

Running Head: ICT and Transdisciplinary Psychology

Information and Communication Technology and Transdisciplinary Research in Social Psychology

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Abstract

In this paper the conditions that allow transdisciplinary studies are discussed as well as the differences between *inter*, *multi* and *transdisciplinary* approaches. An argument concerning the challenges in Psychology to embrace a transdisciplinary approach and role of information and communication technology in the development of transdisciplinary research is explored. At the same time the relevance of information and communication technology as a research topic in social psychology from a transdisciplinary perspective is provided. As concluding remarks at least three challenges are discussed in the development of transdisciplinary approaches in higher education institutions, especially in Latin America and the Caribbean contexts. These challenges are: the construction of a translinguistical environment, the development of a technological culture and the transformation of the organizational culture.

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Transdisciplinary research is found across disciplinary boundaries, as a complement to disciplinary research and an attempt to untangle the forms in which the production of knowledge is interweaved within the social fabric. Multidisciplinary and interdisciplinary practices have already recognized the need to take into consideration diverse perspectives of a phenomenon or problem under study. The first question to be addressed is: what are the differences between *trans*, *multi* or *inter* disciplinary approaches? Nicolescu (2002) - *Center International of Recherches et Etudes Transdisciplinaires* (CIRET), Paris- has already pointed some distinctions.

From a multidisciplinary perspective, the research topic is approached from several disciplines simultaneously. As an example, this author, mentions that a painting made by Giotto can be studied from the perspective of the History of Art, but also from the History of Religion, from European History, from Geometry, etc. The analysis can be enriched when the topic is studied from diverse disciplinary fields of knowledge. Likewise, it can be argued that from a single discipline view point analysis is enriched when multidisciplinary perspective is embraced.

In contrast, the interdisciplinary perspective transfers some methods of analysis of one discipline to another. Nicolescu distinguishes three degrees of interdisciplinary approach. Firstly, we have the transference of applications (for example, when the nuclear physics is transferred to a medical application). Secondly, the epistemological dimension refers to, for example, the translation of methods from a formal logic to the area of general law, generating a new analysis of epistemology of law. Finally, the production of new disciplines refers to the moment when the mathematical methods, for example, are transferred to physics to generate mathematical physics; or

are transferred to stock market analysis to produce financial engineering; or are transferred to the analysis of the atmospheric phenomena generating chaos theory; or when computational methods are transferred to art, thus producing electronic art. The goal of interdisciplinary work, just like the multidisciplinary one, remains within disciplinary boundaries, but establishes communication channels amongst the different disciplines.

The prefix *trans* simultaneously refers to something that is *between*, *across* and *beyond* the disciplinary borders. The transdisciplinary approach presupposes that reality is composed of various discontinuous levels. This principle is inherited of quantum physics². The disciplinary research stays at a single level of reality, fragmenting that reality. Transdisciplinary research, on the other hand focuses the analysis in the dynamics amongst the diverse levels of reality. This does not deny that transdisciplinarity can be nourished from disciplinary research, and at the same time, disciplinary approaches are fortified and clarified by the transdisciplinary research because transdisciplinarity supposes a complex approach to the definitions of the object of study and its analysis (Nicolescu, 2002).

This approach turns out to be troubled for what has been considered traditional psychology. The historic development of this discipline has been deeply rooted in methodological individualism built upon positivist reductionism at the end of the 19th century and the beginning of the 20th century. This legacy establishes an inexorable link between the disciplinary field and its political dimension in the context of Modernity. Social psychologist, Tomás Ibáñez (1990) indicates that Modernity supposes a redefinition of politics in terms of *intervention*. That is to say, it becomes the process of engineering and administration of the social fabric. Central to this process is the main purpose the production of a collective desire that rise from different population sectors willing to

participate in a development of the new order committed to the development of industrial capitalism; even when this goal was produced at the cost of the exploitation and annihilation of other territories and their populations.

The verb *intervenire* comes from the Latin, *inter*, inter- plus *venire*, to come, and signifies “to come between” two entities or substances. I would like to emphasize here the *volition* and *mediation* aspects that are implicit in its meaning. That is to say, *intervening* supposes an act motivated, by the triangulation of the social event. The first aspect implies the will to intervene and the proficiency in the skills required for the *know how* of the intervention: that is the knowledge of methods and intervention techniques to produce determined effect on the population. The second aspect, triangulation, is generated by a third presence (invested of such authority) that mediate between two entities.

