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**“LAS CUATRO FLECHAS DEL CONOCIMIENTO APLICADAS AL  
TURISMO”**

***“THE FOUR ARROWS OF KNOWLEDGE APPLIED TO TOURISM”***

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# THE FOUR ARROWS OF KNOWLEDGE APPLIED TO TOURISM

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## resumen

*Este estudio encuentra su origen en la consideración de que la plataforma del turismo basada en el conocimiento científico ha sido construida sobre una visión holística del turismo, según la cual el objetivo principal es la formación de un cuerpo científico de conocimiento en turismo. El objetivo principal de esta investigación es superar las fronteras del reduccionismo, que analiza los impactos y las formas de turismo así como su visión como un todo, y proponer una visión holográfica en la cual el todo no es más importante que las partes ni viceversa. Esta visión refleja el paradigma de la complejidad desde la cual es posible construir un conocimiento del turismo en el cual la ciencia y el resto del conocimiento del hombre están integrados, avanzando una propuesta para la educación en turismo.*

**Palabras clave:** *visión, conocimiento, complejidad, integración, educación.*

## abstract

*This study originates from the consideration that the platform knowledge-based tourism is built on the holistic vision of tourism in which the main objective is the formation of a scientific body of knowledge on tourism. The main objective of this research is to overcome the boundaries of reductionism that analyzes the impacts and forms of tourism but also its vision as a whole, and to propose a holographic vision in which the whole is no longer important to the parties neither vice-versa. This vision reflects the paradigm of complexity from which is possible to build a knowledge of tourism in which science and other human knowledge are integrated, and to advance a proposal for education in tourism.*

**Keywords:** *vision, knowledge, complexity, integration, education.*

## 1. introduction

From the 18th century, with the Enlightenment, the separation of the natural sciences and philosophy starts to be implemented. From the next century in universities emerges a disjunction between the humanities and the social sciences. In the modern age, science is explained by empirical laws and intervenes in nature through experiments. In the industrial age, the progress of society depended solely on the advancement of science and its technological innovation.

The development of science as well as the idea that scientific knowledge is universal, explanatory, and demonstrated to be true by pre-defined methods, is built upon the separation between scientific and the rest of knowledge. The concept of knowledge assumes two distinct meanings, one narrow and the other one wide, and they are separated one from each other. The first one emphasizes the dimension of cognitive science and it is bounded with the concept which has spread in the West, in the renowned "society of knowledge".

The second relates to the culture, to the symbolic universes, including the mythical, religious, ethical and common sense knowledge, which spread in the "society of culture" (Costa, 2006: 34). However, in the English language this separation does not seem to exist, at least from the semantic point of view, given the use of the term knowledge to express both *cognoscere* and *sapere*, which difference is recognized in the Latin and in the languages derived from it.

This context continues to subsist even nowadays. On one hand, there exists a division of science into branches, and on the other hand, the separation is between the science world and the external, technical, practical and life world.

The purpose of this research is not to belittle the role of science and neither to confirm it as undisputed dogma but rather to emphasize the need to promote its internal and external communication between disciplines and beyond it, towards a new building and transmission of knowledge in general, and of knowledge of tourism in particular. In order to do that, it is necessary to think on a "third culture", able to integrate scientific, artistic, technological and metaphysical cultures, while respecting their diversity.

The integration represents also a way to build the future education of the human being in general, and of the tourism students in particular. The achievement of integral education depends on the integration of values, actions and thoughts. It is not based on a mere development of a scientific culture, directed to the design of curricula built upon the intentions, goals, skills and abilities, whose price is a denial of the Subject and the subjectivism of the object. The man is not an object reducible to his mind, and the human life, of which the science should satisfy its needs, it is not only understandable between and across disciplines. The need to transgress the boundaries imposed by disciplines stems from the fact that human life, except for the one in *vitro*, has not boundaries.

## 2. the concept of knowledge

The title of this work research represents a first attempt of the author to orientate the building of knowledge in tourism as well its future education on the concept of integration. Indeed, if the integration, expresses also the encounter of different concepts, it seeks appropriate to coin a new term as "knowleducation" as a starting point to follow the integration way.

Although, as it will be described in the text, the communication between different concepts is one of the multiple aspect of integration which can involve theories, approaches, methods and methodologies of different disciplines, and knowledge of the not scientific world. The integration will also represent one way to spread a new vision of the world in general, and of tourism in particular. This research is mainly directed to three objectives:

To highlight the effects of a knowledge platform based only on the formation of a scientific body of knowledge.

