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Integration of Students Scientific Activity in Innitial Professional Training

KEYWORDS: continuous learning, training, intellectual skills, professional training, self-improvement.

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ABSTRACT *The depth and complexity of the professional training of students is based on two dimensions: on the one hand-training professional qualification, based on professional programs, on the other hand-gradually active involvement of students in investigation activities, based on individual programs. In this perspective, the goal of professional training consists in development of the scientific spirit and training students in order to understand the character of research. Therefore, the nature and the substance of social units and organizations are deeply changing. The major effects of these mutations are noticeable in the management of companies and socio-economical units based on intellectual work and not on physical one; Work and other activities are possible because of scientific information, on a different relation between mental workers and those doing physical work when the first category is getting more importance; knowledge and information are essential elements of efficiency, proficiency and competitiveness.*

1. Introduction

In the world, professional training was approached in several perspectives: the functional perspective focused on observations and exigency about society the technological perspective of training the perspective based on the collaboration between research and training the perspective centered on the idea of training situation, on " being in state" .To meet future, education and professional training systems must be flexible to offer a large foundation of knowledge and to develop the necessary competences for an active life.

In the last decades, the changes in society are topics of discussion, analysis and prognostic. With globalization, a big explosion of technologies, information, values, etc. At this moment, training future specialists faces many contradictions and malfunctions:

- Ignorance of the necessity to approach and solve actual problems of the society, lack of interest for a professional style in training and educating the students;
- Tendency to stress pragmatism in professional training and acceptance without criticism of postmodern ideas about teaching and the role of future specialists;
- Existing imbalance between theory and practice when training professionals;
- Implement of new knowledge and information while keeping stylistic notes which cannot cause required changes;

Often accompanied by students' inadequate attitude towards own training, the manifested malfunctions can alarm and oblige to a more attentive analysis of the vectors that can cause transformation. This situation implies a change of vision and professional style.

In the world, professional training was approached in several perspectives: the functional perspective focused on observations and exigency about society (G. Brown, G. Dickson, R. Saxe), the technological perspective of training (M. Linard, I. Prax), the perspective based on the collaboration between research and training (G. de Landsheere, G. Mialaret), the perspective centered on the idea of training situation, on " being in state" (G. Ferry). To meet future, education and professional training systems must be flexible to offer a large foundation of knowledge and to develop the necessary competences for an active life.

Specialists in education are asked to understand the complex situations that can suddenly alter. In this way, knowledge acquisition and training competences have to act together with a widening of personal horizon and acceptance of own responsibilities in the society.

It is expected that, in a period of technological changes, the need to learn and update information to increase. Thus, no matter how good is the theoretical training, a selection and use of pertinent knowledge in solving new situations will appeal to high order learning skills, to superior mental structures as the many adaptability and mobility demands impose.

2. Integrating scientific activity of students in training

In this perspective, the cultivation of the scientific spirit, the training of the students so as they understand the substance of research is the major aim of professional training. To include students in scientific research activity and to stimulate their interest alongside with a growth of their creative potential requires:

development of scientific knowledge, offering students the possibility to practically live scientific experiences using exploration, investigation and discovery as methods to train learning the skill of learning through discovery;

development of the ability to elaborate ideas through personal acts turning students from mere consumers of knowledge into "producers" of their own opinions, a conversion whose explanation is given by J. Reardon who says that, every teacher has to manifest less interest in teaching students science but to try to teach them to think as scientists do-asking questions, finding solutions, experiencing, consciously acting with active and effective participation;

training students the scientific culture using a corpus of basic, coherent, solid knowledge acquired by personal efforts instead of a simple memorization and reproduction of scientific thesis and conclusions; facing students to situa-

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tions when they have to find solutions to theoretical and practical problems through investigation;

providing students methods of investigation and expression, skills for inductive and deductive search, respectively, learning strategies through discovery and solving problem situations, used afterwards in real professional contexts;

developing interest in science and superior cognitive abilities: divergent and convergent thinking, creative imagination, the ability to explore, to express and examine hypothesis on causes and connections, the capacity to discover and elaborate personal ideas, resolving abilities, generalization skill, growing personal principles to be applied in particular cases, the ability to critically think and analyze, etc[1].

The elements and the component parts of a scientific paradigm are seldom available to students doing research work, as accepted rules and clearly expressed. The student meets them in connection with the concrete paradigm and adopts them when solving real situations during academic studies with a help from an experienced scientist [4, p.45].

The idea to be followed is that the student holds the abilities for own development. Progress in thinking, of the system of values is the way to use one's own possibilities to grow and this enables evolution in what knowledge and action are concerned [5, p. 91]. According to this, future specialists have to be open to self perfection, to train investigation skills and, consequently, the professional abilities.

