Natural and cultural capitals: transdisciplinary strategies toward community learning for sustainable and inclusive human

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CONTRIBUTIONS FROM SCIENCE AND POLICY

Maria Luisa Paracchini, Pier Carlo Zingari, Carlo Blasi (Eds.)

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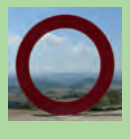

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Printed by Imprimerie Centrale in Luxembourg
Manuscript completed in December 2017

Luxembourg: Publications Office of the European Union, 2018

Print	ISBN 978-92-79-59949-1	ISSN 1018-5593	doi:10.2788/09303	LB-NA-28023-EN-C
PDF	ISBN 978-92-79-59948-4	ISSN 1831-9424	doi:10.2788/258513	LB-NA-28023-EN-N
EUR	28023			

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Graphic Project by Giorgio Moretti (Rome), Italy
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Natural and cultural capitals: transdisciplinary strategies toward community learning for sustainable and inclusive human development

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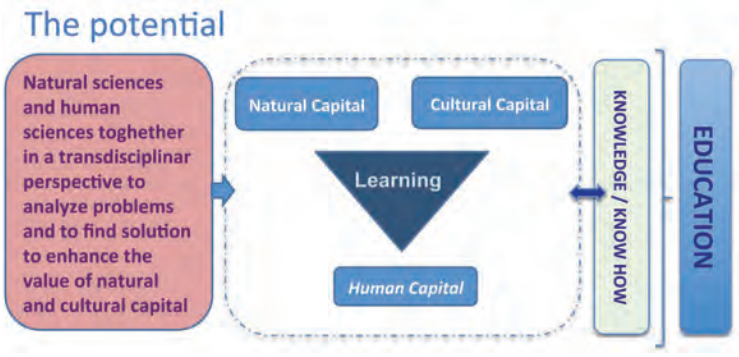
1. Learning as the 'third element' beside natural and cultural capitals

Natural and cultural capitals can be directly related to two key dimensions: environmental sustainability and human development. If entirely taken into account, these two complex and intricate phenomena would lead to a potentially endless, ambiguous and 'slippery' analysis. Conversely, if not properly considered, there is a risk of generalisation, missing the necessary interweaving of different disciplinary perspectives. The concepts themselves—environmental sustainability and human development—have more than one meaning, and can raise many arguments with different ways of thinking stratified in time.

In any case, these concepts can support further analysis to fully catch the relationships between the two forms of capital that characterise ecosystems. Rather than an interdisciplinary approach, it is relevant to consider a transdisciplinary approach leading to a cross-cutting 'third element' conjugating and clarifying the interlinkages between natural and cultural capitals and introducing human capital. The 'third element' is learning, or, better, the potential of learning a system in its natural and cultural components. This potential generates the knowledge of a system from inside, contributing to the human capital. Educational actions act on the potential of learning supporting the development of human capital. Therefore, the potential is a driver in the building, maintenance, transformation and innovation of knowledge, which is the foundation of any interpretation of natural and cultural capitals.



Learning is behind and at the base of individual and collective forms of knowledge, allowing the interpretation and transformation of the living environment, which is both naturally and culturally connoted. Consequently the environment where we live, with its role and context, becomes an integral part of the potential of knowledge production in a learning process which is necessary for the very life (Maturana and Varela, 1984). Any living being constantly reorganises itself through learning and, in this process, acts in a close interrelation with the environment. To make use of the words of Gregory Bateson, we can say 'What thinks is the total system which engages in trial and error, which is man plus environment' (Bateson, 1972, p. 488).

The contribution integrates the authors inputs and is the results of shared views. In particular Giovanna Del Gobbo provided inputs to the first and second paragraphs. The third has been provided by Glenda Galeotti.

If this is true for all living organisms, for the human being the learning condition is determined by the interactions with its living context, which is both naturally and culturally featured. It is within the very cultural dimension that educational processes (informal, non-formal and formal) take place, shaping the learning positively or negatively.

On this basis one can mainstream a 'learning dimension' to connect natural, cultural and human capital. In this way is made clear the 'formative power' of the tangible and intangible forms of know-how, which simultaneously permeates the subject (individual and collective) in the interpretation of reality and, at the same time, involves subject and context in the responsibility of reciprocal change.