To underline the widespread recognition of the integration employed in scientific disciplines, study areas and tourism, and its opportunities for enhancing the communication between and across sciences, and beyond them.

To support a proposal for the education on tourism based on transdisciplinarity, integration and complexity, which could represent one way to go beyond the current knowledge based platform.

The paper starts with a critical reflection on knowledge-based platform on tourism which objective is the formation of a scientific body of knowledge. Before to deepen on the specific knowledge of tourism, it is important to clarify that in this paper, the intention is not to deny the value of science in the evolution of man. In fact, science was created with the man as he tried from the beginning to understand his surroundings, asking continuous questions and trying to find answers through experience and creating ways to think and act. The rigor attributed to the scientific method has led man to create theories and laws believed to be constant, unchanging, objective and universal. However, especially in the research of the social reality, the world turns out to be not constant and universal but rather uncertain, complex and problematic.

What is important to underline is that by the mere fact that science is born with the man and should satisfy his needs, cannot be separated from the culture which in itself is the essence and means of ascent of man (Pupo, 2011), and embeds its qualifier attributes such as communication, values, practices and communication (Tomillo, 2009). The science is called upon "to facilitate the human community rather than producing divisions within it" (Grobstein, 2005). Although, if the science continues to entrench itself behind the perception that is only for "chosen people", it will not foster the development of the human community, but only of the scientific community. Furthermore to think that a scientific method is an expression of absolute truth means to deny the evolution of science which is

characterized by the provisional nature of its theories and methods, which might be overturned and exceeded, in whole or in part, by additional theories and methods which, in turn, are likely to be continually challenged.

Therefore the objectivity of the method is likely to be challenged as science is not stable but follows a continuous change. In addition, science involves the doubt, but from it, and together with its provisional nature and his open-mindedness, that the strength of science arises, as stated by Quigg (2003).

This premise is necessary to justify the importance of integration between science and culture as a basis of a new vision of the world which is not reductionist or holistic but holographic in which whole is no longer important to the parties neither vice-versa. This complex vision could be applied to enhance knowledge and education of tourism which continues to be an object of debate about its scientific identity.

Although the intent is to bring together the scientific and the non-scientific world, this research work will focus on the concept of integration.

The interest on deepening the meaning of integration concept arises from a publication of the Organization for Economic Co-operation and Development (OECD), entitled *Los impactos de la cultura en el turismo* (The impacts of culture on tourism) in which it was stated that the managers of tourism and those of culture should integrate their respective jobs.

Indeed the literature review begins with the research of the meaning of integration that is found to be used in several sciences, such as in the pure sciences, like mathematics which recognizes a theory of integration; in the social sciences, and particularly in sociology where the concept of anomie is recognized as the opposite of integration, such as developed by Durkheim, and also in psychology, in psychoanalysis, in law, in economics, in political sciences as well as in geography, and also in the humanities such as in philosophy and philology. Moreover this polysemic concept is widespread also in the common language, among journalists and politicians.

Moreover, some connection exists between integration and interdisciplinary and transdisciplinary approaches, as well as a clear distinction from the concept of participation. The latter refers to the exchange of knowledge that already exists, while integration is related to the creation of new knowledge and theory. Integration exists only in interdisciplinary and transdisciplinary approaches; while participation can arise also in a multidisciplinary approach, in which different academic disciplines are focused on one subject, but with multiple disciplinary goals. Only when the boundaries between and beyond disciplines are crossed, there exists integration. The different degrees of integration between interdisciplinarity and transdisciplinarity refer to the nature of knowledge. In the first approach, only the scientific disciplines are integrating, while in the second approach, the integration goes beyond disciplines, towards non-scientific knowledge.

Furthermore it appears that, among the areas of knowledge that are gradually interested by the integrative studies, not only the landscape studies stand but also tourism. Among the frameworks for research in tourism, the integrative are those intended to skip and get rid of barriers between the different languages used in the research and field of tourism. The integrative frameworks of tourism seek to apply the integration to contents but also to the theories and approaches as well as traditionally methods and methodologies used in tourism, which favour the emergence of more established areas of research, the synthesis of what it is already known and the highlight of critical areas for future research.

The last phase of the literature review has also highlighted the connection between the concept of integration, especially in the transdisciplinary approach, and the paradigm of complexity, which formed the basis to support a proposal for a transcomplex education in tourism.

