

Competences, Education and Sustainable Development: a Case Study

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Abstract

The challenge of advancing the relationship between education and sustainable development is one of the most valuable lines that guide the training projects, leadership training programs for trainers and training plans of the organizations.

One of the most researched contributions¹ is the relationship between the domain of competence of teachers and organization leaders, showing that the updating and training of people is essential to obtain sustainable development. One of the basic elements is the domain professionals have in order to achieve the right balance between education and sustainable development competencies.

The methodology employed in the research harmonizes both quantitative (ad hoc questionnaire) and qualitative (interview, case study and observation of processes) methods in relation to training programs and business improvement (ROI²).

The most characteristic result is that the preparation of trainers and leaders of cooperatives needs to focus on their professional skills by balancing the existing competition between management, planning, leadership and action, which involves the most direct and practical communication, methodology, motivation, confidence, cooperation, empathy, and has to be extended to those professionals working on inquiry, research, innovation and belonging to the culture of the institution.

Keywords: *Education Sustainable Development, Teaching innovation, trainer, case study, competences*

JEL Classification: *I2*

Introduction

Education is a facilitating activity for people's full realization, whereby the development of communities and its positive projection in the rest of the groups and cultures is achieved. Education has become the key to addressing the challenges of society and promotes opportunities for sustainable development of multiple human, economic and environmental realities, etc.

¹ Medina, A., y Domínguez, M.C. (2008). *Formación base del desarrollo de las comarcas*. Madrid: Universitas.

² Medina, C. (2012). *La empresa y la inversión en formación: ROI*. Madrid: Universitas.

Coherent education aiming at development requires the following attributes: creativity, openness, flexibility, perseverance, collaboration, honesty, rigor, autonomy, consistency, initiative, risk, entrepreneurship, dialogue, etc. This makes possible that new generations assume that the best and most valuable way of engaging with each other within a diverse group of people is through education.

Education allows for the continuous improvement of human beings, which enables them to anticipate major challenges. It requires rethinking and building on previous contributions, but lived with a style of openness and strong improvement. Such environment will provide ideas and creative styles to learn from problems, risk with prudence and adapt their possibilities to a process of continuous improvement. This is the most desired goal in order to achieve respect from future generations for the most diverse fields of knowledge: art, technology, culture, diversity of experience and community, holding fast new solutions to the current problems.

A General Framework for Education and Sustainable Development

The development in education is a constant search, an open line to utopia and a thoughtful process oriented to innovation and supported by a permanent attitude and research activity. Sustainable development is achieved when it is committed to authentic values of respect and harmony with the environment and with all the people and cultures that make it up, yet it can be perceived as an economic challenge with a high social impact.

The resources are optimized and meet authentic problems by applying case study methodology, completed with new modes of advanced research, such as eco-formative and transdisciplinary methods. The education to achieve sustainable development aims to prepare people in a genuine sensitivity, discovering the nuances of the communities and their ways of relating to the world.

The education contributes to sustainable development given that the main source of exchange and value which characterizes the present society is the knowledge in all its forms, together with a creative and selective use of technology, uniquely related communities in networks that shape new paths and styles of collaboration among humans.

The advancement of knowledge and its contribution to sustainable development of the people and communities is a priority goal of education, placing each student in front of the challenge to learn to compromise and adapt to the improvements and transformations of its vital ecosystem's healthy way in an empathic, creative, economic harmony and with projection in a globalized and interdependent world.

The key to understanding themselves and in relation with the environment is to promote the teaching process, learning socio-geographics, but getting ready as world citizens, implicated in comprehensive models of developing and generating intense human solidarity.

The development in a holistic sense and the continuous transformation for all human beings endowed with full cooperation skills and with a commitment to pursue new economic models that allow the appropriate cooperation between all members of an organization also represents a means to help them respond to problems in a sustainable way. The basis of development should be focusing on having a coherent educational style adapted to global improvements.

The sustainable development education-binomial is a reciprocal process in such a way that people who contribute to the development have achieved higher levels of education. The exchange of knowledge within a community allows it to have a connection with outer cultures. A concept linked to this approach is "eco-formation" or training in an interconnected world by advancing the relationship of learning processes based on transversality, innovation of teaching and research, open to the challenge of sustainable development which allows scenarios,

ecosystems, regions, cities and rural communities, etc. to become favorable for environment development.

It is important to create a climate of dialogue and encounter among cultures, conscious that the new economy of these communities depends on the commitment to education, and to become aware of the value of goods, services, companies and human organizations, strengthening the better interface between educational institutions (universities) and the world of business and productive organizations.

