

Theorizing in Distance Education: The Critical Quest for Conceptual Foundations

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Abstract

Notwithstanding the increasing importance of distance education in contemporary society, studies of distance education often lack solid foundations to sustain theoretical advances in the field. The purpose of this paper is twofold. First, to revisit five seminal distance education theories and reorganize their tenets into three broad categories: the context of industrial and post-industrial society, distance, and communication. Second, to extend the understanding of these three core concepts, delving deeper into their theoretical foundations which are often borrowed from the domains of philosophy and sociology. The aim of this critical and reflective analysis is to make a contribution to the advance of theory development in the distance education field.

Keywords: distance education, technology-mediated-education, theory development, ICT for education

Since the early 1970s, a growing body of academic research has dealt with theory building regarding research on distance education (Amundsen, 1993; Evans & Nation, 1990; Garrison, 1993, 2000; Holmberg, 1983, 1995; Keegan, 1993; Moore, 1973, 1990; Peters, 1983, 1989, 1993). This quest for theoretical frameworks for distance education research was the focus of intense discussion in previous decades, notably by researchers from what will be referred to here as the "traditional" distance education field, i.e., distance education before the advent of new information and communication technologies, particularly web-based applications and two-way communication via satellite. Correspondence education and open education are two illustrations of traditional distance education streams. However, as this review indicates, the debate is still important in the wake of persistent discussion by more recent theorists (Bernath & Vidal, 2007; Higgs & Budd, 2007; Ritzhaupt, Stewart, Smith, & Barron, 2010; Siemens, 2005; Vodde, White, & Meacham, 2010).

The purpose of this article is to deepen a review of the literature based on five broad theories proposed by renowned theorists and researchers in the distance education field, and to undertake a reflective analysis based on two key underlying objectives: to reorganize the concepts resulting from comparison of the theories, and to delve deeper into the foundations underlying these concepts, which go beyond the original boundaries of distance education towards the domains of philosophy and sociology.

During the 1970s and 1980s several theoretical frameworks were proposed that aimed at being comprehensive and encompassing the whole area of distance education. Among them, Amundsen (1993) identified six theorists as having provided the most notable contributions to the field. We have highlighted five of these six theorists in Table 1.

Table 1. Distance Education Seminal Theories (Adapted from Amundsen (1993, p. 71))

Authors	Theory	Central Concepts	Primary Focus
Otto Peters (1983)	Theory of distance education as the most industrialized form of education	Industrial and post-industrial	Industrialized education
Michael Graham Moore (1973)	Theory of transactional distance and learner autonomy	Transactional distance (dialogue and structure); learner autonomy	Distance

Börje Holmberg (1983)	Guided didactic conversation theory	Motivation; empathy; non-contiguous communication; learner autonomy; interpersonal communication	Distance
Desmond Keegan (1986)	Theory of reintegration of the teaching and learning acts	Reintegration; intersubjectivity; two-way communication	Communication
Randy Garrison (1985; 1987)	Theory of communication and learner control	Inseparability of technology - collaborative; educational transaction; self-directed learning; adult education	Communication

From a careful analysis of the common elements of these seminal theorists in the field of distance education, two concepts emerged as central: distance and communication. In addition, particularly due to influence of the oldest of these theorists, namely Peters (1983), there is also a third underlying concept which they share: the phenomenon of *industrialized education*. These three broad concepts - or categories - provide a starting point for a deeper revisiting of the foundations of distance education.

In the next sections, these broad categories are presented and discussed: the context of industrial and post-industrial society, distance, and communication. In each of these sections, classic studies of distance education are reviewed and revisited from a more contemporary and critical perspective. In the last section, a new framework is proposed that seeks to provide new ways to understand distance education, particularly from a critical perspective.

Industrial Society

Peters (1989) was among the first to emphasize the influence of industrial processes on education and the resulting emergence of new subgroups of distance education practices. According to Evans & Nation (2003, p. 789), “[a] close reading of his [Peter’s] publications reveals, above all, that any useful understanding of educational endeavours requires a deep consideration of the cultural, economic, and political contexts in which they occur.” All theories being analyzed here hold that distance education should be treated as a phenomenon arising from socio-economic conditions typical of the 20th century. In this sense, central elements of industrial society are also present in the educational sphere, such as extensive use of technology, mass production, rationalization of organizational processes, standardization of production, division of labor, and creation of large-scale economies (Peters, 2007).

