Impact Factor ISRA (India) = **1.344**
Impact Factor ISI (Dubai, UAE) = **0.829**
based on International Citation Report (ICR)

Impact Factor JIF = **1.500**
Impact Factor GIF (Australia) = **0.356**
Impact Factor SIS (USA) = **0.438**

Doi: 10.15863/TAS
International Scientific Journal
Theoretical & Applied Science

p-ISSN: 2308-4944 (print) **e-ISSN:** 2409-0085 (online)

Year: 2015 **Issue:** 01 **Volume:** 21

Published: 30.01.2015 **http://www.T-Science.org**

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SECTION 21. Pedagogy. Psychology. Innovations in the field of education.

INNOVATIVE DOCTORAL TRAINING: EUROPEAN PRINCIPLES

Abstract: *The article is devoted to the study and analysis of the main principles for innovative doctoral training development in European countries provoked by actual social, economic and political modes, and based on the Bologna process; and the recommendations for the perfection of doctoral training which should be kept in the countries of European region and in Ukraine as well to make national doctoral education achieve the European level.*

Key words: *doctoral training, Salzburg Principles, Salzburg II Recommendations, Principles for innovative doctoral training, Bologna process.*

Language: *English*

Citation: Golub TP (2015) INNOVATIVE DOCTORAL TRAINING: EUROPEAN PRINCIPLES. ISJ Theoretical & Applied Science 01 (21): 129-133. doi: http://dx.doi.org/10.15863/TAS.2015.01.21.22

Rapid and profound changes are taking place in the modern world nowadays. These changes which are often described as the emergence of a global information society based on knowledge became the most important factors affecting the development and shifts in the role, organization and methods of science operation in the 21st century. Nowadays education is considered to be a prior area in a social life of each country in the world, contributing the socio-economic and socio-cultural development of the states.

Conformably, the forms of educational and scientific activities in universities are also changing as they are key elements of educational system of every country, and play a culture-forming role. Modern universities are increasingly at the forefront of innovative development, where it is required not only to perform educational functions, but also to create scientific research for the development of economy, high technologies and innovative theories. Ukrainian educational science and educational practice are seeking the ways to ensure the quality of education through a renewed understanding of integration processes in European education, in a variety of Ukrainian educational practice.

Profound socio-economic, socio-cultural, and political reforms in Ukraine occur in the context of global outcome variables in the world in general and in the European region in particular, and lead to an open society, the distinctive feature of which is the interaction with other countries and nations of the world.

In Europe reforms in doctoral education have been a critical component of the Bologna Process and deemed vital to creating "smart, sustainable and inclusive growth", according to the European Commission's Europe 2020 strategy [1].

Ukrainian educational system, and doctoral education in particular, is also undergoing major changes. One of the key factors of such transformations is the more active involvement of Ukraine in the process of globalization in education and science. Nowadays Ukrainian education is undergoing reform due to society's transition to the new economic framework and the integration of Ukrainian education in the international educational system. Example of this is Ukraine's participation in the Bologna process. As we can see, during the last decade the Bologna process has transformed from the private political process aimed at improving the quality of education and mobility of highly-qualified professionals in the European Union, into the basis for the higher education system reformation in Ukraine and other countries of the world.

Besides, nowadays Ukraine faces a true crisis in the reproduction of intellectual elite responsible for the development of science, education, and culture. In such circumstances, the problem of updating and improving the existing system of doctoral education is really urgent.

At educational degree a research-oriented training focuses values and meanings of university education culture based on the combination of traditions and values of the scientific work, knowledge, and pedagogical mission of cultural heritage preservation and transmission. Being an integral part of the academic world as well as of the system of higher education, doctoral education faces the need to revise its guidelines and activities and to adapt them to new socio-cultural and economic circumstances.

Ukraine faces the impact of global trends in doctoral education that have not received its comprehension in Ukrainian science. Analysis of current discussions occurring in scientific and pedagogical community signs out that there is no unity in opinions about the educational reforms initiated in the context of the Bologna process in Ukraine, thus, the problem of the third level of higher education – doctoral education is almost completely out of the context of these discussions.