The diverse cultures and groups are able to generate new spaces of development consistent with their identity and provide the perfect space for their global integration. Prudent use of ICT becomes a challenge, the service of a new way of understanding the dialogue and complementarity of several factors (Figure 1):

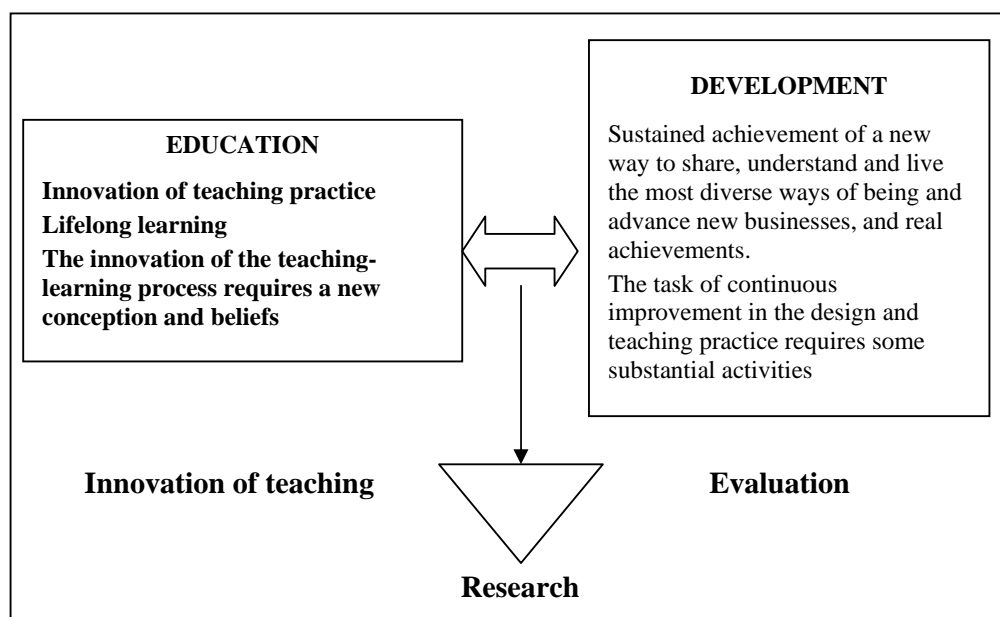


Fig. 1. Innovation of teaching, evaluation and research for sustainable development

Source: made by authors

This triangle represents the close interdependence between the valuation task, estimation and appropriate decision taking for continuous improvement of education, showing awareness of its impact on people and institutions, but this function is independent of the most relevant source of knowledge: research. Creswell (2008)³ emphasizes that research is rigorous, relevant and involves real action in order to enlarge the knowledge about factual and educational practices.

Research will be accomplished through rigorous processes of knowledge creation, application of relevant methods and creative reflections that emerge as a result of various processes aiming to consolidate the culture of innovation, continuous improvement and to build a genuine online decision making system sustainable in educational contexts.

Gürtler, Kiegeelman and Huber (2005)⁴ presented their framework for designing successful performances on the research, which we are going to focus upon in our paper. The teaching innovation is linked to assessment processes that demonstrate the quality and relevance of what

³ Creswell, J. W. (2008). *Educational Research*. Boston, Ma. Pearson, Prentice Hall.

⁴ Gürtler, L., Kiegeelman, M. and Huber, G. (eds.). (2005). *Areas of Qualitative Psychology — Special Focus on Design*. Tübingen: Verlag Ingeborg-Huber.

has been done and research is essential to the advancement and justification of the knowledge obtained about the teaching activity, its meaning and continuous transformation.

The education is improved and adapted to the continuous challenges of communities, people and organizations, to the extent that the processes of teaching and learning are performed. These processes are supported by innovative activities and are evaluated to estimate the quality of the achievements and the processes as a whole become the subject of further research that will provide more rigorous and elaborated knowledge that will enable teachers to perform with the highest rigor and relevance, contributing to optimum sustainable development. Teachers' processes must adapt continuously and must improve, using the criteria that are more efficient to guarantee the sustainable development of quality. The criteria that justify the quality of teaching innovation processes are: rigor, appropriateness, relevance, competency development, impact and institutional improvement.

These criteria were applied to estimate the impact of innovative teaching practices which all together characterize those educational activities that have a high degree of innovative potential for the improvement of the teaching-learning processes. The real improvement is to carry out the training task as a creative process, applied with a methodology that combines didactic and heuristics features. At the same time the quality scope and the results of the educational process that facilitate the achievement of competencies must be estimated, but as evidenced by a high impact and high projection transformation in its globality, competition that affects us, and improvements in each competency are reflected by teachers' and students' high participation in the targeted improvements.