Peters (1989) often referred to an important dividing line between what he called “the industrial paradigm” and a new paradigm called “post-industrial” or “post-modern model”. The industrial paradigm is associated with a specific mode of production, consisting of manufacturing processes harking back to the industrial revolution, and one which gained fresh impetus with the advent of the bureaucratic model (Max Weber), the theory of scientific management (Taylor) and administrative theory (Fayol). Clearly, Peters built his analysis on the classic models of administration, whose research sources rely heavily on organizational studies.

The notion of distance education, created in the context of industrial society, was first associated with the traditional practices of distance education by “correspondence”. Correspondence distance education introduced a new *modus operandi* which enabled large-scale reproduction of classic classroom practices of teaching and learning. As a repercussion of this phenomenon, a new model of distance education emerged, having the core premise of creating economies of scale through massively scaled standardization of production and distribution processes of education.

The theoretical innovation that followed the introduction of the concept of industrialized education consolidated a model based on a range of initiatives and practices which gradually spread throughout the sector. In the early 1970s, British Open University became an important reference in the domain of open and distance education, serving as an inspiration that spawned other important initiatives worldwide.

Post-Industrial Society

If distance education is indeed part of the industrial paradigm, what is the meaning of the post-industrial model? According to Saba (2003, p. 12) “distance education, considered into the post-industrial and the postmodern era can be defined as a complex, hierarchical, nonlinear, dynamic, self-organized, and purposeful system of learning and teaching.” It “might be better to refer to [this change as] a shift of values” (Saba, 2003, p. 8). As Peters (1998, p. 124) noted, “[t]he consequence of this change is that the post-modern self is disposed to behaviour that no longer corresponds to distance education in its industrial character”. There has, in fact, been a deep structural change in values that allows the modern self to be distinguished from the post-modern self. According to Evans & Nation (2003, p. 785), this passage to post-modernity or late-modernity gave rise to new forms of education, such as: “open learning, flexible learning, fleximode, and open campus or virtual campus”.

Following the development of new information and communication technologies and their gradual incorporation into educational processes, the industrialized education model took on new forms. As promoted by several classical theorists, the advent of a model known as “post-industrial” is based on significant transformations which arose from a new service-based production model (Bell, 1973; Touraine, 1969) or, as Castells believes, from an information-based production model (Castells, 2010).

Alain Touraine and Daniel Bell are acknowledged as the precursors to sociological studies which resulted in the description and analysis of a new system holding sway in replacing industrial society. According to Bell (1973), this new society, characterized by a predominance of immaterial elements (knowledge and information), represents a substantial change compared to the previous structure of

industrial society. Castells (2010) introduced the concepts of the "space of flows", "material matter" and "immaterial matter" of global information networks used for real-time, long-distance coordination of the economy. According to Castells, this marks a new era in history, a new "mode of development" which is no longer post-industrial in the sense of a parallel comparison between industrial and post-agrarian society. Castells (2010) coined the term *informationalism* to describe this new characteristic phenomenon of an informational society.

Late Modernity

The transition between industrial and post-industrial society is also regarded by distance education theorists as a transition between the modern and post-modern eras. All the authors studied used both terms synonymously (industrial x post-industrial or modern x post-modern). Saba (2003) uses, therefore, the terms modern self and post-modern self, most likely influenced by Giddens' studies on late modernity or high modernity (Giddens, 1991). The distance education theorists used the term "post-modern" interchangeably with the term "post-industrial", leading to some incoherence.

The term "post-modern" can be revisited through the work of philosopher Lyotard (1979) who understood the contemporary world as dominated by economic relationships and having merchandise as its main icon. The process of merchandising in social relationships precludes the possibility of emancipation of the subject. The post-modern world is marked by a process of disenchantment across all its spheres, including the social, cultural, and political.

Habermas (1992) took an opposing stance to Lyotard, pointing out that phenomena which characterize so-called post-modernity are subject to the same conditions and characteristics as the modern era, such as processes of instrumental rationalization which are present in the world of systems and are thereby subject to economic interests and power relations. In this sense, to refer to "post-modernity" is misleading since the principles underlying the modern era have not been abolished. Instead, there has merely been an exacerbation of certain phenomena within the same paradigm. According to Habermas, these phenomena have been regarded as manifestations of late modernity. Thus, for the purpose of this article, the term "late-modernity" will be employed when analyzing distance education, as does Jarvis (1993).