## 2.1 four arrows of knowledge

The sense of direction towards knowledge can be indicated by four arrows that are not antagonistic but complementary. They are disciplinary, multi or pluridisciplinarity, interdisciplinarity and transdisciplinarity. In particular: "Disciplinarity is an approach to a particular problem space using a single, identifiable collection of methods informed by or in the service of a single body of Knowledge. Multidisciplinarity is an approach to a particular problem space using coordinated outputs from distinct collections of methods informed by or in the service of respective distinct bodies of knowledge. Interdisciplinarity is an approach to a particular problem space using integrated outputs from combined collections of methods informed by or in the service of combined bodies of knowledge" (Blevis and Stolterman, 2009: 48).

As the prefix "trans" indicates, transdisciplinarity concerns knowledge between the disciplines, across different disciplines, and beyond all disciplines. Transdisciplinary research aims, on the one hand, to overcome the gap between knowledge creation, and on the other hand, the demand for knowledge to contribute to the solution of social problems. It is a theoretical approach in which researchers from a wide range of disciplines work together with stakeholders.

However, it is necessary to recognize that transdisciplinary, as well as the interdisciplinary cannot exist without the disciplines and their specialists. The disciplines also serve to demarcate the boundaries between them even if they are dynamic. Only if the disciplines boundaries are delimited, it is possible to think to jump and to get rid them. In other words, it is through discipline that may exist interdisciplinarity and transdisciplinarity.

In order to have a cross-fertilization from one discipline to another, it is not enough to juxtapose the disciplines in an additive form but it is necessary to develop at least one cooperation between specialists of several disciplines which aim is a mutual understanding

and enrichment. These aims exist in the interdisciplinarity and transdisciplinarity but not in the multidisciplinary research.

Although, the most ambitious challenge is represented by transdisciplinarity in which the boundaries of different knowledge disappear through their integration in a point of connections called hidden third. Here there are not knowledge of science and knowledge of culture but both integrated in an unique knowledge.

### 3. phases and methodology of transdisciplinary research

An early call for 'Transdisciplinary Research' can be found in the report of an international conference on education sponsored by the OECD in 1970, even for its official recognition as an approach, was necessary to wait for the Symposium "Science and the boundaries of knowledge: the prologue of our cultural past", held in Venice on March 1986.

Nowadays Transdisciplinary is now a well established and expanding field of science which implies a well-defined methodology. In the absence of a methodology, transdisciplinarity would be just talking; while the formulation of its methodology has been accepted and applied by researchers in many countries around the world, as indicated in the website of Centre International of Transdisciplinary Research and Studies (CIRET).

The three axioms of the methodology are:

1. The ontological axiom: There are, in Nature and society and in our knowledge of Nature and society, different levels of Reality of the Object and, correspondingly, different levels of Reality of the Subject.

2. The logical axiom: The passage from one level of Reality to another is ensured by the logic of the included middle.

3. The complexity axiom: The structure of the totality of levels of Reality or perception is a complex structure: every level is what it is because all the levels exist at the same time" (Nicolescu, 2010b: 24).

These axioms serve to understand that the disciplinary research concerns a single level of reality based on classical or linear logic and accepts a Reality as being the ultimate truth, while transdisciplinarity concerns the "dynamics engendered by the action of several levels of reality at once" (Nicolescu, 1997: 3). When there is a break in the laws and in the fundamental concepts, there are two levels of Reality. In other words, the content of single academic disciplines cannot find complete and valid solution to the global problems, such as uneven income distribution, overpopulation, neo-imperialism, destruction of ecosystems, lack of vision of human development, etc. These problems are complex systems problems requiring system solutions based on the adoption of a new non-reductionist view of human development, and a system thinking in order to unite traditional disciplines "beyond the classical notion of science and fill the knowledge gaps between them" (Cesar, 2012: 2).

Nicolescu (1996) argues that most of the academic disciplines consider only one level of Reality based on the classical logic, they accept. The disciplines are not "the complex, multi-level structure of reality ". They are only windows which through them, it is possible to look and learn certain aspects of Reality. For this reason, disciplinarity is related to reductionism. (Nicolescu, 2010a)

### 4. platforms and visions of tourism knowledge

The internal and external separation of science and its supremacy also affects the building and the transfer of knowledge of tourism. In fact they encourage the adoption of partial visions of tourism and the inevitable fragmentation of knowledge. If on the one hand, the variety of disciplinary lenses with which tourism is approached, generates an abundance of its concepts and definitions, on the other hand, it leads to confusion and uncertainty. In fact, there is no definition of tourism recognized by the whole scientific community and this affects the formation of a consensus about its scientific identity, founded on the need to establish a proper object of discipline.