The competences to be developed in people and having a high impact on institutions have been identified in other studies⁵ to consider when looking for a model to train trainers in rural contexts, achieving the following competencies that must characterize the local leaders and trainers in these areas of olive cultivation. Such competences are: leadership, planning, management, communication, motivation, methodology, resource optimization, collaboration, innovation, inquiry, reflection, empathy.

Specialist training is contributing to the ongoing training of managers and leaders in these rural areas, showing that the formation and development of learning throughout life is essential in improving the expectations and expanding the horizons of initiative, gaining momentum for sustainable development of the communities, regions and creating an optimal climate in organizations.

Sustainable development must be included as the new competence in which trainers can be prepared to create an environment conducive to entrepreneurship, a culture of constant search and permanent transformation of people climate, cooperative organizations and communities, providing such development as the main line of work for a global, permanent and profound change.

Education for Sustainable Development

Research on sustainable development has provided new lines of conceptualization and search for meaning (Troitiño, 2003, Medina, Sevillano and De la Torre, 2009)⁶. Specialists report that the development of the communities, regions and environments of exclusion are themselves the

⁵ Medina, A., y Domínguez, M.C. (2008). *Formación base del desarrollo de las comarcas*. Madrid: Universitas; Medina, M. (2012). *La empresa y la inversión en formación: ROI*. Madrid: Universitas.

⁶ Medina, A., Sevillano, M.L., de la Torre, S.(2009) (Coords). *Una universidad para el s. XXI (EEES). Una mirada transdisciplinar, ecoformadora e intercultural*. Madrid: Universitas; Troitiño, M. A. (2003). Renovación urbana: dinámicas y cambios funcionales. *Perspectivas urbanas*, N°. 2, 2003, 2;

objects of research, and highlight the commitment to search for a new sustainable style that allows them to recover their heritage, culture, historical elements and social and economic realities.

Sustainable development is the comprehensive progress through socio-economic models with a singular involvement of people and encouragement of organizations / cooperatives, companies, etc. creating a line of goods, value added, balanced ecosystems, in a continuous pursuit of harmony between economic improvement and environmental stewardship. This processing line, promoting and creating “human and social values” in a friendly and technological environment respects the setting of inherited resources located as new valuable objects from the industrial archeology, the new environmental scenario in which all the resources of an area must be experienced and shared.

The sustainable nature ecosystem aims to delve into new ways of improvement and sustainable development of the olive oil is in the region of Bailen-Linares-La Carolina, with unique historical and economic roots, committed to balancing the utmost respect for the historical heritage and full advance in a line of cultivation and cared olive oil, incorporating sustainable systems for achieving a high quality product.

Medina and Dominguez (2008)⁷ present a model of integrated development of the regions, based on formation, showing that the process of sustainable development is linked to the education-training style that people perform in such environments. Therefore they find it essential the training of trainers, the involvement of educational institutions from schools to universities, emphasizing the value of interdisciplinary, the synergy between education, economy and rural cooperatives, encouraging appropriate collaboration within all individuals and organizations in a global, essential and integral transformation project, including people, communities and the various productive organizations: cooperatives, service companies, workshops, etc..

The Research Question

The interrelationship between education and development is to be inquired into from the standpoint and analysis of educational innovation. Thus, building on the terms and concepts of education and teaching, more relevant ways can be created to improve the development of communities, cultures and environments, to build institutions and companies that improve development by projecting the best trained people to transform productive organizations and optimization of assets and resources.

Research Objectives

- Identify the most relevant relationships between education and sustainable development of communities and organizations;
- Investigate the impact of the improvement of teaching in the development of people and communities;
- Discover the impact of educational innovation in sustainable development;
- Apply the methodology of case study on teaching innovation and sustainable development;
- Integrate didactic and heuristic methods in promoting sustainable development processes;
- Reach new forms of interaction between education and sustainable development in the transformation of people and agricultural ecosystems.

⁷ Medina, A., y Domínguez, M.C. (2008). *Formación base del desarrollo de las comarcas*. Madrid: Universitas.

Methodology

This research takes the perspective of methodological integration, harmonizing the quantitative method, resulted in the application of a questionnaire to discover the most valuable competences to train trainers and managers of leading companies and cooperatives in agricultural contexts.

The quantitative method has been completed with the qualitative method, which identifies the natural and unique reality investigated through the application of in-depth interviews and focus groups, applied in specific and broad set of case studies⁸ as well as making this study search model and training of trainers and business leaders the main objective for sustainable development. It seeks to discover the impact of the models, teaching innovations and creative practices in improving productive organizations.