Who would be the actors in this triangular plot? The alliance between state- capital, that characterize the development of capitalism, required a crew of professionals from the social sciences collaborating with the understanding and administrative process of the “the social thing”; that is the assembly of institutions, as well as the emerging organizations of the so called civil society that impact public policy. The disruptions in the social order emerging inside the development of capitalism and its concomitant political formulae – authoritarian states, welfare states or *laissez faire* - have required of that crew of professionals intervening with the targeted populations and collaborating from a wide array of locations to produce the desired order and administration. From the social science’s work fields, Psychology turns out to be a particularly important power device because it intervenes exactly with the imaginary motor of the contemporary and modern development, the subject as an individual and its relation to the world. The

proliferation of psychological discourses arises from the nature of this relationship. It is not my intention to debate the proposals of these psychological discourses, my interest here is to accentuate the fact that those different proposals constitute an important source of discrepancy in the psychological discipline and that the methodological individualism and its “interventionist” *bias* constitutes an Achilles’ tendon for a transdisciplinary project from the psychological field.

The critical approach to methodological individualism and the discrepancies regarding the relation of the subject and its social milieu is not new. These themes played an important role in the epistemological debate in the Social Psychology of the sixties and seventies decades. In this debate-known as “crisis of confidence of Social Psychology”- the theoretical bases of the discipline, the legacy of positivism in the psychological research, the process of Americanization and the political relevance of the discipline were put into question (López and Zúñiga, 1988; Tajfel, I. 1972, Parker, 1989, among others).³ In the political arena these debates correctly identified the disciplinary complicity with the established order. At that time, the questions that remained to be discussed were: “from what point of view” and “what for”, questioning the underlying reasons for the elaboration of psychological discourses. It was intended to assume the political aspects of the psychological practice and the ideological stance of the research. Nevertheless, with the active contribution of the State- through regulatory practices- the disciplinary project remained almost unharmed. Even the “dissidence” – some of the critical positions- supposed there was a “something” that should be rescued as disciplinary knowledge, with its assembly of methods and techniques, even when there was not a consensus regarding what psychology is about. In other words, still when such a thing is built in multiple forms, most of the times with contradiction amongst them. Subsequently, various axes of possible discussion that in the past have questioned

psychology as a discipline and opened the possibilities of other perspectives shall be outlined amongst them, transdisciplinarity; even if it could imply dislocating old certainties and privileges.

In the first place, the issue of indeterminacy of the subject, and consequently the impossibility of the predictability of the human behavior should be faced. This discussion is associated to the *complexity paradigm* and *second order social research* (Morin, E., 1986; Ibáñez, J., 1985), and to the epistemological and ontological consequences of the quantum physics (Ibáñez, T., 2001, among others).

Secondly, there is the questioning of the role of the universities, its mission and its political stance which conveys disciplinary knowledge. This debate is related to the crisis of knowledge, as with the recognition that the universities generate hierarchical orders, in which canons that delimitate knowledge boundaries are consolidated, maintaining a symbiotic relation with power structures. This is very well recognized by students from the onset of very early stages of their thesis and dissertations when they try to formulate an acceptable research proposal within the disciplinary order. Also, it is well known by junior professors in their pursuit for tenure tracks and promotions.

Thirdly, the global/local intersection - that some have called *glocal* – proposes an imaginary subject that destabilizes the already precarious understandings about the *subject* as a psychological *object*. We may differ from the interpretations regarding what constitutes globalization, as to when does it begins and its role in the development of capitalism and politics. Yet, we cannot deny the fact that, nowadays, the economic and political relations among different geographical regions have become increasingly more interdependent. Decisions taken in one territory have significant impact on the social life of other territory. Information and communication technologies (ICT), the

transformation of how work is organized and the emergence of flexible capital accumulation, promote rapid changes in life styles favoring diverse interpretations on what constitutes *contemporaneity*. For some, it refers to the postmodern condition that signalizes the limit of the Modernity project, while others prefer to speak in terms of *hypermodernity* or *ultramodernity* to put the emphasis on Modernity as an unfinished project that faces the extreme consequences of its own foundations. Independent of our sympathies in this debate, it is evident that the contemporary scene favors the emergence of complex subjectivities that are moving away from the traditional understanding of the *subject* as the *psychological object* of the experimental design, of whereby quantification and behavior measurements, etc.