It is necessary to recover and to recognise the naturalness of learning for the subject within an ecosystem. Based on the above, one cannot ignore the human learning biological matrix, which needs to be highly conjugated into the sociocultural matrix. It is, indeed, possible to define culture as the historical outcome of a personal and social learning process activated by the interaction between the individual and the natural world, according to a gradually greater control of risks caused by external phenomena. Individually and collectively, humans have learned and turned into shared knowledge those attitudes and skills that are necessary for survival, and have thus acted on the environment, transforming and transformed by it.

One can say that *Homo* as a species has diversified his way of life and, in parallel, his own way of knowing, culturally influencing over time his own way of interacting with the external world, modifying his own potential of knowing. The gradual sharing of knowledge, of learning at the species level, has brought to the construction of a collective identity—the culture—as an integral part of the identity of each individual. This knowledge added to the material conditions of life of a cultural group. If the material production of culture (tangible) corresponds to the transformation of the environmental context, the ideal production (intangible) corresponds to the interpretation of the context in terms of the wealth of knowledge available to a certain society. However, this wealth of knowledge is nourished and evolves thanks to the learning subjects and, through their learning, they structure and feed themselves and their community of life. Knowledge is not just a subjective construction, but is realised within the interactive practices of social groups who use them to find answers to environmental issues and, at the same time, to modify them.

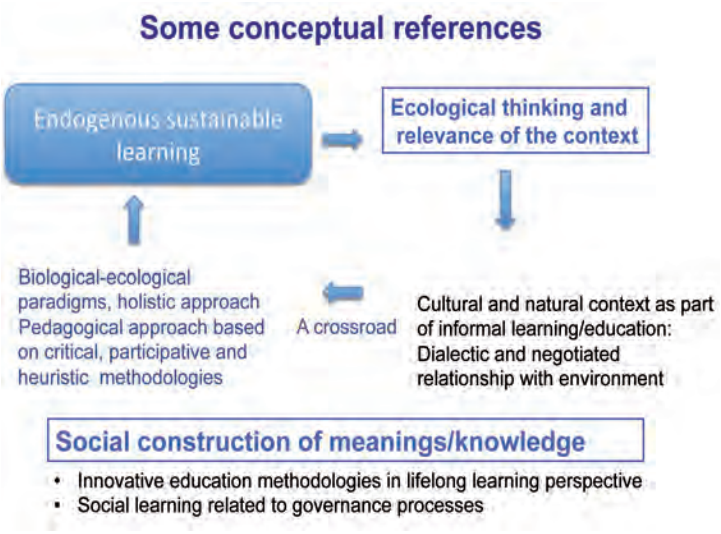
Natural and cultural capitals are in consequence an integral part of the knowledge process of local communities. Social capital, that a community expresses by building knowledge (interpretative and transformative), engenders and constantly uses the know-how required to keep interacting with the environment following a 'spiral' process (Del Gobbo, 2012).

The concepts of knowledge and know-how allow the strong connection between ways of tangible living and expression of intangible culture, namely behaviours, attitudes, ideas, values and signs, to be emphasised, and allow them to be given meaning as discourses capable of orienting individuals who participate actively in culture within each specific natural and social world.

Knowledge grows as an organic exchange between man (culture) and nature, within a process that creates unity between mankind and nature, nature and culture. Therefore, the environment is not a neutral reality in which humanity can intervene, project its ideas or its representations. It rather intertwines with the lives of the individuals entrenched in the experience of specific bodies in a specific context. The latter includes both a biophysical component and social, technical and cultural elements. Therefore, it is not created, but modified as a result of human intervention. It takes us back to a specific experience of living in the world, actively, operationally and collectively, which is common to all processes of human production (culture) (Galeotti, 2015; Ingold, Palsson 2013; Ingold, 2004). By producing knowledge, a person, as an individual belonging to a social group, can recognise

and organise his/her natural potential. Knowledge is developed through learning processes that take place within a context and through a network of relationships.

On the learning processes acts the educational activity, which is, in turn, an expression of culture. On educational models, one can take action to identify the most appropriate forms of sustainable learning. In this context, it is necessary to rethink education in order to better promote the non-formal and informal component while supporting the social learning that is achieved through processes of democratic participatory governance.



