collective construction of knowledge”. This double process constitutes, in our view, one of the fundamental characteristics of a *community of inquiry*.

Another characteristic is to rely on each person’s capacity for self-direction in order to agree to contribute to this double process (Jézégou, 2008). Garrison and Anderson (2003) here elaborate that this concept of self-direction constitutes an important dimension of their model of *community of inquiry* in learning. However, they do not sufficiently elaborate on what is encompassed by this self-direction. This is another important criticism that we put forth in respect of these authors work and thus, of the explanation effort realized herein.

### **1.3. Self-direction and *Community of Inquiry***

Garrison and Anderson (2003) state that the emergence and development of a *community of inquiry* requires, on behalf of each of the learners in the group, a personal involvement in respect with their interactions with others in an effort of collaboration geared at solving a problem. However, they do not elaborate here on the personal dynamics requisite to this involvement, mentioning only that they refer to their self-direction.

For over thirty years, in North America, the concept of self-direction has been at the heart of an important line of research<sup>FN6</sup> on education, which has been relayed in Europe, by a few researchers (Staka and al., 2000 ; Carré and Moisan, 2002 ; Jézégou, 2005). These studies, of a socio-cognitive orientation, point out two major dynamics in self-direction: motivation and self-regulation.

Based on the contributions of this line of research, we believe that a *community of inquiry* can only develop if two conditions are met (Jézégou, 2008). The first condition is that each learner of the group must be sufficiently motivated to get involved and persevere in the interactions with the others in an effort of collaboration. He must therefore be motivated enough to undertake to carry out collective activities, to accept the group’s modus operandi or to take into account each person’s personality. The second condition is linked to the efficiency of the strategies that each learner of the group puts forth to regulate, on his own, the socio-affective, emotional and cognitive aspects of these interactions based on collaboration.

According to the author, another condition is also called into play in this situation. It is the capacity of the *e-learning* mechanisms to create educational situations likely to encourage this self-direction. The instructor has an important role to play in this respect to motivate each learner while helping him regulate his learning environment and behaviour in a collaborative logic in order to create a *community of inquiry*. However, we feel that this third condition is necessary although insufficient (Jézégou, 2008). Indeed, as in any project aimed at acting on the learners, this type of intervention is limited by the intentional nature of their self-direction (Carré, 2003).

These few comments therefore open a perspective onto contributing to the consolidation, from a conceptual standpoint, of the explanation of the Garrison and Anderson model (2003). However, in our view, the theoretical frailties in the presentation of the model by Garrison and Anderson seem more important as pertains to the effects of a *community of inquiry* on learning.

#### **1.4. Community of Inquiry and its Effects on Learning**

As mentioned, Garrison and Anderson (2003) set their model within Dewey's transactional perspective that they describe as "constructivist collaborative". They mention in this respect that a *community of inquiry* builds knowledge both on the collective level and on the individual level of its members. They illustrate this phenomenon by the fact that this construction of knowledge takes place in negotiation, in agreements between the parties on the problem to be solved and occurs within the collaborative process necessary to resolve the problem. Besides these few aspects, they do not develop the manner in which the positions of socio-constructivism are integrated into their model. It therefore becomes difficult to understand how, as mentioned by the authors, a *community of inquiry* fosters learning and therefore, the construction of knowledge on both the individual and collective levels.

It is impossible in this article to elaborate on the line of socio-constructivism stemming from the founding works of Piaget and Vygotski. At best, we will elaborate two of these positions in order to point out some of the effects that a *community of inquiry* has on learning. Beforehand, it is important to point out that this line of research brings to light the role of the interactions between learners. It insists in this case, on the deeply social nature of learning and supports this affirmation on two general positions.

The first position refers to the fact that it is notably by collaborating with others that a person learns. This collaboration is nourished through exchanges, mutual contributions, confrontations, and negotiations that provoke within the person certain interrogations and stimulate new learning through carrying out new activities. These "transactions", as they are called by Dewey, invite the learner to make his knowledge available and comprehensible to his peers. Consequently, it requires a preliminary effort of clarification, of structuring, and of taking possession of his thoughts, on behalf of the person; all of these being self-structuring exercises that allow the learner to objectify and build on his own knowledge. These transactions also invite the learner to carry out a critical examination of the knowledge acquired by way of this collaborative experience, to look back on the cognitive processes that he used and to evaluate them. Thus, according to socio-constructivism, collaboration is a process that fosters, at the individual level, the progressive construction of knowledge while strongly calling on meta-cognitive abilities.