The partiality of these visions is also expressed by the platforms with which it is studied tourism for fifty years now. Jafari (2005) distinguishes it in:

Advocacy Platform (1960) in which the positive impacts of tourism, perceived as beneficial to society and the economy, are highlighted.

Cautionary Platform (1970) where, in contrast to the previous platform, tourism is seen as a threat to nature, culture and economy. This vision is always focused on impacts, albeit negative.

Adaptancy Platform (1980) in which the paradigm are the forms of tourism and their development to promote the society and the individual.

Knowledge Platform (1990) which outlines a comprehensive vision of tourism in view of the formation of a body of scientific knowledge on tourism.

Jafari affirm that since the early 1990s the scientific production of tourism, has spread especially in the university context. However, Kadri (2008) states that the global analysis of tourism dates back to a period prior to the 1990s, but he is not suggesting a segmental approach of tourism, but one based on its "recognition" in which the tourist experience is to be considered as a result of the system. Kadri also identifies three stages of tourism according to the scientific approach:

The ideological reconnaissance (1950-1970) for which the critical of tourism and the tourist spread.

The symbolic reconnaissance (from 1970-1990) which seeks to understand tourism and the tourist and to emphasize, especially within the North America, the tourist experience as a "cultural production of society" (MacCannel, 1976), and to criticize the offer of the "all inclusive".

The complexity reconnaissance (end of 1990-2000 and beyond), where tourism is to be understood as a system and it cannot be reduced to some aspects

analyzed from various disciplines and according to their respective approaches (motivation, supply and demand, tourist flows, etc.). By making use of the theories of complexity and chaos, it is possible to view tourism as a chaotic system in which it is necessary to adopt an integrating paradigm to understand it.

Towards this direction, some disciplines such as geography considers tourism as a system that gathers the essential features scattered in various disciplines. Among them, there are: tourists, places, markets, practices, values and actions of social institutions.

From the point of view of management sciences, it is stated that to build a global definition of tourism, it should be considered "as the processes, activities, and outcomes arising from the relationships and the interactions among tourists, tourism suppliers, host government, host communities, and surrounding environments that are involved in the attracting and hosting of visitors" (Goeldner and Ritchie, 2006: 4-7).

Despite the attempts to offer a global vision of tourism above described, in the current context of research in tourism, it is possible to recognize a theoretical gap accompanied by "little common purpose, no great sense of direction and a resultant fragmentation" (Pearce, 2012: 172).

A first paradox is represented by the fact that tourism, on one hand, is recognized by the university, association, and media, through the development of master and doctoral programs, the existence of international organizations and associations, and the diffusion of journals and scientific conferences. On the other hand, the process of research in tourism suffers from fragmentation and dispersion due to the diversity of disciplines and the actors involved.

The fragmentation is nourished by the disciplinarity in which each discipline has its definition and its concept of tourism, and is not reduced at all by the multidisciplinary. Indeed the latter represents an assemblage of various disciplines, but the knowledge is always picked up by one discipline at a time. This represents a second paradox. More it is possible to define and conceptualize tourism, according to the various disciplinary perspectives and offering insights of specialization through new topics, and more one moves away from a definition and a common concept of tourism. It is evident that there is an abundance of definitions and concepts of tourism but one definition and one concept of tourism recognized by the scientific community, is lacking.

## 5. building tourism knowledge

Regarding the building of knowledge in tourism, Jafari (2005) recognizes the intervention of eighteen disciplines or university departments which are: hospitality, law, leisure, marketing, political sciences, psychology, religion, sociology, transport, urban and regional planning, agronomy, anthropology, business sciences, ecology, economic sciences, geography and history.

These disciplines have not only generated an amount of definitions and concepts but also different languages and paradigms, theories and methodologies whose integration can be an opportunity for the future of research in tourism.

However, in the academic community, tourism, as a discipline has always been the object of conflicting opinions regarding its scientific identity. Since the 1980s tourism is proposed as a new science. More precisely, Leiper (1981) proposed tourology as a new discipline that supports a pluridisciplinary training and teaching of tourism built upon the basis of a general theory. However, as stated by Tribe (1997), this term has not been used by the community.

Even the attempt to see in teorology (from Greek teoros which means journey) as a proposal for the creation of a science of tourism; instead it is revealed as the ability to identify a field of study of tourism where its elements "related to space and time, the economy and politics, psychology and management and finally to the culture and heritage" (Stafford, 1992: 44-46) are separated.