2. The international strategic framework and the challenge of its implementation

For several years, international strategic documents pinpointed the need to recognise and fully enhance the heritage of local communities, stressing the connection between biodiversity and cultural diversity. The enhancement of these capitals in their various expressions is presented as key element for an endogenous, fair and sustainable human development and there are plenty of references that can be quoted and that also emphasise the human rights dimension.

The value of all intangible know-how as a cultural product to be safeguarded—including the natural environment—is widely accepted and successfully applied: strategic documents of Unesco and European Union introduce a learning dimension related to the responsibility of communities and groups in producing, transmitting and preserving the heritage which characterises their living environment.

The first article of Unesco Convention for the Safeguarding of the Intangible Cultural Heritage (Unesco, 2003) asserts the safeguarding principle, integrated with community awareness and joint responsibility building. Article 2 starts with the definition of intangible assets as the practices, representations, expressions, knowledge and skills—as well as the instruments, objects, artefacts and cultural spaces associated therewith—that communities, groups and, in some cases, individuals recognise as part of their cultural heritage. It also stresses the process of learning not only as cross-generational transmission, but also as an innovative and dynamic 'use' of heritage. The document underlines that communities and groups in response to their environment and their interaction with nature constantly recreate intangible cultural heritage, thus promoting human creativity, but it is also considered a key factor 'in bringing human beings closer together and ensuring exchange and understanding among them' (Unesco, 2003, p. 2).

Other international strategic texts underline the value of cultural capital as a tool for social cohesion (Unesco, 2001, 2005; UNDP, 2015). They recognise the close link between creativity related to cultural heritage, economic and productive creativity that places the challenge of safeguarding and promoting cultural diversity in the 'transition point' (or tension between two opposite poles) between cultural creation and marketing, between

culture value and market value (Unesco, 2010). Culture could have the ability to promote a development that goes beyond the purely economic dimension, by safeguarding tangible and intangible heritage, protecting particular cultural expressions, promoting cultural diversity and recognition of the key role of local actors (Unesco/UNDP, 2013) [(2)]. Moreover, investing in culture and creativity requires a commitment to inclusive and equitable access in education and lifelong and life-wide learning opportunities. The learning ecosystem, innovation and development processes are strengthened when new talents and new forms of creativity are nurtured by valorisation activities of cultural capital as a fundamental factor for the health of society, contributing to people and community development and to the shaping of the future they want (Unesco, 2014).

Also at the EU level, as recalled by the European Commission (COM(2014) 477, **'**Towards an integrated approach to cultural heritage for Europe'), the many dimensions of heritage require an integrated approach for their sustainable use and valorisation: 'Heritage has many dimensions: cultural, physical, digital, environmental, human and social. Its value—both intrinsic and economic—is a function of these different dimensions and of the flow of associated services'. The EU is currently broadening its perspective towards the 'promotion of innovative use of cultural heritage for economic growth and jobs, social cohesion and environmental sustainability' (European Commission, 2015, *Getting cultural heritage to work for Europe*) and also towards the promotion of 'governance frameworks that facilitate the implementation of cross-cutting policies, enabling cultural heritage to contribute to objectives in different policy areas, including to smart, sustainable and inclusive growth' (Council of the European Union, 2014, 'Conclusions on participatory governance of cultural heritage').

Research and innovative activities suggest that heritage is rather a complex and dynamic concept related to many fields as well as a strategic resource 'originating from the interactions between people and places through time' (see Council of the European Union, 'Conclusions on cultural heritage as a strategic resource for a sustainable Europe', 20 May 2014). The Council of Europe's Framework Convention on the Value of Cultural Heritage for Society defines cultural heritage as 'a group of resources inherited from the past which people identify, independently of ownership, as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions. It includes all aspects of the environment resulting from the interaction between people and places through time' and heritage community as 'the value attached by each heritage community to the cultural heritage with which it identifies' (Council of Europe 2005, Article 12).

The notion of 'heritage communities' inextricably links the two concepts. If cultural heritage is 'a group of resources inherited from the past which people identify, as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions', a 'heritage community' consists of 'people who value specific aspects of cultural heritage which they wish, within the framework of public action, to sustain and transmit to future generations'.