Fourthly, the dichotomy *academy/profession* should be questioned. There is a multiplicity of experiences outside of the academic world that on a daily basis feed the debate and the critical approaches in the development of knowledge in different social settings in which the psychologists work. Besides, as Parker (1999) mentioned, the production of the psychological discourses has impregnated other areas of the professional activity, for example education and social work, where some experiences have generated relevant questionings to the psychological discourse. Finally, the fact of the matter is that professional practice is also generated in the academy. Through internships and different academic programs theory and its applications are rehearsed, breaking way for it enrichment later when the professional becomes part of the workplace. Thus, we propose the need to revise the parameters of academic formation. If we assume as valid, previously outlined scenario with the suggested concerns that arise from it, we would have to establish that there is no other way to practice psychology in all its dimensions- teaching, research and professional practice- than from

a transdisciplinary approach. As my colleague Ian Parker (1999) stated when addressing the term *transdisciplinary*:

It is not only 'interdisciplinary', in the sense that it must draw upon arguments ranging across the academic and professional landscape, but 'transdisciplinary' in the sense that it both questions the ways in which the borders were set up and policed by the colleges and training institutes and it stretches from the furthest edges of the psy-complex to the center of psychology. (Parker I. 1999; p.8)

The information and communication technologies development is also pertinent to transdisciplinary research triggering some challenges to psychology, particularly to social psychology. The so called cyberspace, although a polysemic concept, is at the same time natural and artificial. Its basic code- machine language (0, 1) -constitutes a sort of translation in mathematical terms of microphysical processes. Consequently, it is Nature, even though at the same time is artificial, its language (basic code and mathematical equations) are elaborated by the human intellect (Nicolescu, 2003). "Thus, as in the quantum world, abstraction is not a tool for describing reality, but an inseparable component of reality" Nicolescu (2003: p. 76). Some authors have expressed the generative matrix of human-machine relationships (Haraway, 1991, 1997; Gray, et. als. 1995). The natural-artificial aspect (*hybridity*) imposes serious questionings to the human-machine interface reinstating as topic of discussion the tensions, negotiations and reconciliation of these two dimensions, as well as the social construction of what we use to call, reality.

Nevertheless, to these date the approaches used in the field of psychology to address the study of techno and cyberculture, follow the most traditional tendencies in psychology; especially its reductionism, psychologism and its strong approach in pathologizing the subject as a computer user. In addition, other instances where ICT has been acritically addressed in the academic and professional scenario, subsequently will be focused.

At present Cyberpsychology is the study of people's behavior and participation in the cyberspace. Many of these approaches just transfer traditional face to face psychology to the always dynamic and emerging phenomenon of human-machine interface instead of questioning psychological categories, the theoretical stances which gives rise to such analysis and its consequences. An example of a cyberpsychological approach is illustrated by the work of Suler (2001), *The Psychology of Cyberspace* .

In 2000 at the American Psychological Association (APA) Convention amongst the most frequent topics were the relationships between the Internet and Psychology. Reviewing *APA Monitor* for that year, reveals various articles on this topic with very enthusiastic titles, replenished with vanguardism, yet lacking of critical scope in addressing the issues. Some examples are: Chamberlin (2000)- *Psychologists' s work and dreams led to the rise of the Internet* on the work of J. C. R. Licklider (visionary of e-commerce) and the article of Foxhall (2000)- *Psychology as a leader in Internet culture*- referring to Russ Newman (one of APA executive directors) opinions on the matter.

In contrast, more critical perspectives situate cyberpsychology as a study area intertwined with cybernetics, history of art, technoscience and politics (see for example, Gordo-López and Parker, 1999). From this perspective, the relationship technology-subjectivity explores the links between psychological culture and cyberculture, technoscience and biopolitics. Nevertheless, this is not the most predominant trend in this area. On the one hand, the underlying rationale that legitimizes the absence of this more critical approach is the solid centralization of the psychological task within the boundaries of reductionism that focus on the person behavior as an individual phenomenon. On the other hand, the marketing of a professional imaginary self-contained in a

disciplinary border has been profitable for some sectors. Professional regulations pertaining to the practice of psychology, act as an important device to reproduce and perpetuate this imaginary.

Disciplinary borders are challenged from other research agendas. Transdisciplinary studies are being conducted in cyber and technoculture research. As an example, Samuelson (2003), in his project *Territories Ourverts/ Open Territories*⁴, situates telepresence's axis on the social presence sphere. After discussing the historic precursors of telepresence technology known as *media spaces*, and the uses of the telepresence in domestic environments and other social spaces, he identifies three theoretical vectors for research. These are: the physical axis, the social and the existential axis. The physical axis is focused on embodiment, deals with the quantifiable, tangible, and perceptible aspects of presence. It is associated to the concept of *telepresence* proposed by Marvin Minsky⁵; as physical presence that perceives and acts. These technologies include robotic, interactivity, remote control and virtual reality, amongst others. Research in the social axis is in charge of the social aspects of presence, includes the diverse forms in which the human beings interact among each other and with their environments and the ways in which technologies can facilitate, hinder or affect these interactions. In this sense, presence has a social dimension because of its capabilities to interact, to communicate and to have experiences. Technologies associated to this type of presence include videoconference, phone system, virtual environments with avatars, chat rooms, MUDs, MOOs,⁶ etc. The existential axis works on the philosophical and artistic dimensions, utilizes the technologies to produce presence as a starting point. These tools question the nature of the experience and our relation with the social and physical realities. Chescher (cited in Samuelson, 2003) indicates that what was more disturbing about experiencing new systems of telepresence, until they become "natural" by familiarity, was how they call into question our assumptions about