The second position of socio-constructivism is that collaboration also fosters group learning. The group thus constructs a collective experience that allows the learner to reach a goal: that of solving a problem coupled with the formalization and the application of solutions. This experience brings the learner to define an operating mode, to adopt the principles of the scientific method, to define a strategy, to test the results stemming from this process and to evaluate them. Such a process is essentially a formative one. Indeed, it invites the group to carry out intermediate statements of position, to set up regulation processes for the activities that need to be carried out, and to build a collective production. It also invites the learner to reflect on the experience he has had, to extract from it certain elements of collective satisfaction, but also the requirements and constraints.

Both of socio-constructivism's positions, one centered on the person and the other on the group, allow us to identify some of the effects a *community of inquiry* may have on learning. Taking them into account, contributes, in our view, to further explaining this fundamental dimension of Garrison and Anderson's model (2003).

## 2. Concerning the Analytical Grid for Measuring Presence in *e-learning*

The Garrison and Anderson model (2003) stands on the proposition stating that, in-so-far as *e-learning* is concerned, certain collaborative interactions contribute to creating a distant presence that fosters the emergence and the development of a *community of inquiry*. The two authors elaborate here, stating that this presence takes on three dimensions: social, cognitive and educational. Each of these dimensions refers to many categories of interactions. The existence of these interactions can be verified by using specific indicators. Another criticism we put forth in regards to the manner in which Garrison and Anderson (2003) present this analytical grid is that they mainly adopt a descriptive logic.

### 2.1. The Analytical Grid for Measuring Presence in *e-learning* Suggested by Garrison and Anderson

According to these authors, presence in *e-learning* refers to three dimensions: social, cognitive and educational. Social presence refers to the "ability of the community of inquiry participants to project themselves socially and emotionally, in all aspects of their personality, through the communication media that they use" (Garrison, Anderson, Archer, 2000, p. 94). Garrison and Anderson (2003) link "social presence" to three main categories of collaborative interactions. Each of these refers to specific indicators:

Table 1. Categories of social presence and indicators (Garrison and Anderson, 2003, p. 51)

<b>Social Presence</b>	
<i>Interaction Categories</i>	<i>Indicators</i>
Affective	Expression of emotions; sense of humour The telling of personal anecdotes
Open	Holding up the main thread of the



communication	communication; respect of others; explicit reference to messages from others; expressing agreement with other or the content of their messages
Cohesive	To address or refer to others by their first name; to address or refer to the group by using inclusive expressions, the writing of salutations

We note that these indicators refer mainly to the role played by the socio-affective interactions on individual and collective learning. This role has notably been demonstrated by a long string of studies on social psychology, amongst which those on socio-cognitive conflict (Doise and Mugny, 1997 ; Bourgeois, 1999). Here, Garrison and Anderson (2003) do not elaborate on the various theoretical contributions from which the choice of these indicators was made.

Also, they state that the function of social presence is to support cognitive presence through the creation of a environment and of a space that encourage collaboration among learners in a problem solving process. This cognitive presence refers to “the degree to which the participants are able to construct and confirm meaning by using thought and dialogue in a learning community” (Garrison and Anderson, 2003, p.55). Here, the authors suggest numerous categories of interactions that refer to four phases that, according to them, facilitate collaboration in problem solving: revelation, exploration, integration and resolution. They further state that they have borrowed these four phases from the Dewey model (1933) called the practical inquiry model. According to them, these phases allow us to describe the cognitive dimension of presence. However, they mainly limit themselves to this description and do not really elaborate on the theoretical positions of this model by Dewey.