Relevance of the study of foreign experience is due to the possibilities of using the most valuable achievements in pedagogical science and practice abroad in the context of the emergence of a new paradigm of higher education, and especially doctoral education, in Ukraine, where the priorities are educational objectives based on the desire of Ukraine to the higher position in the world of science and innovation-based economy, and interaction with the world communities in solving global problems.

The analysis of existing sources on the issue of the study allowed us to formulate some objective contradictions in development of doctoral education in the countries of European region that are associated with the specifics of social development in the region, based on the formation of an open intercultural European society, which involves the strengthening of integration processes in all spheres of public life, including education. These contradictions are:

– between the new paradigm of university management system and training of researchers and historically established traditional systems of research work organization in universities, that do not allow to identify best modern educational practices in higher education and to stimulate innovation in the academic community, and do not take into account the new trends in the field of science management;

– between the study of individual components of research education in universities in the European region and the lack of a holistic view of its functioning in modern conditions.

Willingness to resolve these contradictions defined the main problem of our research. This problem is, to study the innovative principles of doctoral education in the countries of European region which are provoked by actual social, economic and political modes, and result in the reforms of doctoral education.

The history of pedagogy indicates a traditional apply of scientists to the experience of foreign countries. Comparative studies of the last decade reveal features of the development of primary, secondary, vocational, teacher education in different countries of the world, especially those concerning the Bologna process. The research of the reform of higher education in Europe is a special urgent subject, but such researches not often include modernization of doctoral education.

The development of modern pedagogical science is built on new methodological grounds, which is manifested in the appearance of researches that try to construct the structure of higher education according to the reality of a global education area.

The main purpose of the research is the identification and analysis of the innovative principles in the development of doctoral education in the European countries.

The main methodological basis of the research is the dialectical theory of knowledge, which consists of a holistic and comprehensive review of the phenomena and processes in their interaction and development; position of the unity and interdependence of theory and practice of education, the need to correlate educational phenomena with socio-economic and political conditions of their existence; a systematic approach to the analysis of pedagogical phenomena, the concept of a strategic priority of education.

Correspondingly, the main methods of our research are comparative, problem-comparative, logical and hermeneutical analysis; systematization and classification methods based on the study of the works of European researchers; comparison of the theoretical analysis, socio-pedagogical design.

Doctoral education has traditionally been considered to be the top level of higher education. Doctoral education is a primary source of new knowledge for the research and innovation systems in Europe. The outcomes of doctoral education are both a) young researchers who proved their skills for a professional life as creative, critical and autonomous intellectual risk takers, as well as b) the research output in the form of a doctoral thesis that contributes to the development of world science and the innovation system [2, p. 2].

In order to receive a doctoral degree, candidates have to prove their ability to perform original and independent research, on an international quality level within one or several related scientific disciplines, some of which merits national and international refereed publication [3]. The term doctoral education therefore signifies a period of individual research experience leading to a university degree that testifies the development of a “research mindset” of the candidate. Doctoral candidates have

to prove an entrepreneurial, creative spirit coupled with considerable persistence in following their objectives and must be able to prove and defend their research hypothesis to an expert panel beyond reasonable doubt. The duration of doctoral education varies across Europe according to the national university structures and disciplinary traditions, but requires as a rule a full-time endeavor of three to four years [2, p. 2].