supposedly natural and unmediated presence. This research approach recognizes diverse levels of reality in proposing concrete dynamics and interrelations between them. It is produced across the disciplinary boundaries, as condition and also as a by-product of the disciplinary system.

From another point of view, Wark (2006) proposes that disciplines emerge historically in the struggle for knowledge which is determined by the intersection of a given technology of knowledge, within a given political-economic regime to maintain scarcity. Wark alleges that disciplines are not managing the abundance of knowledge, but to the contrary, function as an artificial means to limit the access within a regime of power/knowledge by its own politics of hierarchy, arbitrary division and economics of exclusion.

Nowadays, the technical obstacles for liberating knowledge have declined. Wark says that from the press to the Internet, the communication of knowledge across time and space has become more efficient. In this sense, the technical limits of the knowledge/media disappear. The scarcity regime becomes especially political and economic, the logic of proprietorship (publishing houses, universities, professional associations, licensing markets, etc.) impose a mercenary state that restrict the free flow of knowledge. Take into consideration, for example, the bargaining process of university libraries trying to obtain better prices for bibliographical references and other databases that are controlled and monopolized by large companies. To slightly mitigate this situation, educational and research centers should be using and promoting *open sources* (OS) alternatives⁷, operating systems, softwares similar to Microsoft Office, wiki pages, courses content management softwares, etc. In addition, *Creative Commons* has become an important movement in favor of the democratization and the free creative flow of knowledge. Finally, facilitating spaces for

information exchange and that promote free circulation of technological media constitutes one of the challenges that should be assumed.

The academic and professional psychology framework is built on the principle of scarcity. Labor protecting strategies (such as, examining boards and an increasing appeal to certify areas of specializations) and the relative delay embracing theoretical debates that in other disciplines have constituted the basis for the production of new knowledge and innovation clearly pursuit this goal. The increasing emphasize on knowledge specialization has generated the conditions for the emergence of new forms of knowledge production. The link between science and the social dimension, as the space/temporal context, are even more implicated in the processes of knowledge production. This inevitable interweaving is suggested not only from the academic point of view, but from the dynamics of the labor market as well.

In higher education institutions, the expansion of graduate program and new knowledge areas that developed across disciplinary boundaries, are some of the consequences that affect the production of knowledge. Studies reveal that labor markets competitiveness, as well as growing specialization, are factors that have collaborated in the expansion of graduate programs (Institute for the Higher Education in Latin America and the Caribbean , IESLAC, 2006), representing important challenges for the institutions of higher education in Latin America and the Caribbean.

The study of the International Institute for the Higher Education in Latin America and the Caribbean (IESLAC,2006), indicates that the development of specialized and transdisciplinary knowledge is focused on graduate programs, with some consequences for the transformation of higher education institutions. The internationalization of graduate education (the flow and exchange of students and educators among countries) are not equitable for the Latin America and the

Caribbean countries. This region exports a large quantity of students but is the region of the world least chosen as destiny of foreign students according to UNESCO statistics⁸. Nevertheless, in the context of what has been called the knowledge society, the emigration of students and educators to institutions abroad would suppose a transformation of the educational environment toward greater flexibility and tolerance to change, the production of multicultural and multilingual environments, and to approach to educational centers located across knowledge boundaries (IESALC, 2006).

It is not surprising that transdisciplinarity goes hand in hand with a transcultural opening. The complex plurality of cultural forms that could coexist in a same environment speaks about the variety of facets of the human beings. Nicolescu (2002) points out the challenge implied in the production of translinguistical spaces facilitating the dialogue among cultures and preventing homogenization. This would be a fundamental aspect in the production of transdisciplinary research. The creation of transcultural spaces can be facilitated by new digital technologies; for example, automated translation – even if the outcomes are not optimal- could be used to capture the general message of a text. This tool is already used by e-commerce, and even the use of professional translation and cultural contextualization in websites is strongly recommended as an aftermath of acknowledging that communication and understanding is vital for the development of this area. Nevertheless, this effort is not evident in professional and academic contexts. It would require, not only the disposition to deal with the complications of providing a multilingual environment, but also to defeat the ideological obstacles that are implied in the discursive construct, the “official language”, as a *sine qua non* condition of academic exchanges.