According to Giddens (1991), late modernity is characterized by three key aspects: separation between time and space; development of disembedded mechanisms; and reflexive appropriation of knowledge. The analysis conducted by Jarvis (1993) of Giddens' work regarding late modernity explains its meaning:

In late modernity locality is influenced by social considerations quite distant from them. Disembedded mechanisms refer to the removal of social relations 'from local contexts of interactions', which restructure them across time and space, so that globalization occurs; ...the reflexivity of late modernity is characterized by constant change as every element in society seeks to respond to the forces of change (p. 167).

Society becomes more complex. People are exposed to huge volumes of information, changing those of their relationships characterized by locally formed social bonds. Giddens (1991, p. 1) also believes that "one of the distinctive features of modernity, in fact, is an increasing interconnection between the two 'extremes' of extensionality and intentionality: globalising influences on the one hand and personal dispositions on the other." He draws attention to "the emergence of new mechanisms of self-identity which are shaped by the institutions of modernity".

Considering that distance education has been strongly influenced by the industrial processes described by Peters, and bearing in mind that a new group of phenomena stemming from socio-economic transformations of late modernity and the informational society continue to recurrently transform distance education, it is crucial to analyze the elements derived from these transformations and to examine them through studies whose scope extends beyond the area of distance education.

It can be argued that the core and emergent features of late modernity are crucial for making distance education studies improve their theoretical foundations. Features like those outlined by the sociologists reviewed in this section represent a starting point and should be purposively addressed. This line of investigation warrants further analysis, encompassing the areas of philosophy and sociology, to investigate the underlying elements which drive and shape the main concepts governing distance education.

Although the concept of industrialized education is universally acknowledged by distance education theorists, other concepts associated with this macro-analysis require investigation, such as the notions of distance and communication. The theory of industrialized education allows us to understand how the new phenomena, particularly organizational, are subject to a set of new conditions and perspectives entrenched in an industrial and informational paradigm. More in-depth and comprehensive analyses of these phenomena will certainly go beyond the limits of distance education theory. Therefore, it is imperative to include distance education in a debate which broadens its central concepts through discussion and can redefine the original theoretical boundaries.

The section below provides an analysis of the concept of distance. This concept plays a central role in the theories of Holmberg (1983) and Moore (1973). The former coined the term "non-contiguous communication" and the latter the term "transactional distance", to denote the distance separating educational agents. Directly or indirectly, other theories stem from these two notions of distance in Holmberg and Moore. The evolution of distance education theory, especially by more recent theorists such as Garrison (1989), has gradually reduced emphasis on the idea of spatial distance. This is because new information and communication technologies allow the distance between agents (physical and inter-subjective) to be overcome via sophisticated technologies which eliminate previously existing barriers.

At this juncture, it is fitting to examine some of the notions related to distance which are held by Giddens and Castells. Giddens (1984) presents an analysis of the time-space zones which affect the relationship between agency and structure. Castells (2010) presents the concept of the space of flows, "that is a high-level cultural abstraction of space and time, and their dynamic interactions with digital age society" (p. 442). In both, the notion of distance is presented and adapted in line with social changes that took place after the transition to late modernity.

The Concept of Distance in Distance Education Theories

Review of the literature shows that a number of studies have posited distance as a central concept in their theories. Table 2 summarizes the most important distance-related concepts as well as strategies for bridging the distance gap.

Table 2. *Distance-Related Concepts Emerging from Literature*

Authors	Distance Central Concepts	Ways of Bridging the Distance Gap
Otto Peters (1983)	Industrial and post-industrial society	Individualized technology and decentralized decision-making structures
Michael Graham Moore (1973)	Transactional distance	Dialogue and structure
Börje Holmberg (1983)	Non-contiguous communication	Guided didactic conversation
Desmond Keegan (1986)	Quasi-permanent separation of teacher and learner	Two-way communication
Randy Garrison (1985; 1987)	Transactional distance	Bi-directional technologies

Peters (1983) seeks to analyze production processes of industrial and post-industrial society which impact education. In addressing industrial society, distance is treated within the perspective of new teaching institutions. Under this model, the predominance of production processes overrides the interests of individuals who are subject to these processes. The dehumanized relationship among teachers, students, and content is a feature of industrialized society analyzed by Peters. The impersonal and standardized relationships are highlighted. In the context of an industrial society, educational processes are close to production and assembly-line processes, characterized by a Fordist manufacturing model. In this model, geographical distance is not a key driver. The determinants which govern the new organizational practices are represented by the mode of production in industrial society. Distance between teachers and students is regarded as a business opportunity for the teaching institution to achieve a large volume of students who are geographically dispersed. In this context, serial production processes cater to the characteristics represented by a standardized and large-scale type of education.