The basis for the reforms of doctoral education in Europe are the 10 Salzburg Principles (2005) reproduced in Bergen declaration. These principles concern the key role of doctoral programs and research training in the Bologna process:

i. The core component of doctoral training is the advancement of knowledge through original research. At the same time it is recognised that doctoral training must increasingly meet the needs of an employment market that is wider than academia.
ii. Embedding in institutional strategies and policies: universities as institutions need to assume responsibility for ensuring that the doctoral programmes and research training they offer are designed to meet new challenges and include appropriate professional career development opportunities.
iii. The importance of diversity: the rich diversity of doctoral programmes in Europe - including joint doctorates - is a strength which has to be underpinned by quality and sound practice.
iv. Doctoral candidates as early stage researchers: should be recognized as professionals – with commensurate rights - who make a key contribution to the creation of new knowledge.
v. The crucial role of supervision and assessment: in respect of individual doctoral candidates, arrangements for supervision and assessment should be based on a transparent contractual framework of shared responsibilities between doctoral candidates, supervisors and the institution (and where appropriate including other partners).
vi. Achieving critical mass: Doctoral programmes should seek to achieve critical mass and should draw on different types of innovative practice being introduced in universities across Europe, bearing in mind that different solutions may be appropriate to different contexts and in particular across larger and smaller European countries. These range from graduate schools in major universities to international, national and regional collaboration between universities.
vii. Duration: doctoral programmes should operate within an appropriate time duration (three to four years full-time as a rule).
viii. The promotion of innovative structures: to meet the challenge of interdisciplinary training and the development of transferable skills.
ix. Increasing mobility: Doctoral programmes should seek to offer geographical as well as interdisciplinary and intersectoral mobility and international collaboration within an integrated framework of cooperation between universities and other partners.
x. Ensuring appropriate funding: the development of quality doctoral programmes and the successful completion by doctoral candidates requires appropriate and sustainable funding [4].

Five years after the Salzburg Principles, the Council for Doctoral Education of the European University Association conducted a series of seminars, workshops and conferences in order to explore the level of implementation of Salzburg Principles at European universities. The Salzburg II Recommendations (2010) provide a set of guidelines for diverse doctoral programmes and schools across Europe. The Salzburg Principles and Salzburg II Recommendations have successfully contributed to achieve a balance between a number of tensions that have been characteristic of doctoral training to date:

I. To balance out the level of structured skills training versus individual supervision, guidance and autonomous research.
II. Creating critical mass within institutions whilst recognising the different cultures, needs and expectations of cognate disciplinary groups.
III. Creating efficiency in terms of time to degree vs. allowing time to develop individual autonomy and independence.
IV. Supporting labour market development vs. the risks that particular students will be unemployed, overeducated or mismatched with available employment opportunities.
V. Balancing the right level of academic education with skills necessary for future career development outside academia.
VI. Balancing immediate skill requirements of the labour market with skills that will aid progression through the course of the career.
VII. The balance between specific (sub-disciplinary) individual skills vs. wider academic and generic skills [5].

Subsequently, the European Commission developed a set of seven principles for innovative doctoral training [6] in the framework of the European Research Area. These seven principles were based on the ten Salzburg Principles and Salzburg Recommendations II, practices in the countries of European Union and the Marie Curie experience. The Principles for innovative doctoral training are:

1. ***Research Excellence.*** Striving for excellent research is fundamental to all doctoral education and from this all other elements flow. Academic standards set via peer review procedures and research environments representing a critical mass are required. The new academic generation

should be trained to become creative, critical and autonomous intellectual risk takers, pushing the boundaries of frontier research.