The previously expressed ideas do not mean that it is a matter of reducing the academic affairs to the use of certain tools, but to recognize the value that these tools have for the development of the academic work and promoting its critical use. This last possibility cannot be generated without the aid of research on these technologies and how these transform the construction of knowledge, everyday life and subjectivity. This research agenda would be inexorably transdisciplinary.

Integrating ICT and media technology in the curriculum should be understood as an innovative process, where three interrelated areas are affected: the educational professional development, institutional organizational development and curriculum development (Strap, cited in Council for Higher Education of Puerto Rico ,CES, 2004). The Council for Higher Education of Puerto Rico proposes three aspects to be taken into consideration in this process: conceptualization, implementation and practice. It is emphasized that ICT integration in educational settings becomes innovative when these are situated in the didactic and curricular context, otherwise it would be a matter of mere introduction of hardwares and softwares.

Other researchers of new tendencies in higher education agree with similar positions. Blanco (1999) has characterized controversies associated to the concept of *hyperuniversity* as a challenge to the Latin-American universities, and the forms in which new technologies redefine university contexts in the contemporary world. The integration of ICT in the educational context does not depend so much on the technological availability and functionality, but on the capacity of university community and stakeholders to create a new political, pedagogical, administrative and financial framework where educational technologies find its sense within the so called knowledge society (Ferraté, 1988; founder and former Chancellor of the *Universitat Oberta de Catalunya*,

UOC). Finally, the National Science Foundation, NSF (2002) in its report, *Science and Engineering Indicators*, mentions that -contrasting technological advances in semiconductors, networks, applications, etc.- the interaction between ICT and its social dimensions are more complex. Although information technologies have improved considerably in most cases, the relevance of these changes for the users is slow and scarce in many cases. Social factors (for example, organizational habits) impact how technologies are used and incorporated. To achieve a greater impact of these technologies an organizational transformation with respect to the roles and the procedures is required. The interconnected computer networks are a fundamental key of communication circuits in the development of curriculum and research. The potentialities of these technological systems are exponential. When this potential is embraced not only from an instrumental perspective or *hype*, but undertaking what it implies for the production of new knowledges we encounter, we nevertheless encounter the need to assume a transdisciplinary perspective.

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Notes

¹ Paper presented at the International Society for Theoretical Psychology (ISTP) Conference- Theoretical Psychology Beyond Borders: Transdisciplinarity and Internationalization- June 18 to 22, 2007, York University, Toronto, Canada.

² For Nicolescu (2002), transdisciplinary study is influenced by the principles of quantum physics. “The three pillars of transdisciplinarity- levels of Reality, the logic of the excluded middle, and complexity- determine the methodology of transdisciplinary research.” (p.45).

³ See for example the collection of texts edited by N. Braunstein, et. als. (1975), *Psychology, Ideology and Science*.

⁴ *Open Territories* is located in Montreal, Canada, it groups researchers, programmers, artists, centers of art and collaborators from public and private sector, to develop the tools and the computational and technological infrastructure for the creative use of high speed transmission networks. The project is divided into four axes. Two of them are dedicated to the development of technological infrastructure and technique for the processing and transmission of audio broadcast and video on Internet Protocol (IP), as well as applications for the codification and combination of signs. The other two axes are telepresence and environment immersion, designing network access artifacts for the users.

⁵ Marvin Minsky of the MIT has done important contributions in the area of Artificial Intelligence, cognitive psychology, math, computational linguistic, robotic and optical research. His proposal on the human intellectual structure is found in its book and CDROM, *Society of Mind*.

⁶ MUD refers to virtual environments, *Multi Users Domains*, and MOO refers to *Multi Users Domains Object Oriented*.

⁷ *Open Source* softwares permit the utilization and alteration of the programming code, some of these applications are freeware while others are accessible by reasonable price or shareware, and in either case the provider does not have exclusive control over the product.

⁸ IESALC (2006) reports that Latin America exports students, but at the same time is the region of the world of least chosen destiny for foreign students; accordingly to UNESCO Institute for Statistics’ report-*Tertiary Students Abroad: Learning without borders* –Latin America is selected by .6% of the total of students studying abroad in a global scale (<http://www.uis.unesco.org>).