Concerning the post-industrial perspective, Peters (1983) regarded distance as a barrier which can be surmounted by more finely tailored technologies and decentralized decision-making structures. Processes among educational agents can be brought closer together so as to render relations more humanized. This process of drawing agents closer together through the use of technologies is also regarded by Keegan (1993) as a re-integration of the teaching and learning acts. That is to say, the geographic distance between teachers, students, and content in post-industrial society tends, gradually, to be transcended by increasingly sophisticated technological processes. This occurs to a point where the notion of spatial distance begins to disappear altogether from analyses by more recent theorists (Garrison, 2000). The predominance of teaching and learning relationships overshadowing distance between them renders the physical distance between agents irrelevant.

New technologies allow the relationship between teaching and learning, mirrored in face-to-face models, to be restored since the agents can interact, collaborate and share with each other. The notion of distance per se is increasingly absent in distance education studies. Other terms take center stage, such as "mediated education" or "technology-mediated education" (Kanuka & Conrad, 2003). The rubric "education" dimension carries more weight than the term "distance education". Theorists stress the importance of teaching and learning which may be enhanced by the use of two-way communication resources, as reported by Keegan (1993) and Garrison (1989).

Of the theorists analyzed in the present study, two deserve special attention in relation to the analysis they performed based on the concept of distance: Holmberg and Moore. Holmberg (1995) coined the term "non-contiguous communication" to describe communication which takes place in the relationship between educational agents who are physically separated by time and place. The communication process is of two kinds: (1) one-way traffic, in the form of pre-produced course materials sent from the supporting organisation and involving students in interaction with texts, recordings and data bases, which can be described as simulated communication, and (2) two-way traffic, i.e., real communication between students and their supporting organisation, in writing, on the telephone, by fax or email (Holmberg, 1995, p. 2).

Holmberg's theory hinges on the fact that teachers and students are physically separated and seeks a means of remedying this fundamental gap between them. Holmberg believes it feasible to recreate the teaching and learning environment of traditional classrooms by use of various strategies. He selects a number of hypotheses based on several variables, such as interpersonal communication, which should serve as a means of rebuilding dialogue between teacher and student (simulated conversation), whereby communication processes would also be present at the educational structure level (communication materials and methods: printed materials, written comments by the teacher etc.), in a bid to restore the link between teachers and students in the teaching and learning process. In this sense, the crux of his analyses and his theoretical proposal centers on the concept of distance.

Akin to Holmberg, Moore (1973) also grounded his theory in the concept of distance. For Moore transactional distance is a combination of two variables: dialogue and structure. The greater the dialogue between teacher and student, the shorter the transactional distance between them. Similarly, the lower the interference of structure-related processes in the teaching and learning relationship, the shorter the transactional distance. According to Moore, transactional distance can also play a role in a face-to-face teaching setting. However, transactional distance takes center stage in the distance education setting where physical distance between agents is greater. The psychological and communication spaces which permeate the relationship between the agents, and which characterize transactional distance, actually gain a new interpretation in the processes of teaching and learning as set out in Moore's approach.

Revisiting the Concept of Distance

We claim that a reexamination of the concept of distance is crucial for distance education theories. Besides being present in all the theories analyzed, the concept takes on a clarifying role when its analysis is extended using sociology theorists like Giddens and Castells.

Evans & Nation (1990), drawing on the work of Giddens (1984), state that distance should be considered (within distance education) a concept that goes beyond "space". Giddens (1984) introduced the situatedness of social life interactions in time-space as central for understanding contemporary societies. He carried out an analysis based on Hängerstrand highlighting how the three main constraints of time-space might be used to interpret and explain how people organize themselves in time-space. These three constraints are: (a) capability constraints: basic needs (food, shelter and sleep) determine the ways in which time-space movements can be made; (b) coupling constraints: those limitations on interactions or meeting between people (access locations); and (c) authority constraints: power and its various economic, social and political ramifications. Power can be seen as reflected in people's scope in choosing to live, move and occupy where and when they want.