In order to achieve the global transformation of all rural citizens and communities, sustainable development must be coupled with a new style of conducting research based on the eco-training, transdisciplinary and ecology of knowledge (De la Torre, 2008)⁹.

The research has focused on providing the potential case study, consistent with the research problem, to identify the most important aspects of teaching innovation to achieve sustainable development of organizations (agricultural cooperatives), diverse communities (Roma) and training of managers, organizational leaders, supported by training experts (trainers).

The solution for the achievement of the interdependence between teaching innovation and sustainable development must be carried out through case studies. Three approaches have been applied, all of which are presented below (Table 1):

Table 1. Model of case study

Reflective case study	<ul style="list-style-type: none"> • Evaluating and improving personal / professional dimensions • Field notes are extensive and relevant • Evidence reflections on experiences and interactions • The teacher reflects their own practice and research to improve • Several lines of evidence are constructed to be balanced with mixed prospects
Longitudinal case study	<ul style="list-style-type: none"> • It is conducted over a prolonged period of time • It implies the need to understand a process • Research and improvement process that allows : <ul style="list-style-type: none"> ○ Understanding beliefs and teaching practice ○ Forward dynamically (not static data) ○ Inquire in the present, past and future ○ Relationships based on trust / respect / opening ○ Explore groups and processes in the social context
Research and teaching improvement	<ul style="list-style-type: none"> • Recognize the classroom and teaching laboratory • Choose techniques to obtained information • Analysis and data reorganization • Draw/synthesize conclusions: Thinking processes to improve teaching in relation to: the speech/discourse, the environment, decisions making etc.

Source: Adapted to McAteer (2013)¹⁰

⁸ Hamilton, L., y Corbett-Whittier, C. (2013). *Using case study in Education Research*. London: SAGE

⁹ De la Torre, S. (2008). *Transdisciplinarietà y ecoformación*. Madrid: Universitas.

¹⁰ McAteer, M. (2013). *Action Research in Education*. London: SAGE

The number of participants was 33, most of them (20) being experts in training and development of productive entities and organizations, with over ten years experience in process improvement and training of trainers, with emphasis on the transformation of communities committed to sustainable development.

We have applied the technique of in-depth interviews with experts in sustainable development: business development researchers, cooperative leaders, discovering the most important competences that characterize trainers in rural settings, and key and master competences needed by leaders as managers of cooperatives.

This case study is extended to other realities, such as Romani communities in a similar environment to the olive one. These communities live in an urban environment around the area of Madrid.

The synthesis of both studies requires a methodology close to that provided by Meyer (2007)¹¹ and McAteer (2013)¹² that combines the challenges of complexity and eco-formation and its impact on sustainable development, discovering the highlights of a research perspective that emphasize the complementarity and polyphony methods, advancing holistic processes of interaction between skills and new forms of decision-making for sustainable development aspects.

Results

The data from the questionnaires shows that participants / trainers and managers of organizations in agricultural contexts have to consolidate the skills showed as most valued (Table 2), as well as placing the emotional harmony and optimal use of resources, reaching a high value (between 5 and 6) and representing a profile of expertise in those competencies that have been characterized as essential by the university teachers (Medina et al., 2013)¹³.

Table 2. Average, median and mode for competencies.

	N (=33)	Average	Median	Mode
Leadership	33	5,00	5,00	5
Planning	33	4,75	5,00	5
Organization	33	4,81	5,00	5
Management	33	5,06	5,00	6
Communication	33	4,94	5,00	5
Emotional	33	4,25	4,00	5
Motivation	33	5,13	5,00	6
Empathy	33	5,06	5,00	6
Methodology	33	5,25	5,00	6
Resource optimization	33	4,05	5,00	4
Collaboration	33	5,19	5,00	6
Innovation	33	5,09	5,00	6
Reflection	33	4,07	5,00	5
Inquiry-research	33	5,19	5,00	5
Institutional Identity	33	4,88	5,00	5

Source: made by authors

¹¹ Meyer, M.H. (2007). *The fast path to corporate Growth: Leveraging Knowledge and technologies to new market applications*. Oxford: University press.

¹² Op. Cit.

¹³ Op. Cit.

The average competences and global ratings were as follows. From the list of 15 competencies valued by respondents including ten experts and supplemented by direct personal interviews, it is evident that on a scale of 1 (lowest value) to 6, scores above average by 5 points and the median and mode 6 points, except inquiry-research and leadership, obtaining (5), the highest average is competition: Methodology (5'25) followed Collaboration and Inquiry-research, 5'19 reaching up to the lower value of 5'06 on equal score Empathy and Management, which get the first mode and median (6).