With turismology, it is possible to recognize the complexity of tourism which tries to analyze it as a global system. However, turismology, over twenty years, is taken in France according to a scientific perspective limited to industry and trades of tourism (Hoerner, 2000). Here it is evident another binomial of specialization - fragmentation of knowledge.

Regarding to interdisciplinarity approach, Echtner and Jamal (1997) recognize it as the necessary approach to ensure that the tourism studies are directed to the establishment of a real science.

A proposal to apply an interdisciplinary approach to tourism comes from Lemoigne (2001) by constructing a tourism epistemology that does not define internal organizations, phenomena and the facts of tourism, but it highlights its problems. It is also pursuing to collaborate the various disciplines in a perspective of "knowledge project" and not towards an "object of knowledge", which continues to be regarded as the central element to determine the identity of science.

However, in the scientific community there are also experts like Tribe (1997), which argues that tourism has not a scientific status according to the criteria established by the positivist paradigm of science. From these criteria, he recognizes that tourism is not a discipline of its own; hence its nickname of "indiscipline", because it borrows its concepts from other disciplines, it lacks a consistent theoretical framework, and its problems are not solved by tools of tourism.

Tribe's assertions raise some thoughts. The positivist paradigm, as well as any other paradigm, is not the unique one neither the detector of the absolute truth. Indeed other paradigms appear, differ and overcome the positivist one. Among them, complexity paradigm highlights in this study and, unlike positivism, it is not proposed to solve the problems but to assume that the reality is problematic. Furthermore, the fact of borrowing from various disciplines and knowledge is not a limiting aspect for tourism but, on the contrary, it provides the basis to build new knowledge through disciplines and

across them as contemplated by interdisciplinary approach.

Furthermore, the fact that tourism does not have a consistent theoretical framework may be the result of the spread of paradigms which propose a linear and reductionist vision for the construction of its knowledge while, instead, the tourism reality and its problems require a complex vision. The same positivist paradigm adopts a vision that fosters the separation between science and rest of knowledge, and foment the society tensions.

As acknowledged by Tomillo (2009), the devices that allow the building and renewal of knowledge in general, and that of tourism in particular, are employable by science but at the same time are not its exclusive. The devices are: the rational (internal to the brain); the mental, (tied to conscious and subconscious soul); the emotional (belonging to the soul through the senses); the sensory (related to hearing, smell, sight, taste and touch); the sensitive (connected to the sensitivity, affection, passion of the soul); and the experimental (linked to the relations with the outside world). These common devices between science and culture reveal the separation between scientific knowledge from other knowledge should not continue to exist.

The need to adopt a transdisciplinary approach for the research in tourism is linked to other aspects that distinguished the history of tourism especially in the last twenty years. In addition to attracting the attention of researchers with a certain reputation in consolidated sciences, such as humanities as well as social and experimental sciences, there is also the interest of certain arts such as architecture, enology, gastronomy, etc. There areas growing number of university training programs at the graduate and postgraduate level (master and doctorate) and schools of thought of tourism. The national and international institutions and professional associations, as well the networks whose mission is linked directly and indirectly to tourism, are also increasing, and there exists a propagated interest in the dissemination of tourism knowledge through conferences, meetings, publications, magazines, etc.

These aspects are the expression of a rapid change which is interesting the approach to tourism. As it was explained at the beginning, science as a continuous change, should contribute to the solution of its persistent and complex problems through a better internal communication between the disciplines, and an external communication with other knowledge.

## **6. integrating frameworks of tourism and complexity**

As it was previously described, the disciplines with which tourism is approached foster the development of several definitions and concepts but also different languages, paradigms, theories and methodologies. Furthermore tourism is enriched by the knowledge created by the not scientific world. How is it possible to manage the tourism knowledge cultures, internal and external to science, in order to assume the complexity, to

educate towards complexity and make it an opportunity for the future of research in tourism?

According to the interdisciplinary approach, it is possible to jump the barriers that separate the disciplines by integrating the different perspectives. According to the transdisciplinary approach, it is possible to get rid the barriers between involved knowledge. What is uniting the jump and the disappearance of barriers is the integration, even if the first approach interests only the scientific disciplines while in the second one, the knowledge comes from also not scientific world.

It is only in the last ten years that the concept of integration is used in tourism research through the recognition of integrative frameworks. The integrative frameworks in tourism refer to "ideas, concepts, theories and methods so as to synthesize what is known about a particular phenomenon, to provide shape and structure to a field of study or across fields of study, and/ or to combine approaches to studying the field or particular phenomena" (Pearce, 2012: 14)

They can refer to integrate contents, theories and approaches and methods and methodologies.