Although heritage has been defined in many different ways from the perspective of both human and natural sciences (see e.g. Iccrom, 2005; Council of Europe, 2006), multidisciplinary research on heritage is somehow recent and of growing importance (see e.g. Florence Declaration on the Links between Biological and Cultural Diversity, Florence (Italy), 11 April 2014; Italian Ministry of Environment, Sapienza University, Italian Botanical Society, *Natural and cultural capital—Contributions to the conference held at the Botanical Garden of Rome, Italy, 24 November 2014*).

[(2)] Cultural capital as a tool for social cohesion is the subject of research conducted by Glenda Galeotti that defines a set of indicators to measure the impact of activities to enhance the heritage on community well-being. Galeotti, G. (2016), 'Elements for impact assessment of cultural heritage and community wellbeing—A qualitative study on Casentino's Ecomuseum', in *Il Capitale Culturale* XIV, pp. 915-945.

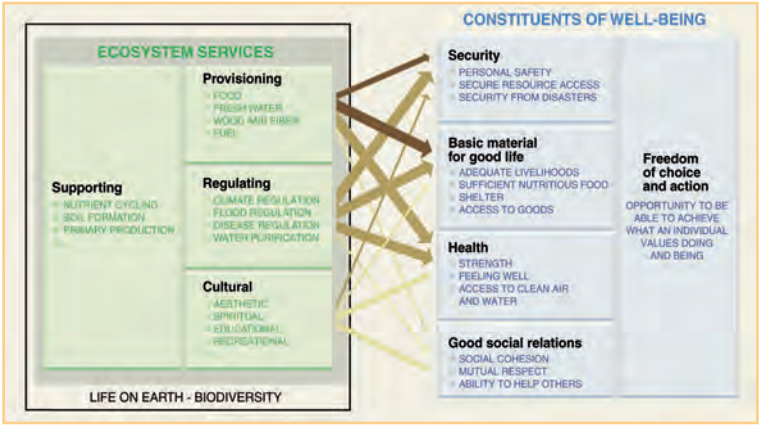
Nevertheless, research on heritage at the European level has mostly been focusing on separate disciplines and often on its tangible dimension.

Therefore, it is important to reflect on and develop research models that are innovative, integrated, multidisciplinary and multisectoral. There is a need to compare different disciplinary perspectives and complementary experiences, showing the applicability of theoretical models based on ecosystem within the 'ecology framework to cultural heritage, consistently with ecological pedagogical theories of learning' (Bateson, 1973; Brofenbrenner, 1979). We need to face the problem of turning this theoretical framework into actions able to secure recognition and enhancement of local cultures and traditional know-how, in order to really produce tangible and intangible wealth and to strengthen cultural creation processes in respect of traditions, while guaranteeing continuity and innovation and to respect the natural dimensions into an ecosystemic vision.

A very meaningful and consistent framework for dealing with natural and cultural capitals in terms of heritage within an environmental context is defined by the paradigm of 'cultural ecosystem services'. At the EU level, they are part of the European Commission's biodiversity strategy 2020 with a specific scientific and technical Action 5, Target 2, aiming at the mapping and assessment of ecosystems and their services (EU, 2011). Within this framework cultural ecosystem services (CES) are one of the four categories of ecosystem services (ES): supporting services (e.g. photosynthesis, soil formation); regulating services (e.g. water purification, flood protection); provisioning services (e.g. food, drinking water, timber); and cultural services.

Within this fourth category, research has mainly been focusing on the benefits people derive from ecosystems through cognitive development, recreation, aesthetic experience and creative inspiration, although heritage, identity and sense of place or belonging are fully included in this category, which is, as for other ES, a joint product of natural and cultural capital. From the human sciences perspective cultural perceptions, representations and constructions of the land, landscapes and nature in general are reflected in any interaction between humans and ecosystems. Consequently cultural considerations go through all aspects of ES and human sciences research argues that culture and nature are on an equal foundational footing suggesting a focus on the definition of 'culture-nature' services rather than simply ES (Fish, 2001).

We can say that there is the basis, at both scientific and strategical levels, to foster a holistic model to identify cultural and natural heritage as a system including and interlinking values, resources, goods, services, tangible and intangible benefits, interests, knowledge, skills, practices, representations, memories and imaginaries. It is necessary to find the links between the valorisation of this integrated way to consider heritage and various forms of formal, non-formal and informal education and training through contents, methods, new technologies and media as ways of support a sustainable learning. Only in this way will it be possible to transform natural and cultural capitals into resources for sustainability, social inclusion and effective systems of learning. Participatory governance of cultural heritage for innovative social learning systems (from local to global level) are indispensable.