Giddens (1984, p. 124) also argues that "regionalisation encloses zones of time-space". Individuals act differently in public and private spaces, seeking to "sustain their ontological security". The dynamic that affects individual behaviours in social contexts, has a prominent factor represented by the interaction between the binomials - front region and back region - as well as attitudes of disclosure and enclosure. Enclosure and disclosure are signals of human agency into social contexts, which reveal an important psychological dimension in the time-space relationship.

In this sense, the transformation in time-space relationships changes the way individuals deal with new phenomena resulting from the globalization process characteristic of late modernity. The interaction between human agency and structure in the context of late modernity is influenced by a new set of phenomena, which shape new relationships of teaching and learning in a context permeated by information and communication technologies: separation between time and space; development of disembedded mechanisms; and reflexive appropriation of knowledge.

Thus, distance education mediated by intensive use of new technologies should be regarded as a phenomenon in which a group of new conditions stemming from the context of late modernity significantly affect teaching and learning relationships. This does not merely involve overcoming non-contiguous communication or reducing transactional distance by means of strategies based on the triad of teaching, learning and content. The concept of distance within this new context manifests radical change in the locus of education. This change cannot be ascribed solely to the new technological structures which affect the relationships among their agents. The dynamic inter-relationship between human agency and structure is determinant in assessing the theoretical basis of distance education.

For example, social digital networks and web applications geared by Web 2.0, like blogs, wikis, twitters, YouTube, Facebook, etc., have been affecting education processes at a distance through the deepening of participation and collaboration among their members (students, teachers, education institutions, etc.). The introduction of information and communication technologies like mobile devices (iPad, smartphones, etc.), wireless technologies and the increase in broadband access, have empowered students and individuals with...

...more control over what to learn, how to learn, when to learn and how much to learn. This maximization of learners' control over their learning activities needs to be recognized and continuously stressed in the development of modern distance education theory" (Kang & Gyorke, 2008, p. 203).

Prensky (2001) has analyzed the different behaviors between what he calls "digital natives" and "digital immigrants". For the former, who have been born after the Internet diffusion, information and communication technologies represent a natural way to interact, exchange ideas, do research, as well as read and write in a new and proper manner. For the latter, the new technologies are much more an "external instrument" that has to be appropriate in such a way as to enable the exchange of knowledge and maximization of communication. For Siemens (2005), for instance, these new learning phenomena, should be considered as a new theory called "connectivism", where the learning process emerges from "specialized nodes or information sources", distributed over virtual locations or non-human appliances. Many studies have been devoted to understanding the effects of the new technologies in the process of teaching and learning. Yang (2009), for example, studied the use of blogs to enhance critical reflection among students. Mendenhall and Tristan (2010) analyzed the cognitive processes of students in asynchronous interactions at a distance. Mendenhall and Johnson (2010) studied the development of critical thinking skills and reading comprehension of undergraduates using a Web 2.0 tool.

This is why theoretical investigations of distance education must go beyond the boundaries delimiting areas of education. The shift in the traditional locus of education starts to take on a new form. At what point this shift in locus leads to the spawning of a new educational ethos (Higgs & Budd, 2007) is a topic which warrants future study. Vodde et al., (2010) carried out studies of this matter that can shed new light on the characteristics and transformation of the self as virtual presence.

Finally, we recall the work of Castells (2010), who presents the concept of space of flows: the idea that there is a new spatial form characteristic of social practices that dominate and shape the network society. Castells conceives flows as purposeful, repetitive, programmable sequences of exchange and interactions between physically dispersed positions held by social actors. "Flows are not just one element of social organization: they are the expression of the processes dominating our economic, political, and symbolic life" (Castells, 2010, p. 442).

Therefore, education mediated by information and communication technologies assumes a new array of signs and meanings derived from the communication process created by technological mediation. All of these alterations revolve around the central notion of late modernity or informational society – symbols of the new context – and how new technologies transform the central concept of distance. These are no longer bound by the norms and standards associated with the earlier notion of geographic distance, but subject to a new set of conditions and characteristics. An investigation into how communication emerges from these theories is warranted.

The Concept of Communication in Theories of Distance Education

The term "communication" has a broad range of meanings which renders the term imprecise and

dependent on particular usages and applications. Communication is a field of studies in its own right in which many theories, theorists, and schools exist. In this section, how this concept fits within the respective theoretical frameworks regarding distance education is investigated with a view towards meeting teaching and learning objectives.