Regarding the contents, the integrative frameworks can support the definition of the nature and scope of emerging topics, synthesize a large body of studies in the established topics, findings and explore the relationships among and between themes. They are also helpful in PhD studies to better formulate the problem and build the research.

Concerning particular theories and approaches to a problem, Machlis and Burch's (1983) tried to integrate the behaviour of tourists, the evolution of the tourism industry and the impacts of tourism for hosts and guests. Furthermore Wang and Xiang (2007) affirm that in order to explain the behaviour of tourism organizations in forming marketing alliances and networks, it is necessary an integrative framework.

Respecting the methods in the tourism research design, data collection and analysis, there is an increasing use of mixed methods. The mixed methods can involve the collection and analysis, concurrently or sequentially, of both quantitative and / or qualitative data at one or more phase of research process. The integration of methodologies is less common because it should involve the philosophical debate. Some authors, such as Downward and Mearman (2004) argue that critical realism offers a philosophical position which can support the triangulation of quantitative and qualitative methods in a research program, while others, such as Pansiri (2005), affirms that critical realism is too simplistic, and he argues that pragmatism is the best paradigm for justifying the use of mixed-methods research.

As acknowledged by Pearce (ibidem), the integrative frameworks may represent the future of research in tourism. In fact, they can help to understand the tourism, reducing the fragmentation and the lack of coherence and bring a sense of direction and a common purpose to tourism. The only condition is to take these frameworks starting from a complexity paradigm which interest scientific world as well the life and human world.

However, Pearce does not make direct reference to the use of the paradigm of complexity, even if he recognizes the complexity of tourism. Indeed tourism is a multi-sector activity involving multiple stakeholders; it has a complex geographical pattern of supply and demand; it is continuously evolving; and it can be viewed as a social, economic or environmental phenomenon. It is object of interest of many researchers in various disciplines, including geography, economics, marketing, business management, sociology and anthropology, and of the attention of a new generation of scholars who have grown up within the field of tourism studies.

Regarding to the scientific world, Morin (2000<sup>a</sup>) states that the sciences of complexity arise from questioning the formal sciences, from their scientific chaos and the lack of linear responses to human problems.

Regarding to the life, common problems cannot be addressed by dividing them into sub-problems and solutions, building upon the aggregation of sub solutions but they requiring system solutions and a system thinking.

Regarding to human being, he is in fact a "complex, hyper-complex and meta- complex where it appears the uncertainty, anxiety and disorder as part of his being and existence" (Morin, 2005: 3).

This paradigm can therefore provide an understanding of complex systems such as tourism and life world through the integrative and non-linear approaches. The linear approaches, instead, observe the one and the multiple but not both together (Morin, 2004), while with the complexity the one and the multiple are not separated but integrated (Morin, 2000).

The complexity can therefore be seen as a paradigm that rejects the substantial part of the forward vision, one that is subject to scientific knowledge which has marked our society and it has looked at reality in a reductionist and linear view. On the contrary, with the complexity, the reality is view according to a new form of feeling, thinking and acting that integrates the ethical, cognitive and conative perspectives.

The complex thought attracts several critical because it is based on the recognition of uncertainty and of the not absolute, but who holds the certain and absolute truth? What is sure, for the above described temporary and changing nature of science, is that even whose possess scientific knowledge, are not the guardians of the truth.

## **7. the power of education for the building and transfer of knowledge**

In the direction towards knowledge, there is the road of building and exchange as well as the transfer of it. How to convey the epistemology of tourism given its complexity and the complexity of scientific and life world? Etymologically the word complexity comes from the Latin *complectere* where *plectere* means weaving or braiding, and *com* brings the sense of duality. Two opposite elements that are intimately linked, but without losing their individuality. (Morin, 2005).The link with the

integration, especially in its transdisciplinary implication, which third axiom refers to the complexity, is evident and this forms the basis for supporting a proposal to a "transcomplexity education" (González, 2012) in the field of tourism.

The link between complexity and transdisciplinarity aims to seek from the educational point of view that there exists between, across and beyond disciplines. It expresses a new form of living and living together in humanity that stems from the fact that so far the educational process has never been built upon an integrative approach neither on a transdisciplinary paradigm complexity.

In 1994, the International Commission on Education for the XXI century has recognized education as a lifelong process of enrichment of knowledge, of technical capacity, of people and of relationships between individuals, groups and nations (Delors, 1994).