Table 2. Categories of cognitive presence and indicators

<b>Cognitive Presence</b>	
<i>Interaction Categories</i>	<i>Indicators</i>
Triggering Event	Emergence of a problem to solve; voicing of convergences/divergences regarding the problem
Exploration	Exchanges of information and knowledge; suggestions; brainstorming; confrontation of points of view
Integration	Mutual adjustments; convergence of points of view; summary of the solutions
Resolution	Application and real testing of the solution; discussion of the solutions

The indicators suggested herein illustrate the collaborative interactions required by the problem solving process within a *community of inquiry* as characterized previously. This illustration, however, is not evident at first glance in-so-far as Garrison and Anderson (2003) do not preliminarily elaborate on what is encompassed by this concept of *community of inquiry*. As we have just pointed out, they also do not elaborate on the Dewey's practical inquiry model (1933). At best, this illustration is consistent with works on the collaborative learning process. For example, Henri and Lundgren-Cayrol (2003) decompose this process into three successive processes: exploration, elaboration and evaluation. The first is based in part on the interaction between peers in order to explore an object to be known, identify the relevant and useful information. The second called "elaboration" is based firstly on negotiation between peers (considering the ideas and points of view of each person; reacting to the ideas of the others and structuring the multiple contributions, etc.) and secondly on validation (positioning of each person, conciliation, integration of the points of view, etc.). Finally, the third process of the collaborative learning process consists in evaluating the group's performance and productivity or else to reflect on the collective meaning to be given to what has been learned. Other theoretical French and/or English contributions concerning the collaborative learning process intersect with and allow us to further explain the presentation of this cognitive dimension of presence.

Teaching presence refers more specifically to the role played by the instructors in the "design, facilitation and management of the cognitive and social processes from an educational point of view" (Garrison and Anderson, 2003, p. 55). The authors refer to teaching presence in three general categories allowing the fostering of collaboration between learners: design and organization, facilitating dialogue and direct teaching.

Table 3. Categories of teaching presence and indicators (Garrison and Anderson, 2003, pp. 66-71)

<b>Teaching Presence</b>	
<i>Interaction Categories</i>	<i>Indicators</i>
Design and organization	Presentation to the collective of learners of the general framework and work methods, general comments on the organization to be set up, precision of the temporal benchmarks
Facilitating discourse	Help given to the learners in identifying their points of agreement and/or disagreement, in reaching a consensus and/or mutual understanding; encouragement, recognition and reinforcement of each learner's contributions
Direct instruction	Direction of the exchanges towards specific dimensions, contribution of knowledge from various sources

The results of other works, notably those on the collaborative learning process are also consistent with aspects of teaching presence as described here by Garrison and Anderson (2003). They confirm the fundamental role played by the instructor for quality collaboration between learners through the creation of organizational and educational conditions that facilitate while playing the role of mediator between learners and that of facilitator of the socio-affective environment within the group. It is not possible to give herein an exhaustive list of these works, so prolific were they. At best, we refer to those, most focused on distant collaborative learning, by Kaye (1992), Koschmann (1996), Charlier and al. (2002), Dillenbourg and al. (2003), Taurison and Sentini (2003) or by Henri and Lundgren-Cayrol (2003). There also, it is possible to further elaborate, more than do Garrison and Anderson (2003), the presentation of teaching presence within the scope of *e-learning*.

The weakness of the conceptual presentation of the analytical grid concerning presence can lead, in our opinion, to difficulties for a number of researchers, who wish to put it into application in the course of empirical studies, in appropriating themselves with it.

## **2.2. The Main Difficulties in Appropriation of the Analytical Grid Concerning Presence Suggested by Garrison and Anderson**

As underlined above in many instances, the presentation of their model made by Garrison and Anderson (2003) has theoretical insufficiencies. This situation may induce a fundamental question: that of the conceptual validity of the grid concerning presence's contents. Indeed, we have demonstrated that the authors do not sufficiently justify the choice of interaction and indicator categories that refer to each of the three dimensions of presence. Thus, the argumentation of these choices could be, in our opinion, much more elaborate. Indeed, as shown previously, most of them refer to tried and tested research results. We have just evoked those stemming from works in social psychology on the role played by certain social interactions on learning, those on the collaborative learning process or those stemming from philosophical works in pragmatism on the concept of *community of inquiry*. There certainly exist other contributions that are sufficiently solid from the point of view of their theoretical foundations to support the presentation of the grid. The reference to these contributions would allow us to answer the question of the analytical grid concerning presence's validity. They would also allow us to put aside a certain number of difficulties so that other researchers could appropriate it, put it to the test of empirical studies, interpret and formalize the results obtained.