2. ***Quality Assurance.*** The accountability procedures must be established on the research base of doctoral education and for that reason, they should be developed separately from the quality assurance in the first and second cycle. The goal of quality assurance in doctoral education should be to enhance the quality of the research environment as well as promoting transparent and accountable procedures for topics such as admission, supervision, awarding the doctorate degree and career development. It is important to stress that this is not about the quality assurance of the PhD itself rather the process or life cycle, from recruitment to graduation.
3. ***Interdisciplinary Research Options.*** Doctoral training must be embedded in an open research environment and culture to ensure that any appropriate opportunities for cross-fertilisation between disciplines can foster the necessary breadth and interdisciplinary approach.
4. ***International Networking.*** Doctoral training should provide opportunities for international networking, i.e. through collaborative research, co-tutelle, dual and joint degrees. Mobility should be encouraged, be it through conferences, short research visits and secondments or longer stays abroad.
5. ***Attractive Institutional Environment.*** Doctoral candidates should find good working conditions to empower them to become independent researchers taking responsibility at an early stage for the scope, direction and progress of their project. These should include career development opportunities, in line with the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers.
6. ***Explosure to Industry and other Relevant Employment Sectors***. The term 'industry' is used in the widest sense, including all fields of future workplaces and public engagement, from industry to business, government, NGO's, charities and cultural institutions (e.g. musea). This can include placements during research training; shared funding; involvement of non-academics from relevant industry in informing/delivering teaching and supervision; promoting financial contribution of the relevant industry to doctoral programmes; fostering alumni networks that can support the candidate (for example mentoring schemes) and the programme, and a wide array of people/technology/knowledge transfer activities.
7. ***Transferable Skills Training.*** "Transferable skills are skills learned in one context (for example research) that are useful in another (for example future employment whether that is in research, business etc.). They enable subject- and research-related skills to be applied and developed effectively. Transferable skills may be acquired through training or through work experience". It is essential to ensure that enough researchers have the skills demanded by the knowledge based economy. Examples include communication, teamwork, entrepreneurship, project management, IPR, ethics, standardisation etc. Business should also be more involved in curricula development and doctoral training so that skills better match industry needs, building on the work of the University Business Forum and the outcomes of the EUA DOC-CAREERS project. There are good examples of interdisciplinary approaches in universities bringing together skills ranging from research to financial and business skills and from creativity and design to intercultural skills [6].

According to the Final Report of European Commission "Exploration of the implementation of the Principles for Innovative Doctoral Training in Europe" [7, p. 21] only in a few institutions was reform of doctoral training explicitly based on the Salzburg Principles. Nevertheless, all other institutions state that their doctoral training is based on principles that are very similar to the Salzburg and Innovative Doctoral Training principles, only different in wording or not explicitly taken from the European documents. The principles thus 'come naturally' to all institutions.

In any case the Innovative Doctoral Training principles are just that: principles. They can be adapted to different contexts and academic environments. How this is to happen must come from the field – from the universities and institutes themselves [8].

Kovacevic [9] names the following strategies which European universities implement for reaching the aims of innovation and excellence in doctoral training: focused research strategies; engaging in research networks and regional clusters; collaborating.

Professor David Bogle [10] mentions some recommendations for the perfection of doctoral training:

- Universities should:
  - keep in mind the innovative doctoral training principles developed by the EC (2011);
  - provide a well-rounded professional development programme which enables doctoral candidates to assemble an individual training programme tailored to their needs;
  - devise systems that allow candidates to take control of, track and self-assess their own development, with guidance from supervisory teams;
  - promote innovation and sharing of best practice in skills training within the institution

and also with other universities nationally and internationally;
  - ensure that their doctoral training structures and programmes are regularly refreshed in order for them to remain innovative and responsive to change;
  - engage with employers to ensure that professional development of researchers is fit for both academic and non-academic employers.
- Policy makers, governments an funding agencies should:
  - promote and support the principles for innovative doctoral training and seek ways to stimulate their uptake with the necessary flexibility taking into account different aims and circumstances across countries, institutions and disciplines;
  - ensure that funded programmes demonstrate their effectiveness in developing skills and independence in doctoral graduates;
  - support programmes that encourage intellectual risk-taking and creativity whilst not losing sight of other issues such as time to completion;
  - encourage continued innovation and sharing of good practice between programmes nationally and internationally.
- Employers should:
  - engage with universities in the formation of doctoral graduates, in shaping and delivering training provision as well as through research;
  - recognise that frontier research is the core business of research-intensive universities and that through their unique capacity to bring together higher education, research and innovation they are an essential asset in ensuring Europe's long-term competitiveness and welfare.

The listed recommendations and strategies are absolutely important for the perfection of doctoral education in Ukraine as well.

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