CREATIVITY AND INNOVATION TRAINING ACTION: DESIGN AND RESULTS

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Abstract

The economy and the society in the XXIst Century is 'knowledge based'. It means that the value is based on new knowledge and its applications. Creativity and innovation are fundamental issues for key competencies, directly related to social development, competitiveness in organizations and employment. Creativity is concerned with finding new perspectives and being opened and receptive to diversity. Innovation also looks for impact in a social level. Innovation is a complex process involving different abilities, being creativity at the core of the process. Innovation includes perception of opportunities, ideas generation and evaluation, action plans, cooperation, taking risk… People are in the core of the innovation systems. Therefore, educational institutions play a central role, and have a social responsibility to develop innovation thinking capabilities, both in students and teachers.

This paper presents the design of a course about Creativity and Innovation, in the framework of the Lifelong Learning Program of Cadiz University, with the objective of developing innovation capacity, through the knowledge of methodologies and putting them into practice. Good results are obtained related to the objectives searched for and to the methodology used. A self evaluation of participants, about eleven competencies related to innovation is done and an increase in the participants' level, from the beginning to the end of the course, is obtained. The paper explores the methodological approach, the model used in the innovation process and the results obtained.

1. Introduction: what 'knowledge society' means

We identify the society in XXIst Century as a 'knowledge based'. This means that nowadays the creation of value is more based on the intangible resources than before. Our society is complex and people need to understand or to manage a lot of continous changes, most of them technological changes, but with big social and educational impact, and people need an adaptation to them. This situation implies a continuous life learning activity [1].

We live in a society of services where innovation is a central subject for development. Creativity and innovation have become key competencies and the most important resources [2]. Cooperation and communication are other important factors to be taken into account in order to understand the environment in wich we develop ideas and innovative projects.

2. The concept of innovation

Innovation can be understood as the capacity to create new value for people and organizations. In other words, it is a creative activity market-oriented. It is common knowledge that innovation is not only technological innovation but business model innovation, social innovation, educational innovation etc.

The creation of new values is a complex activity that integrates different abilities such as:

1. Perception of problems and opportunities
2. Problems' understanding.
3. Team work and cooperation.
4. Ideas generation.

5. Evaluation and selection of alternatives.
6. Design of action plans.
7. Communication.
8. Put the ideas into action.
9. Risk evaluation.
10. Knowledge of methodologies and tools
11. Creative environment management

In order to design training actions all these abilities must be taken into account and, what is more, all of them must be put into practice during the learning process.

Persons are in the core of innovation systems [3]. Therefore both training and education are very important tools to develop the competencies needed. Academic institutions have a social responsibility to think, design, put into practice and evaluate methodologies and efficient training actions to develop innovative and creative thinking [4].

3. Methodology design

In the framework of the Lifelong Learning Program of Cadiz University a training action with the objective to develop innovation and creativity has been designed. It has been developed as a course during one month, with seven sessions and two hours by session. Two editions of this course have been done during the period 2010-2011.

The course methodology was based in the following approaches:

a) The use a model of the innovation process, named CREALAB.
b) Developing an active and creative environment. This is the axe about all dynamics of the innovation go around (see Fig.1). Such space of work is based on the acceptance and promotion of some basic principles as:
    a. An atmosphere of trust and collaboration between participants.
    b. The possibility to propose initiatives (new ideas and projects) the participants have.
    c. Flexibility in the organization, including the physical space.
    d. Fluid communication and knowledge share between participants.
    e. Non evaluation of ideas in the process of generating them.
c) A multidisciplinary oriented approach.
d) Learning by doing. During the course an innovative project must be designed for each participant. The subjects of the projects are freely selected.
e) Case studies. Most of these cases are obtained from the artistic or creative fields. The work of Picasso creating the Mademoiselles d'Avignon is studied. In the same way some of the ideas of the arquitech Renzo Piano about his methods of work are presented and discussed.
f) Use of ICT. MOODLE learning platforms, and some tools for mind mapping drawing activities, are used.
g) To understand the training action as a user experience. It means that cognitive activities are important but not the only ones. Emotional aspects are also very important, and the overall learning process as activity, interaction and reflection circle.

The CREALAB model proposed for the innovation process, based on different proposals [5-7], is presented in Fig. 1.

In general a model is developed with an objective. This model is used to structure the contents of the course, the activities and the project design of participants. In this model innovation is understood as a iterative process, not a as linear sequence of activities. It also has a dynamic of growth from an initial idea, representing an opportunity or a problem, to the conception of a project. This is the sense of he the spiral shape the model has. A spiral is a line that grows and passes trough the same directions several times. As the graphics also show, all the activities are supplied by a central creative engine named as 'creative environment'. This brings about an important idea: creativity is not reserved to the initial steps of the process of innovation but supplies all of them. The course itself is understood as creative environment that must be constructed among all participants. Their results are an effect of this 'creative engine'.