Ecosystem services and human well-being.

Source: Millennium Ecosystem Assessment (2005), Ecosystems and Human Well-being: Synthesis, Island Press, Washington, DC

3. Community-based learning to promote the potential of natural and cultural capitals: two case studies

In the context described above, natural and cultural capitals are strategic issues for endogenous development that includes also traditional and empirical knowledge, often more related to the natural environment.

In this direction, we present the following two case studies as examples of good practices based on an integrated approach on natural, cultural and social capitals.

- Study circles—cross border laboratory that were piloted in Italy and Slovenia, on the development of human resources and of cooperation networks promoting natural and cultural capitals.
- *Tuleros* handcraft production—educational valorisation of Mayan artisans' know-how for the sustainable management of lacustrine biodiversity**.**

3.1 Study circles: promoting the potential of natural and cultural capitals for endogenous development

Study circles in Italy–Slovenia is a cross border laboratory for the development of human resources and cooperation networks promoting local resources. It has been funded by the European territorial cooperation programme Italy–Slovenia 2007-2013, Axis 2—Increase competitiveness and development of a knowledge-based society (Del Gobbo and Bogotaj, 2015).

The project aims to support the endogenous potential: it does not propose 'pre-packaged' activities but rather stimulates the involvement of local actors to invest in their own territory. Adapting population coping strategies toward social change can be fostered through an enlarged educational supply and demand at the same time. Nesting of initiatives based on self-organisation and closer to local culture within the framework of adult education is therefore expected [(3)].

The involvement of institutions such as training agencies, development agencies and local administrations has been implemented through a series of round tables, activated as interactive processes of learning.

In the project, the study circles model is a training tool for adult education, as well as a tool to support the local adult education services system, consisting of a network of education and training agencies and institutions, local development agencies and institutions of Slovenia, and Veneto and Friuli-Venezia Giulia in Italy.

Therefore, we can determine the innovative value of both the study circles implemented in the cross-border area and the learning opportunities offered by the project during the construction of the overall system by considering the activated processes as a learning and innovation opportunity for the different subjects involved.

Through the reconsideration of the educational potential of the spaces for planning, managing and evaluating educational activities, the project has effectively enabled the involved players in the creation and testing of the cross-border system to develop skills in order to:

– contribute to creating a common vision in knowledge-intensive territories by constantly researching and identifying ideas and initiatives that drive innovation and improvement and promote, encourage and document their expression and implementation;

[(3)] Study circles have been facilitated on several subjects. To mention a few, a study circle on the production of fruit and vegetable gardens (http://www.study-circles.eu/it/frutta-dal-giardino-dellimperatore-rifioritura-della-frutticoltura/158), on the protection of biodiversity and landscape (http://www.study-circles.eu/it/circolo-di-studio-biovagando-tra-saperi-e-sapori/256) and on local agricultural products.

- develop the ability to learn within the innovation network by specialising and refining the techniques of awareness building, problem framing, problem solving, resource finding and alliance building within the network itself;
- support the construction of a collective identity related specifically to the promotion of citizens' active and democratic participation in a common and shared project of society;
- supply the training needs of the economic system, ensuring at the same time social inclusion and empowerment;
- support social cohesion policies;
- support awareness about the regulation of consumption, stressing relationships between production and consumption that aim to protect the environment and safeguard the rational consumption of natural resources and exploitation of cultural resources (Lima and Guimarães, 2011; Bélanger and Federighi, 2000).

These capabilities can support social innovation as a tool for developing new products, services and models that meet old and new social and educational needs more efficiently than the existing alternatives and, at the same time, promote alliances between sectors and people and create new relationships and new partnerships (Murray, 2010). However, these are also skills that have led to a different vision of the local training system by re-evaluating the meaning of non-formal adult education and of informal and embedded learning spaces. The mentor's training is also a recognition of the need to have specific professional profiles to give continuity to the experience.

Even if we move on the policy side, the project has allowed new forms of policy transfer to be tested through bottom-up processes. With the partnership with Slovenia, and in view of the specific cross-border context, the project has allowed a comparison to be made between two realities:

- in Slovenia, the policies for adult education have been the drive and also the direction traditionally taken by adult education activities, such as study circles;
- in the Friuli-Venezia Giulia and Veneto regions, the lack of specific educational policies for non-formal adult education has allowed to test completely new sustainability-based alternatives that could have an impact on the policies themselves through a process of enhancement and consideration of the political value of the tested actions.

