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Experiences in the Development of Human Capital for Self-training

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Abstract

The development of human capital is beneficial to an Institute of higher education because, on the one hand generates self-training and links and narrows relations between advanced, intermediate and novice students. Seeking as a consequence that an atmosphere of cordiality, companionship and empathy is established. It is easy to generate a relationship between the subjects of advanced periods versus those of the former, a reason that strengthens the fact of designing methodological and teaching tools towards the creation of courses or workshops where the exhibitors or instructors are the same students of the educational program.

Human Capital, Self-Training

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1. Introduction

Within the university studies the integral development of the students is encouraged. As part of this, academic or collegiate bodies are generated. Some of the functions of these entities are the generation of human capital, development of applied research, generation of technology, etc. In relation to the first is what this article is based on. Taking as reference a competency-based education where care and development is required to be, knowledge and doing of the student is what these activities are done to strengthen these pillars.

1.1 Conceptualization

Navarro (2005) states that Human Capital: corresponds to the value generated by people's abilities through education, experience, the ability to know, to improve, to make decisions and to relate to others. Boisier (2002) more precise the concept and adds that this corresponds to the stock of knowledge and skills that individuals possess and their ability to apply to production systems. This same author, from the perspective of what he calls the endogenous development or capacity of the Regions, or of a determined territory to model his future from within, adds other capitals that are important to consign, because of the influence they exert on Human Capital. and for the particular impact they have on the understanding of the gaze from the Regions.

For its part Madrgal (2009) says that: The human capital of a company, organization, region or country is the cornerstone, is the source of development and therefore is one of the factors that generate competitiveness. It is proven that countries that invest in human capital are among the most developed, the cases of Germany, Sweden, Canada, among others are faithful testimony of those who invest in education of their human capital.

At present, the term "capital" has different meanings: in certain occasions it indicates the material means of production of a company; in others, the financial resources invested in a productive initiative or also, in stock market operations. It is also spoken, in a totally inappropriate way, of "human capital", to mean the human resources, that is, the people themselves, insofar as they are capable of labor effort, of knowledge, of creativity, of intuition of the demands of their similar, reciprocal agreement as members of an organization (Scherz, 2009).

1.2 Methodology

As part of the teaching system is put as analysis and application the academic body and groups of the Technological University of Altamira. The Academic body was the so-called Electrical Engineering in Maintenance. The characteristics of the academic activity are the following:

- Eighth, ninth and tenth semester groups are scheduled.
- It develops a topic of interest, domain and relevance to one or several subjects that are being studied.
- Evaluation rubrics are developed.
- The students develop their methodology and logistics of the workshop or training.
- The students generate the user and participant manuals.
- The student at the end of the activity delivers a portfolio of evidence of the activity developed.

1.3 Development

To exemplify, a particular case will be presented. The characteristics are defined below: Leading Group: 8th Industrial Maintenance Engineering.

- Subject: Process visualization and control.
- Participants: 25

- Teams: 5
- Topic: control of electro-pneumatic systems using graphical simulation software.

Receiving group: 5th of Superior Technician.

- Subject: Robotics.
- Participants: 3 groups of 5th semester.
- Teams: 3 for each group.

1.3.1 Evaluation

Within the evaluation criteria of the subjects, the development of the course or workshop is weighted. As well as for the recipients their participation and assistance to it. Both groups must present a portfolio of evidence for its validity. At the end a satisfaction survey is carried out where parameters such as: relevance, duration, applicability, etc.

1.3.2 Execution

In coordination with the management, tutors and teachers responsible for the subject, the schedules and distribution of the groups in which the workshop should be taken are agreed. During the execution, one of the teachers responsible for the subjects is present to generate a continuous evaluation and solve any unforeseen.

1.4 Relevance

As in the example mentioned, the following relationship:

Robotics	Display
Automation	HMI
PLC	Virtual Instrumentation
Display Software	Robotic systems

Table 1 List of pertinent subjects among subjects

Table 1 represents the list of pertinent topics between the subjects Robotics and Visualization, 5th and 10th semester respectively. As it is observed, due to the high correlation between subjects it is easy to establish theoretical-practical topics to be developed in a workshop.

2. Parallel activities

As part of the complementary activities, training is carried out by the university. For example, the Industrial Maintenance Management (case of analysis) has a certification program for students in Solidworks. This is done at the same time as his classes at the Engineering and Higher Technician levels.

There are local events such as congresses and scientific weeks, where the races are allowed to carry out cycles of conferences or other activities in order to promote and show the advances and technological developments. This type of showcase also encourages the use of these tools, where students organize, plan, direct and control small workshops for the benefit of the student community itself.

3. Results

It will be possible to list in an excellent way the results obtained as shown below:

- Generation of knowledge.
- Continuous training.
- Integral education.
- Strengthening the relationship between students of advanced periods with intermediate and low.
- Strengthening the development of communication skills of students.
- Strengthening the academic body in the generation of human capital.
- Narrow the relationship between teachers, tutors and academic staff.

4. Conclusions

The results are mostly qualitative, that is to say, the impression of the teachers and students involved. In the satisfaction surveys, the observations are mostly positive. In the case of the competency-based model that currently governs the education system, it functions adequately by strengthening the basic skills to the specific ones.

In addition to the applicability of the system where the professional practice of the student must be encouraged, it is useful for them to present publications in national congresses. As long as the generated is pertinent to publication. In this way progress is made in the generation of knowledge and technology development.

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