Beyond these aspects, other difficulties, this time methodological in nature, keep us from using the grid. This grid was essentially thought out in order to verify the existence of asynchronous collaborative interactions, notably those found in discussions forums or email. However, a number of *e-learning* mechanisms also incorporate tools — such as those in Web conferencing — that allow us to interact in a synchronous manner. Garrison and Anderson (2003) do not tell us if the suggested indicators allow us or not, in whole or in part, to identify the existence of synchronous collaborative interactions. For us, the application of this grid seems possible herein. The question then becomes how to conceive efficient conditions and tools for the collection of data. Concerning asynchronous interactions, this question is less delicate. For example, in the forums, the interactions are generally automatically recorded. This recording constitutes an important source of data such as names of the participants, the volume of communications made and their history, the nature and content of the messages and of the documents exchanged, etc. Other types of data may be collected through the use of questionnaires and interviews. Some of this data are quantitative in nature and can be easily

handled statistically. Others allow us to obtain qualitative results through the analysis of the textual data or through the analysis of the exchanges. However, in relation to the suggested indicators, we note that social, cognitive and teaching presence are related dimensions that are closely intertwined. Their boundaries are unclear and the indicators that concern them often juxtapose each other. Consequently, as mentioned by Manca and al. (2006), the majority of studies that use this grid focus only on one dimension. In order to simultaneously study these three dimensions, it is often necessary to situate and redefine the indicators, in order to obtain a better define classification (Manca and al., 2006). This is one of the main methodological limitations of this grid.

## Conclusion

The theoretical work at the origin of this article is a response to the call made by Rourke and Kanuka (2009) about the need for substantial research on the main constructs of Garrison and Anderson's (2003) *community of inquiry* model. This article presents a critical and constructive analysis of the model.

It is a critical analysis, because it argues that Garrison and Anderson do not sufficiently elaborate on the foundations of their model. Our analysis emerged from our difficulties in understanding the model as we tried to apply it to our work and led us to certain doubts as to its theoretical validity. These doubts brought us to further our analysis of the model by isolating and working its main dimensions, mainly those on *community of inquiry*, on learning through collaboration and self-direction. This work, complex and laborious, has eliminated our doubts about the model's conceptual solidity and its relevance. On one hand, we ascertained that it resonates and integrates the theoretical findings of many lines of research, notably those on pragmatism and socio-constructivism. On the other hand, it appeared to us to be a new reference framework that is heuristically stimulating for research on *e-learning*.

Our analysis is constructive because it contributes to clarify the epistemological foundations of the model, while suggesting a number of theoretical perspectives that contribute to the presentation of its conceptual bases. It is also constructive, because it invites the authors of the model to further explain it so as to give it a wider theoretical scope. Finally, it is also constructive because it puts forth the hypothesis according to which this explanatory work allows us to facilitate appropriation of their model by other researchers and to thus give it a greater reach within the scientific community on *e-learning*.

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1. ICT: information and communications technologies
2. commonly translated in French by the terms “e-apprentissage” or “e-formation”.
3. definition taken from the glossary at <http://www.educnet.education.fr/supérieur>
4. definition taken from the Web site of the TAC (*téléapprentissage communautaire et transformative*) research team from the Faculty of education sciences at Université Laval, in Québec. <http://www.tact.fse.ulaval.ca>
5. whose founders are Peirce, James and Dewey at the beginning of the XXth Century. Left aside following the Second World War, this philosophical line now reaching over the Atlantic has known a renewed interest in the fields of economics, managements,

sociology and education. Dewey's works are notably at the base of several experimentation lines in education.

6. Tough (1971), Knowles (1975), Guglielmino (1977), Mocker and Spear (1984), Garrison and Bayton (1987), Brookfield, (1987), Long (1989), Hiemstra and Sisco (1990).

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