The project tested a systemic approach constantly involving policymakers to guarantee the future sustainability of the model tested and in order to facilitate the decision-makers assuming and upscaling the results achieved by the project.

3.2 *Tuleros* handcraft production: the ecosystemic relationship between dexterityand intellectuality, practices and context

This case study shows how participative methodologies promote empowerment and construction of new knowledge in a dialogue between 'heritage communities' and local economic (local enterprises, institutions, associations, NGO, etc.) and scientific communities, with an emphasis on local dynamics, sustainable development and social inclusion.

Set within this framework, the research with the Tuleros Association of Santiago Atitlán (Municipality of Guatemala) is focused on the analysis of skills that these Mayan artisans employ in the production process with the *tul*, a plant that grows alongside the lake, used to create typical objects of Mayan and *tzutuj'il* culture [(4)]. The aim is to test how educational valorisation of their *know-how* promotes the safeguarding of local biocultural diversity and the sustainable management of natural lacustrine resources. The study has adopted an ecosystemic approach to the analysis of the production process, which allows integration of individual and collective perspective on skills, but also detects how productive skills broaden within the context of reference, thus transforming it.

In spite of the variety of forms historically and culturally determined, production has always been a constant factor of human existence. It is expressed in units of dexterity and intellectuality. Manual skills develop through repetition of predetermined movements over time, whereas technical intelligence develops through the imagination, which then leads and guides manual ability (Sennet, 2008). These two dimensions are inseparable and they manifest in production ways and means, i.e. in a set of operational concepts translated into action. The interchange between these two components is achieved mainly in:

– movement between searching for solutions and detection of problems;
– product planning, where physical and intellectual faculties are employed together;
– interdependence between explicit knowledge and implicit knowledge.

Routine and systematic knowledge (embedded knowledge), barely automated and formalised, is the result of experiential learning, and that manifests itself in the complex conduct of the body (embodied knowledge), immediately understood by those who share the same frames of sense (enculturated knowledge). They integrate the emotional and rational dimensions of knowledge in production processes and in the intellectuality–dexterity unit of the craftsman.

To take the production process as an object of educational research involves focusing on its learning dimension, and on knowledge and skills employed within this. In particular, skills may relate to the fabrication of a specific product, but also to the organisational dimension of the work (Sennet, 2012). They can be expressed by a single individual or by a community of individuals engaged in the same productive process. In this second case, the relational dimension determines the spread and distribution of knowledge among several individuals that is evident in artefacts and tools used by the community for their productive, social and cultural practices. In this way, skills emerge from social interactions within a given cultural space, so the context with its practices and mode of action not only contributes to create expertise, but also is competent and constantly developed in these processes.

The methodology used in the study is the participatory action research applied at both the investigative and the intervention level (Orefice, 2013). From the research point of view, the activity consisted of the participatory analysis of *tul* productive processes, to detect skills and knowledge used in it and to identify how these contribute to take care of and manage local natural resources [(5)]. The educational intervention took the form of a training course realised within the Environment Committee of the Consejo Municipal de Desarrollo [(6)]. Therefore, it involved

[(4)] This research was be conducted within an international cooperation project in Guatemala, funded by the Ministry of Foreign Affairs of the Italian Government. For more information, see Galeotti G. (2015), *I saperi dell'agire*, Aracne Editore, Roma.

[(5)] At this stage of research, information sheets on *tul* productive processes have been developed, starting from data collected in the focus group and interviews with *tuleros* and relating to elements of the production process, the flow of production, and the skills and knowledge used in the productive processes.

[(6)] The Consejo Municipal de Desarrollo is part of territorial planning system, launched in 1987 and reformed in 2002 with the creation of the Consejos de Desarrollo Urbanos and Consejos Rural (Legislative Decree 11/2002).

key local actors, like traditional producers (including *tuleros*), policymakers and members of civil society. It focused on the analysis of the local practices of use and management of natural resources, to develop of critical-reflective attitudes useful to reread the experiences, productive problems and changes in the system of local life with new interpretive lenses.