It is confirmed that experts reveal new sets of scores close in matching to the relevant skills in the second dimension, characteristics of the so-called "put into action" or implementation of planned and organized decisions.

However, two of the most rated, initial planning and decision making, are integrated. These are Leadership and Management ranking fifth and seventh, respectively.

One of the relevant competences of the third dimension shows their closeness, innovation and improvement of the culture of collaboration. This is among the first to occupy the third score, although the mode and average reach is 5/5 (Inquiry-Research). This set of most valued competencies shows a preference for the development and implementation of training processes, offering a vision of trainers that harmonize the methodology and domain of inquiry with motivation, leadership, management, and empathy.

It is noted that the following three competences scoring between 4'94 (communication) mode and median (5'5) and the organization, with an average of (4.81, mode and median of 5/5), are close to the identity collaborative culture (4.88 average, median and mode, 5/5), those competencies that the trainer has to deal with people, to advance the culture of collaboration and organize the institution and programs to improve training of those involved in the improvement plans and community development.

The remaining competences are valued 4'25 (Emotional Harmony, but mode (5), Planning (4'75 and average mode and median 5/5), that together with Reflection and resource optimization are all less valued, perhaps the Organization of resources in the lowest mode (4), since Harmony Emotional reaches a mode of (5).

The in-depth interviews with managers of agricultural cooperatives, and leading training institutions conducting content analysis by experts' triangulation, stand out for their impact on the development of cooperation climates and progress in the culture of initiative and shared responsibility owing to the following qualifications:

- Delegation of functions;
- Mutual trust;
- Willingness to entrepreneurship;
- Intense dedication;
- Priority to common needs.

When questioned about the impact of cooperative institutions in community development, they emphasize the role and impact in rural environments of the cooperative movement in the olive cultivation.

Training and learning for life and solving new problems stands out as the most valuable skill to find new prospects and train community leaders and businesses, taking on the challenge of making prudent, but creative initiatives, contributing to more appropriate development of people and communities.

In other interviews, the highest rated competences are found to be: methodology, motivation, management and empathy. This represents a complementary method with similar results, key to advance the proposed research problem.

Discussion and Conclusions

The results of the ROI model, applied to small and medium enterprises find that training is not a cost for the optimization of the company, as it provides higher quality and it leads to an improvement for the company in its sector.

The perception of managers and experts involved in this research is that business leaders are essential for the quality of training which has a major role in the improvement of the companies' climate and culture¹⁴.

The training is set up as the essential activity to tackle the companies' crises. Consistent with the obtained data, this research identifies the value of competences and training, and together with previous studies it shows that a fruitful line of improving the corporate culture is achieved when people are working in an intensely collaborative environment¹⁵.

Two conclusions can be drawn regarding the level of achievement of the objectives:

- The training model is essential to achieve mastery of the intended competences, improving enterprise productivity and greater motivation of members, supported by a collaborative, flexible and integrated perspective;
- Designing a program that sets clearly the training objectives consistent with the culture of company innovation and serving the real needs and expectations of each person in the organization.

The harmony between the real demands of organizations and people's expectations of business is essential to the success of an integral program of transformation and openness to continuous improvement.

The education of vulnerable communities is essential to enhance sustainable development, creating a climate for improvement and lifelong learning perspective that will affect society, creating new sources of knowledge.

Sustainable development is based on the comprehensive training of all members of society to realize the value of the balance and harmony between people, nature and the varied ways of understanding the practices and healthy lifestyles. Sustainable development is a global and interdependent way of working in the global ecosystem, solving local and regional problems in correspondence with the global and common problems. It is about finding the most valuable solutions to the challenges of our societies whose most prominent value is interdisciplinary knowledge with a universal training vision.

¹⁴ Medina, C. (2013). *Formación de líderes e inteligencia emocional*. Madrid: Universitas; Medina, M. (2012). *La empresa y la inversión en formación: ROI*. Madrid: Universitas.

¹⁵ Tejada, J. (2005). Elementos de convergencia entre la formación profesional y la universidad: Implicaciones para la calidad de la formación profesional superior. *Revista de Educación*, 340, 1085-1117; Le Boterf, G. (2009). *Ingénierie et évaluation des compétences*. 6^{ème} éd. Éditions d'organisation; Mas, O. (2012). El profesor universitario: sus competencias y formación. En *Revista de Currículum y Formación del Profesorado*, vol. 15, 3. 195-211.

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