The great importance and the complexity of students' professional training stays on two dimensions: on one hand – development of professional training following specific programs and, on the other hand- active, gradual involvement of students in research activities on individual programs. A differentiation is thus possible in what students do to investigate and create according to their personal interests and abilities.

This aim, in postmodern conditions, is in strong correlation with the revaluation of academic research activity. Students' scientific work requires conditions to ensure proficiency, programs and methods to cultivate epistemological interests.

Scientific activity is part of the work to know and to transform reality taking into account scientific results and research methods. The result of this activity is an accumulation of information and experiences and the development of methodological abilities for the student researcher. Thereby, the investigation work the students do is a process of professional training for the future specialist, focusing the growth of searching abilities, self-improvement, initiative, individual and team work in finding solutions to real professional problems. A specific feature of students' research work is the individual approach in creative personal evolution.

Scientific activity has its own characteristics and well-established aims. Speaking about the students' research work in universities and the influences on professional training, it is necessary to distinguish the functioning elements, to find more possibilities to enlarge the area of investigational skills and to apply all these in professional work.

Students' scientific research work is a personal inquiry to which answers are searched, is "a concern" and the obtained results have to be demonstrated, verified and accepted as viable" [4, p. 49]. It is the moment when the necessity of a new packet of skills is to be produced for the student researcher for a better integration on labor market. To get to this, a practical approach of the triad knowledge-abilities-attitudes students apply in their activity is to be done. It is about the basic knowledge on research, as separate activity, students have; about science and its potential in the development of progressive processes; about professional training done through research work. The object to know has to be inherent with the object to analyze, forming together a whole made up of attitude and thinking, including practical activity. The student has to find a topic for the object of any scientific research, to make this object an element of scientific knowledge and to include it into the operation thinking.

Another structure of investigation competence students have is the scientific-investigational ability, in terms of practice action: mental work, reflexive acts and their interaction. The ability for investigational work implies complex structures of personality such as: intellectual, volitional, creative, emotional which help in ending tasks in different realities.

Developing scientific training means direct involvement in research activity and contributing to practical experiences. Research, as an action, is a practical attitude of the student who can focus on recognition, understanding and solving the problems of personal training, who can analyze the results of the work and have reflexive actions, permanently evaluated, who also can combine theory and practice, two systems of values, ideas and convictions, in declarative and pragmatic ways. Practice means therefore finding solutions using material methods. Students must be included in real activities, so that they can have reactions, they experience and improve situations, they control processes, conditions and effects and they have a whole image of their work as basis of future operations. Now, information is collected, shared, discussed, preserved, evaluated and is used in various activities because of it helps to observe and behave accordingly.

The active participation of students in the process depends on several stages: (1) recognition, evaluation, naming a problem in the real domain of professional training; (2) debates, preliminary negotiations with the participants in research act ended with a project including demands and solutions to answer the; (3) analysis of bibliographic sources to compare different solutions to similar cases; (4) modification/improvement of the initial project; (5) selection of research methods and activities: management of investigations, responsibilities in the group, selection of practical ways, sharing responsibilities etc,; (6) choice of evaluating procedures to be applied during the process; (7) implement of the project specifying the methods to collect data; (8) survey on activities, results and permanent communications among students-scientists; (9) analysis and observation of data, evaluation of results and of the activity; (10) final report with mentions about results, recommendations, ways to disseminate the project, future activities [6].

In the process of training students in research area, the collaboration teachers-students is important for education goals and future professional activity. In order to stimulate students to participate in research it is necessary to:

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- *support the activity of student scientific groups;*
- *organize every year scientific conferences involving students in a university or more;*
- *organize contests every year to notice and popularize the remarkable results students obtained;*
- *attract students in research projects etc.*

3. Conclusion:

In this manner, research activity becomes a process of accumulating knowledge. The investigational competence has as constitutive elements the capacity to explore and find solution, divergent thinking, creativity potential, objective judgment, capacity to make generalizations [6, p. 159]. Nowadays, when the contemporary society is based on knowledge and information, the production of material goods and other immaterial values is supported by more and more specialists producing and evaluating data. Therefore, the nature and the substance of social units and organizations are deeply changing. The major effects of these mutations are noticeable in the management of companies and socio-economical units based on intellectual work and not on physical one; Work and other activities are possible because of scientific information, on a different relation between mental workers and those doing physical work when the first category is getting more importance; knowledge and information are essential elements of efficiency, proficiency and competitiveness.

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