Returning to the learning ecosystem model, action research has worked on:

- strengthening the environmental management skills of institutions, local producers and civil society, starting from the valorisation of the environmental know-how of *tuleros;*
- transforming the places dedicated to participatory planning of local development in spaces for environmental adult education;
- building a network of local actors to strengthen their participation in natural resource management and the dialogue between civil society and institutions (within the committee, as a participation space provided in that specific social organisation);
- the participative definition of municipal policies on natural resources management and safeguard of traditional knowledge.

The Municipal Regulation for Environmental Management of Atitlan Lake's Banks is one of the major achievements of the intervention research. Its core principle is the reaffirmation of ecological and sustainable relationship between humans and nature through the inseparability of protection activities of natural resources from traditional production. The production of *tul*, as well as being an intangible cultural heritage of the Mayan communities, contributes to the maintenance of the lake's ecosystem through the care of these plantations. The same Tuleros Association is a tool for the enhancement of Mayan culture and its intergenerational transmission and, therefore, can be defined as a 'heritage community'.

The overcoming of culture/nature dualism and the biocultural perspective allow us to interpret the relationship between natural resources, traditional production practices and specific organisational forms. Finally, the study shows that the educational valorisation of intangible cultural heritage can promote actions in defence of the lake's ecosystems as well as participative management of natural resources.

Conclusion

Despite the diversity of contexts, the two case studies show the potential of building and strengthening the relationship between cultural, natural and social capital, fostering local development and social inclusion through innovative approaches to education. They emphasise the contribution of non-formal and embedded education to the valorisation of local know-how (intangible culture) and to the participation of local players in integrated territorial governance for better management of natural and cultural resources.

Coming back to the key questions, mainly from a transdisciplinary perspective, the experimented educational actions have been able to support, basing on learning, the processes of identification and recognition of natural and cultural capital value at different levels: in the training/education paths, in the local actors' networks and in the community (local, regional, of the project), at governance levels.

This was possible thanks to adoption of methodological criteria that are common to the experience of cross-border study circles and to the training course for Environment Committee members. First, the participatory approach to education, adopted in the projects, enabled the activation of democratic processes to develop

practical knowledge, starting from identifying and recognising the value of participants'/communities' know-how. It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities (Reason and Bradbury, 2006). Moreover, a second element is the focus on learning processes based on local community development, strengthening endogenous and sustainable dimensions. Non-formal and informal education have been 'reinforced' in a kind of embedded education capable of entering into the intricate relational structure that characterises a phenomenon, to promote transformative actions on individuals directly or indirectly involved and, in parallel, on the context conditions in which it manifests.

The conceptual framework and the research briefly reported allow some key points for the implementation of effective researches and strategies to be highlighted, as listed below.

- Develop scientific research able to ensure the return of the value of traditional and empirical knowledge to direct owners and not only to detect knowledge to reconfigure and to formalise in a scientific framework. The aim should be that community can build up its natural and cultural heritage over time, constantly revitalising it by sustainable utilisation.
- Develop participatory action research to invest in human capital, not only in terms of empowerment processes, but also for the development of new knowledge through innovative and widespread forms of learning, in order to define and value new forms of co-responsibility for the preservation of natural and cultural heritages.
- Define, on the basis of research, new directions for democratic and participatory governance models, making local communities (in their institutional, productive, associative and non-profit components) protagonists of their own development through the enhancement and promotion of the knowledge potential expressed by their natural and cultural capitals and social capital.
- Identify innovative approaches for the multilevel governance of an integrated natural and cultural capitals involving the public sector, private stakeholders and civil society (Council of the European Union, 'Work plan for culture 2015-2018', priority B1) with a view to an open network promoting innovative synergies between various levels of responsibilities.

In order to make this process effective, there is a strong need for contributions from different disciplines and the setting-up of research groups eager to work together and go beyond sectorial approaches that are no longer able to provide answers to complex problems: experts on natural capital and experts on cultural capital; experts on the construction of knowledge and learning environments; experts that can transform the territorial potential in sustainable economic development and employment; experts to explore the possibilities of new technologies for the creation of networks of mutual learning.

A systemic approach is required: research can offer tools to policymakers for developing innovative and effective and evidence-based strategies and to deliver practical and innovative methodologies to support lifelong and life-wide sustainable learning.

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