Table 3 summarizes the central concepts and focus by which five theorists deal with communication. Those theories with closer links to classic concepts of pedagogy and education, particularly those of Holmberg and Keegan, put forward the development of information and communication technologies, placing greater emphasis on communication processes as tools of pedagogic mediation between teachers and students. Since teachers and students are separated by spatial distance and employ supporting analogical materials (e.g., study guides, texts and printed content, sound recordings), the focus of these theorists is on educational context – its limitations and potential – and on proposing strategies to optimize the teaching and learning relationship.

Table 3. *Communication-Related Concepts Emerging from Literature*

Authors	Communication Central Concepts	Communication Focus
Otto Peters (1983)	Self-learning; tele-learning; social intercourse	Interactive and communicative forms of teaching
Michael Graham Moore (1973)	Dialogue and structure	Psychological and communication space
Börje Holmberg (1983)	Didactic; empathy; motivation	Psychological and communication space
Desmond Keegan (1986)	Learning materials; variety of techniques	Interpersonal communication; two-way communication
Randy Garrison (1985; 1987)	Dialogue and debate	Two-way communication

Holmberg (1983) proposes actions related to interpersonal communication in his theory of guided didactic conversation. Dialogue should be grounded in strategies such as empathy-based conversation, whose aim is to recreate ties between learners and teachers by means of simulated communication. The teacher must also deploy strategies which foster motivation in students. This entails exploiting the pedagogic structure available, including printed materials, and sound recordings, to enhance ties with learners. According to Holmberg, dialogue between instructors and learners is one of a group of strategies which traditionally belong to the "didactic" discipline under the education umbrella. Therefore, the task of guiding the process of teaching and learning falls principally to the teacher rather than the students. This predominance of the teacher in the process is a trait inherited from earlier theories of education which preceded that embracing active student participation, such as those of Freinet or Bergson, the constructivist concept of learning of Piaget, Vygotsky and Bruner (Jacquinot-Delaunay, 1998, p. 7), or the critical pedagogy of Paulo Freire. Vygotsky and others, for instance, have reduced the emphasis of the teacher's role, shedding new light on the cognitive process. These authors highlight the importance of the student during the construction of the learning process. In this way, learning is a process characterized much more by active student involvement rather than being dependent on the exclusive influence of the teacher.

In Moore's view, the seminal concept of transactional distance materializes through a set of conditions and elements represented by communicational and psychological spaces which separate learners and teachers, since transactional distance among entities gives rise to "misunderstanding between the inputs of instructor and those of the learner". On this point, Moore's theory proposes mainly to overcome "the gap of understanding and communication between the teachers and learners caused by geographic distance that must be bridged through distinctive procedures in instructional design and the facilitation of interaction" (Bernath & Vidal, 2007, p. 429). Moore presents a bundle of components pertaining to a distance education system that is composed of: sources (student needs, organizations, etc.), design (instructional design, media, etc.), delivery (videoconferencing, computer networks, etc.), interaction (instructors, tutors, etc.) and learning environment (home, classroom, etc.). In terms of instructional design, for example, Moore cites the need to develop adequate media materials "to be designed by individuals with a knowledge of instructional principles and techniques, as well as knowledge of technology" (Moore & Kearsley, 1996, p. 9). His proposal goes beyond conventional boundaries regarding the education discipline, such as the didactic actions guided by the instructor proposed by Holmberg.

By contrast, Moore (1990) builds his theory based on a new space in which interactions among agents takes place. Thus, the role played by communication is central in this space because the multiple variables which affect this communication can ultimately lessen or increase the distance between agents. Consequently, the teaching and learning relationships can become more, or less, effective depending on how these variables are handled. According to Moore, the variables of dialogue - which he also regards as a "medium of communication" - and of structure are determinants of the communicational and psychological spaces between agents. Thus, he proposes increasing dialogue between instructor and learner by employing techniques which involve interaction and feedback, such as acts of tutoring and support for the learner. Moore (1989) describes, for instance, steps to provide tutoring and support during the learner-instructor interaction. Moore mentions that educators can design written and recorded material "that aims to motivate, make presentations, facilitate application, evaluate, and even provide a degree of student affective support (counsel and encouragement to each learner)."

The more sophisticated the use of new information and communication technologies, e.g., teleconferences or computer-mediated programs, to enhance dialogue among agents, the shorter the transactional distance in the teaching and learning process. Hence, the more flexible the role of the structure, the more effective the communicational process will be. Less structured programs (flexible dates, times, and places of study) can also reduce the transactional distance between agents. Communication among agents may be mediated by analogical technology (e.g., printed materials) or digital technology (e.g., digital course content, networked computers). Communicative media undoubtedly have a significant positive impact on dialogue and structural dimensions.