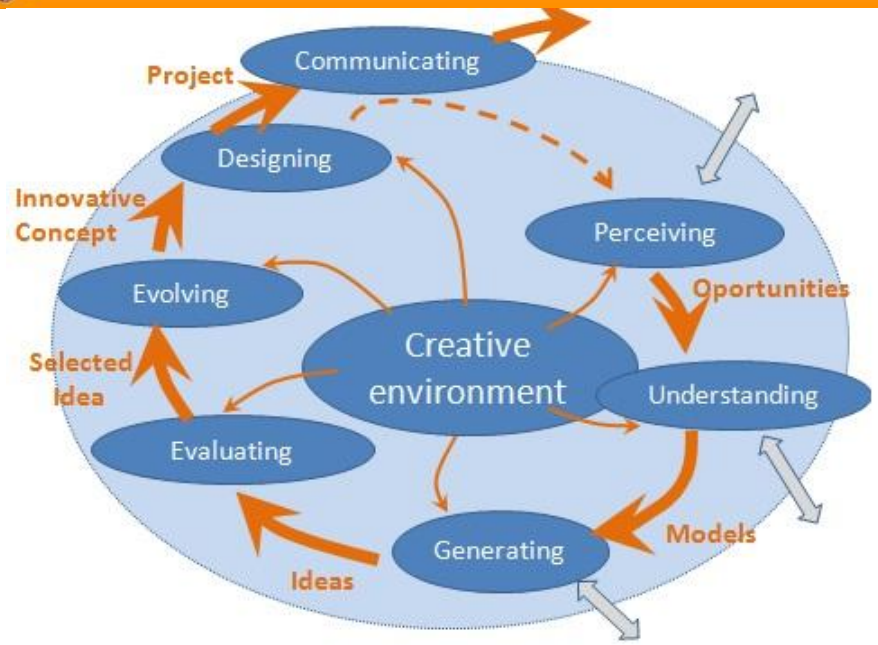

Fig. 1 CREALAB model, proposed to represent the innovation process and activities

4. Evaluation and results.

An evaluation system, based in two specific evaluation instruments, was designed. The first instrument is a self-evaluation questionnaire about innovation and creative capacities (QICC). The second one is a questionnaire about the objectives, methods and results of the course (QOMR).

QICC have two levels:

1. An overall level, in which each participant evaluates his/her creativity and innovation capacities at a global level.
2. A specific level, centered in the evaluation of the specific capacities needed for innovation (see paragraph 2).

QICC was carried out twice, at the beginning and at the end of the course. Two editions of the course have been developed. The results of the first edition are presented in Fig. 2 and Fig. 3.

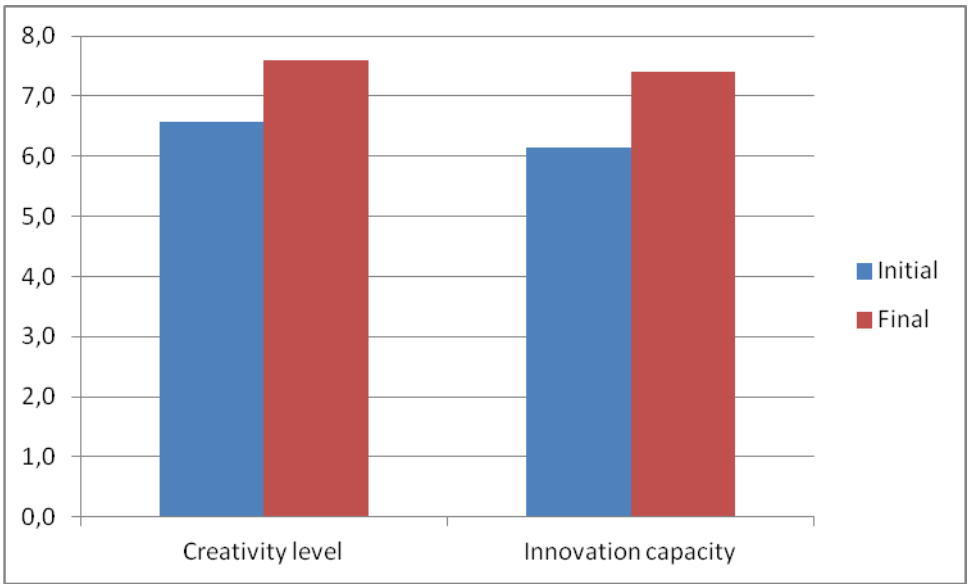

Fig. 2 Results of the innovation and creativity self-evaluation capacities at a global level (edition 1)