Although, nowadays the educational policies are still based upon an obsolete model that does not consider the complexity of the reality, neither of the tourism system. The various models proposed so far, based on different paradigms such as behaviourism, cognitivism and constructivism, have not focused on the comprehensive education of the subject in reference to his thoughts, values and actions, but have continued to adopt a linear and reductionist vision. The latter vision allows students to apply a model of classical science with the illusion that they can control nature through laws, rules and experiments.

The integral education, suggested by Tomillo (2009: 6) is used to "know to be, will, power, reflect, analyze, explain, identify, measure, classify, select, prioritize, sequence, decide, predict, hold, do , self-manage, create, change, doubt, consult, share, protect, respect, review, validate, and learn other attributes and properties of knowledge".

In order to be considered as integral, the education must overcome the barriers of time and space and must be permanent throughout the life of the human being, and not relegated only to school or to university but in all places where human life develops.

In complexity, learning is not the end but the ongoing process where the subject learns, re-learns and unlearn the knowledge. Learning, as recognized by Delors (1994), is the basis of education and is aimed to: living together knowing more about others, their history, traditions, spirituality; knowing taking into account the rapid changes in science and new forms of economic and social activities; Doing without limit the learning to a specific skill, but in the broader sense to acquire all skills that enable human beings to cope with various situations, some unpredictable, and facilitating group work, often forgotten in the current methods of teaching; and being which requires greater autonomy, a capacity for criticizing and a sense of responsibility in the realization of the collective destiny.



## 8. which education for tourism?

Even in tourism it is not possible to continue to build knowledge, limiting it only to the disciplinary and multidisciplinary visions, but it is necessary to integrate scientific and not scientific knowledge. The knowledge necessary for the future education, formulated by Morin (1999) and published by UNESCO, are: One, the blindness of knowledge: the mistake and the illusion. Two, The principles of a relevant knowledge. Three, Teaching human condition. Four, Teaching the terrestrial identity. Five, Facing the Uncertainties. Six, Teaching the comprehension. Seven, The ethics of mankind.

None of them is alien to higher education and in fact its foundations are strong.

How to draw an education of tourism imprinted on such knowledge by offering better prospects for students but also for teachers, researchers, professionals and various stakeholders involved in tourism? Some proposals are presented in the next three sections.

The first proposal aims to underline the importance for students which they have to be educated towards the complexity of world and tourism.

Indeed, tourism, as Panosso (2007) suggested is a human activity, starting well before the voyage when a person is still collecting information about the destination, to when he returns back, and remembering the experience. The human being is involved in tourism as a tourist, travel agent, pilot, receptionist, entrepreneur, public tourism manager, and also as a resident who affects, and is affected by tourism, directly or indirectly.

The unique factor that differentiates them is the way in which each one is experiencing the tourist experience during the relevant time; but what they all have in common is the fact of their being human. The subject is one that gives meaning to the objective aspects of tourism, such as infrastructure, the target area, etc. which are fundamental in the construction of the system of tourism but do not have a meaning by themselves. Who determines their meaning for their use is the human being that, on the contrary, has an existential value by himself. This vision should be extended not only to tourism, but likewise to all human activities through an ethical platform.

As Macbeth (2005) pointed out, the Ethics platform has to guide policy, planning, development, and management of tourism. Ethics, as one recognizes in transdisciplinarity, is the conscience of the human beings who assume that they are also individual, forming part of a society and a species (the one that shares the same biological traits of *Homo Sapiens*). In order to achieve this assumption, or common meaning, the human being should pass from one level of reality to another, which is the logical axiom of transdisciplinarity. In other words, to build his knowledge, which it is always evolving, the human being has to make a continuous "journey" that can be physical, mental, spiritual, and with senses, etc. That does not have a final point.

The second proposal concerns the design of university and post-graduate education in tourism which should not be structured on the mere scientific knowledge but considering its complexity, given from

multiple disciplines and the stakeholders involved, and should aim at their integration into undergraduate and postgraduate courses. They should be designed in such a way that teachers, researchers and students move from the "comfort" of their disciplines in interdisciplinary projects and to issues connected to the real world in which they would be integrated also not academic stakeholders. In addition, transcomplexity education should aim at the development of individual and social capacity to construct, deconstruct and reconstruct knowledge as if in a spiral.

Furthermore it is necessary to assume the awareness that nature is not absolute but relative, and that the only certainty is uncertainty, doubt and complexity. This education does not provide the accuracy, the uniqueness, the totality of truth, the holistic and the reductionist, and the measurable. There is no question of designing an education to seek the truth neither certainty, but to become aware that science and society are complex and cannot be evaluated only through experiments, variables, formulas and in the absolute solutions but rather in their problem.