Garrison (2000) holds that two-way communication between teacher and learner is imperative. The variables of dialogue and debate should provide agents with a high level of interaction in

communicational processes to enlarge the education transaction. Two-way communication is, therefore, a pivotal factor in strengthening the links between teaching and learning. Communicative processes mediated by digital technology, based chiefly on new information and communication technologies, play an important role in promoting dialogue relationships among agents. Of all the theorists investigated in the present study, Garrison is the author who placed the most emphasis on new information and communication technologies. Peters also predicted an increase in learning via new technologies, "more individualized technology and decentralized decision-making structures... only 'industrial man' was able and willing to study at a distance, in the same way as 'post-industrial man' is able and willing to study in online learning." (Bernath & Vidal, 2007, p. 434). Nevertheless, although Peters predicted the huge transformation in distance education marked by the shift from industrial to post-industrial society, many questions remained concerning potentially harmful effects of technology on educational processes. Garrison on the other hand, had predicted the huge potential of new information and communication technologies vis-à-vis these processes some 20 years before: "it will be argued that the 21st century represents the postindustrial era where transactional issues (i.e., teaching and learning) will predominate over structural constraints (i.e., geographical distance)" (Garrison, 2000, p. 3).

Given that all of the previously analyzed theories refer, directly or indirectly, to "mediated communication", the next topic intends to outline the term "mediation" from the standpoint of theorists on the convergence between communication and education.

Revisiting the Concept of Communication

According to Barbero (1987), communication as a means of facilitating the education process crosses over into the field of mediation theory. Jacquinet-Delaunay (1998) stated, "the theories of communication, akin to theories of learning, currently converge to replace the paradigm of 'transmission' of knowledge, such as values, with the paradigm of 'mediation', defined as an interpretive and relational model of knowledge appropriation".

[The concept] of mediation mechanism (*médiation dispositive*) ... allows the re-emergence of the actors, with their representations, their attitudes, indeed, their mythology, wherein one too often tends to speak only of technical 'system' or organizational 'structure'. Beyond traditional dichotomies, this emerging concept allows observation, in all their complexity, of the relationships between technical and symbolic, subject and object, and freedom and determinism, through logics of utilization (Jacquinet-Delaunay, 2001, p. 392).

We argue that education mediated by new information and communication technologies needs to appreciate how these new technological structures interact with educational practitioners. In this case, understanding the dynamic interrelationship between human agent and structure, proposed by Giddens (1984), may prove crucial in facilitating reflection on the theoretical basis of this new distance education.

Building on the above concepts of structurationist theory, Orlikowski (2000) regarded technology as both a product of human action and vehicle of human action that mediates organizational activities and acts as an enabler of certain practices and processes. One of the concepts borrowed from the structurationist view, the "technology-in-practice" idea, was proposed by Orlikowski (2000), who placed emphasis on the use of technology by highlighting the way it is incorporated into the everyday routines of people who interact with the physical properties of the technological entities.

Orlikowski's analyses of the interaction between individuals and technology are in line with the ideas proposed by Jacquinet-Delaunay (2001), who states:

In the field of teaching and mediation of knowledge, to do an analysis in terms of mechanism (*dispositif*) allows taking account of individuals considered as actors interacting among themselves and with the elements of the system itself, to articulate them in coherent fashion so as to help the learner help himself: the mechanism, in this sense, is a sort of 'attempt at instrumentalizing actors' autonomy' (p. 392).

The analyses above, when compared with the previous review of the concept of communication among distance education theorists, reveal some important points: distance education theorists put their efforts into reducing the transactional distance between educational agents, as if the medium were a neutral and non-ideological component. According to them, this can be obtained through implementation of didactic and pedagogical strategies, as well as addition of bidirectional communication technologies. On the other hand, the authors mentioned above, like Jacquinet-Delaunay and Orlikowski, seek to broaden the debate through a critical investigation of concepts, in an attempt to reveal the socio-historical dimensions of the technological mechanisms, which operate within a seemingly neutral and aseptic logic.