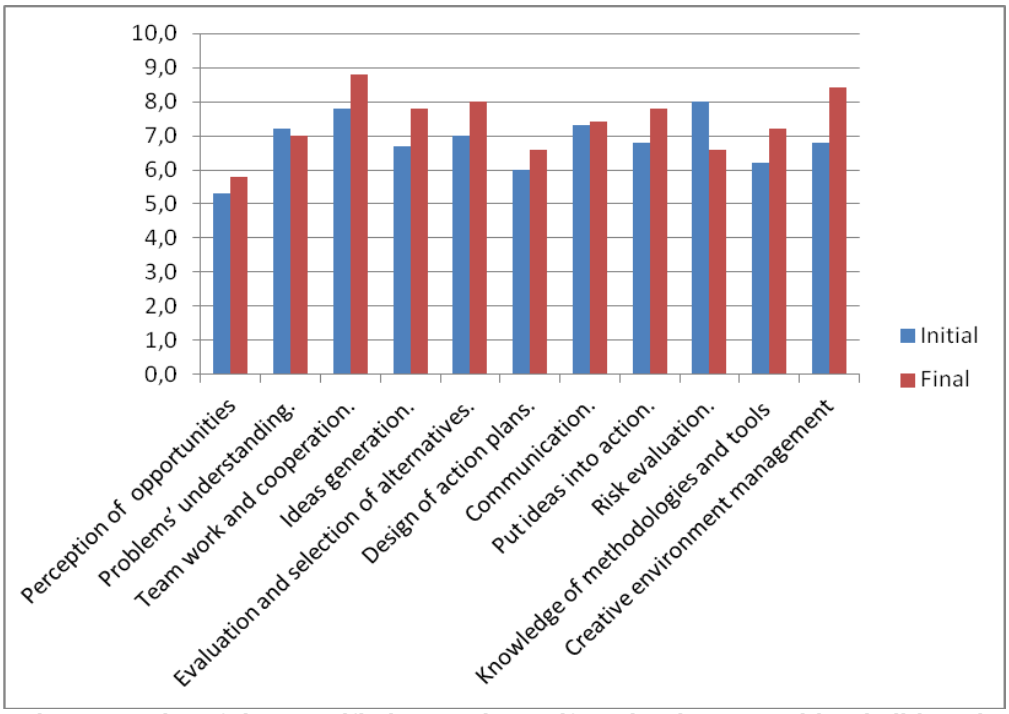

Fig. 3 Results of the specific innovation self-evaluation capacities (edition 1)

In the second edition of the course the results have been better than those of the first edition. For example, all self evaluation levels for specific innovation capacities were increased.
The second instrument used for evaluation is a questionnaire about objectives, methods and results of the course (QOMR). It also shows good results for the two editions (Table 1).

Scale of valuation: 1- Disagree a lot, 2- Disagree, 3-Partial agree, 4-Agree, 5- Agree a lot		
OBJECTIVES	Edit. 1	Edit 2
I have learned a methodologie for innovation development	4,8	4,7
I have practiced innovation	4,4	4,6
RESULTS		
I have generated ideas	4,2	4,3
I have started a project conception	4,2	4,6
I have progress in the construction of a team for developing my idea/project	4,2	4,0
I have found people, resources and aids for innovation developing	4,4	3,8
METHODOLOGY		
The course has been a creative environment	4,6	4,8
The course has been a significative experience for me	4,8	4,7
The course has been conceived as a space for collaboration	4,8	4,7

Tabla 1. Result of the course evaluation, QOMR

6. Conclusion remarks.

In our society creativity and innovation are key resources for persons and organizations. These capacities can be put into practice and learned. Therefore all educational levels have the responsability to promote it. In order to do it good methodologies and learning approaches are needed. This paper has presented the methodological design and results of a training action with the objectives of developing creativity and innovation in the framework of Lifelong Learning Program in Cadiz University. Good results are obtained with two evaluation instruments. These results suggest a well oriented methodological learning approach.

Our self-image or self valuation about one specific capacity has a great influence on the real capacity we effectively have. This idea is especially interesting in the case of creativity and innovation, because self confidence is extremely important to propose, think, explore, develop and communicate new ideas and projects. This consideration is very important to take into account in order to interpret the results obtained

Due to the importance of these competencies for people and organizations we think that the educational approaches put into practice in the experience presented could be extended to other educational and profesional levels**.**

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