In order to draw a transcomplex education, as suggested by Stenhouse (1998), it is necessary to start from the teaching based on the research in which the teachers share the knowledge learning process with the students and can obtain a critical perspective of it. Although there still exist the prejudice that research belongs at a specialized élite that needs to protect his language from outside interferences, coming from other sciences but, especially from non scientific world. This form of sterile protection is also spreading in the audiences in which teaching and learning continue to reproduce cognitively knowledge already established by others, without to generate new knowledge from students and teachers as a result of reflection, dialogue and criticism.

This method reflexes the simplicity with which the teaching and learning, even in tourism, is still treated nowadays. Indeed it is necessary not to follow a scientific method in a literal way, but it is recommendable to develop one not rigid research based on certain laws and truths but it built on complex thought. The education in tourism context should be drawn to facilitate the development of cognitive sensibility, creativity, reflection and ability to communicate with other disciplines and knowledge. This will permit to build, un-build and re-build the knowledge.

As it was already explained previously, before one become researcher, the subject is a human being and the education should be aimed to advance his culture which is a complex and integrating concept by itself because it embeds the qualifiers attributes of human activity. It is the culture which permits the development of his cognitive sensibility inside and outside the university hall.

Although, in planning the complex education, one cannot neglect the issue of the curriculum. Until now the curricula are based on intentions, objectives, skills and capacities, pursuing cognitive aims and focusing on the abilities of those being taught. With the assumption of complexity, the curricula should be aimed to develop

complex strategies which allow to find a complex solution for an educational problem based on research.

Regarding the drawing up of the curriculum, and remembering the link between complexity and transdisciplinarity, Basarab (2010a) proposes transdisciplinary T<sub>n</sub> curricula, where n = 1, 2, 3; n = 1 means “transdisciplinary”; n = 2 means “transdisciplinary and transnational”; and n = 3 means “transdisciplinary, transnational and transreligious”.

The first step is T1 curriculum and it includes different disciplines which bring different concepts such as transdisciplinary metrics”, “transdisciplinary matrices”, “transdisciplinary design”, “transdisciplinary measures”, “transdisciplinary product development”, and the human factor which is not possible to be neglected. The second step is T2 curriculum, which can be adopted in institutions having a great number of students belong to different nations. The last step is The T3 curriculum which is more difficult to implement in the current world because the mentalities are not yet prepared.

The third and last proposal is related to the future carriers for tourism students. According the planning of integrative research, it is useful to include representatives of two or more communities to cooperate. The people best qualified to represent a knowledge community, should be prepared to make temporary compromises and learn from each other. In the tourism context, can arise a new figure, that of the Knowledge Broker which is a person that tries to facilitate the encounter of different knowledge and parties, in order to optimize the process of problem solving (van Mansfeld, 2003). In the transdisciplinary integration, which degree is higher than that of the interdisciplinarity, the knowledge broker can combine natural sciences, humanities and social sciences with knowledge from the non-scientific world, represented by public and private bodies and stakeholders. In terms of quality, the knowledge broker should be: inspired communicator to bridge gap between government, policymakers and civil society; oriented to dynamical quality management in a region; creator of good feelings during the planning process; facilitator of the design approach such as working method; able to ensure working process transparent and re-formulate of the basic issues; good mediator between public and private sectors and scientific investigators and to create consensus; good planner for the process and the interactions; competent to administrate and to manage conflicts; strong creator of a safe learning environment; stimulator for open mindedness and joint identity; facilitator of a learning attitude; and expert on tourism.

## 9. conclusions

The research arises from the consideration that the knowledge based platform is built on the holistic treatment of tourism which objective is the formation of a scientific body of knowledge. This reflection does not intend to doubt the need of a knowledge platform but rather stress its objective and holistic vision.

This vision represents a reaction to the reiteration of another vision which is diametrically opposite of the holistic one which is the reductionist vision. The latter vision, in turn, derives from the separation of the knowledge of science and the knowledge of culture, inherited from the Enlightenment and industrial age, in which man has been- and continues to be-educated in a compartmentalized way, and his life, as well the society in which he lives, is built on disciplines and it is segmented upon their boundaries.

Starting from the opportunity that the integration can bring for the knowledge as well for the education, and considering the complexity of tourism and of the world, it is appropriate to take complexity as a paradigm for the integral evolution of the human being in which science and culture are integrated. This paradigm is based on a holographic vision in which whole is not longer important to the parties neither vice-versa. Hence a new platform of study of tourism should be based on integrated knowledge and ethic.

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