Obviously, beyond any neutrality, the communication mechanisms can continue to be used for reproducing domination practices in the name of performativity and managerialism. Nevertheless, they may represent an opportunity to implement practices seeking the critical emancipation of the educational agents. As a suggestion for future research on this topic, distance education should be investigated through a critical lens, in order to provide a theoretical framework based on critical education theory, aiming to deepen the discussion initiated here by reviewing the concept of mediation mechanism.

Conclusion

In this paper, a critical and reflexive analysis of theorizing in the distance education field is proposed. By revisiting and extending the analysis of five seminal theories, a contribution is made in several ways to advancing theory development in a field of study having such importance nowadays.

First of all, in order to revisit the theories above, relevant literature produced on distance education during the last 40 years was reviewed. This helped update the early analysis with recent studies, recognizing new authors and theories in addition to those already identified. The final framework proposes three broad categories that encompass previous frameworks and provide a comprehensive picture of the conceptual basis of the field: 1) the context of industrial and post-industrial society, 2) distance, and 3) communication.

A second contribution is to extend the understanding of these three broad seminal conceptual categories by delving deeper into their theoretical foundations and connecting them with the original domains within which they originated, namely philosophy and sociology (Table 4). This will allow, in next steps of this study, the construction to begin of new theoretical propositions, whose validity will be open to future examination.

Table 4. *Revisiting distance education*

Core Categories	Authors	Main Contributions
Context of industrial and post-industrial society	Bell (1973); Touraine (1969); Lyotard (1979); Habermas (1992); Giddens (1991)	<ul style="list-style-type: none"> • Post-industrial posits distance education as a service-based production model (Bell, 1973; Touraine, 1969) and as an information-based production model (Castells, 2010).
Distance	Evans & Nation (1990); Giddens (1984; 1991); Castells (2010)	<ul style="list-style-type: none"> • Three constraints to be considered by distance education: (a) capability constraints: basic needs (food, shelter and sleep); (b) coupling constraints: those limitations on interactions or meeting between people (access locations); and (c) authority constraints: power and its various economic, social and political ramifications. • Distance education as a space of flows, i.e., programmable sequences of exchange and interaction.
Communication	Jacquinet-Delaunay (2002); Orlikowski (2000)	<ul style="list-style-type: none"> • Communication is mediated; actors and their representations, values, symbols regain importance. • Distance education mobilizing mediation mechanisms (medium) and resulting in technologies-in-practice (outcome) • Information and communication technology as a non-neutral environment.

The importance of the substantive change that occurred in the transition from an industrial to a post-industrial era – late modernity – which significantly affects distance teaching and learning processes was outlined in this paper. Within this transition, the central role played by communicational processes mediated by information and communication technologies was proposed. The work of sociologists like Giddens and Castells has been extremely influential in increasing our understanding of the phenomenon, from which distance education researchers could derive additional benefit.

Giddens (1984, 1991) postulates the existence of a new space, characteristic of late modernity, which transcends the traditional physical-geographical spaces typical of the modern era. Castells (2010) presents the concept of the space of flows, that denotes “the idea that there is a new spatial form characteristic of social practices that dominate and shape the network society”. New contexts, beyond the geographical and social spaces, are created by the interaction of human agency with structure. The current convergence of time and space, affected by communication technologies, is producing different dimensions. New places emerge beyond the geographical locus, hitherto unknown in the traditional time-space relationship. As it was extensively discussed in the paper, technological mediation concepts and mediation mechanisms (*médiation dispositive*), as postulated by Jacquinet-Delaunay (2001), represent relevant contributions to the understanding of distance education. We argue that education mediated by new information and communication technologies needs to appreciate how these new technological structures interact with educational practitioners. In this case, understanding the dynamic inter-relationship between human agent and structure, as suggested by Giddens, may prove crucial in facilitating reflection on the theoretical basis of this new distance education. Of further value, as suggested by Jacquinet-Delaunay (2001), is investigation of how information and communication technologies for distance education, enabled by mediated mechanisms, constitute a non-neutral environment, where domination practices play different roles facilitating everyday reinforcement of social inequalities. Future research on these aspects could pave new roads allowing discovery of alternatives for critical emancipation of the educational agents.

More work is needed to link more purposively all these ideas coming from sociologists and philosophers and the critical issues which researchers in the distance education field are struggling to understand better. The deepening of theoretical analysis we have tried to carry out here represents an attempt to revisit old frames and to propose a new one, helping research on distance education to move forward the purely empirical research that has characterized the area to deeper, more theoretically grounded studies, for the sake of better theories and practices.

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