

# ASPECTS CONCERNING THE INVOLVEMENT OF ACADEMICS OF SUCEAVA IN PRE-UNIVERSITAR NON-FORMAL TECHNICAL EDUCATION

**L. Dan MILICI**

Ștefan cel Mare University of Suceava



**Florin MUNTENU**

Centrul pentru Studii Complexe  
București



**Mariana R. MILICI**

Ștefan cel Mare University of Suceava



**David L. ANDERSON**

World Genesis Foundation and  
Anderson Institute USA



**Dorel CERNOMAZU**

Ștefan cel Mare University of Suceava



**REZUMAT.** În Pentru a deveni o dimensiune permanentă a existenței umane, educația trebuie să aibă un caracter global, conjugând armonios și eficient educația formală cu cea nonformală și informală. Modalitățile de educație nonformală rămân indispensabile pentru toate țările. Lucrarea prezintă câteva rezultate ale activității nonformale cu caracter tehnic □n care s-au implicat cadre didactice universitare sucevene.

**Cuvinte cheie:** educație nonformală, educație permanentă, școala de vară, școala pe roți,

**ABSTRACT.** To become a permanent dimension of the human being, the education must have a global character, conjugating harmonios and efficient the formal education with the one nonformal and informal. The modalities of nonformal education remain indispensable for all countries. This paper presents some results of non-formal technical activity in which involved academics of Suceava.

**Keywords:** nonformal education, permanent education, summer school, school on whels,

## 1. INTRODUCTION

Education implies two fundamental aspects which must be allowed for defining and understanding hereof.

• Space or horizontally dimension (axis), wherethrough we nominate the extension of education in all living and social-human life areas. This interpretative perspective lead to eliminate the detrimental mentality that the education involves only through scholastic institutions.

• Temporal or vertical-logitudinal dimension (axis). Its major aim is the extension of education during of entire individual life. The new acquisitions from the domain of ages and learning psychology demonstrated, undubity, the persons' capability to learn and to be educated at any age, of course in ways and with intensities modeled by the psycho-social particularities at different ages.

The most durable and efficient innovations are those such as the beneficiary assimilated, that is he adopted because its satisfy his specific needs. Let take into account that happen the concrete level with transformations produced by the new technologies of informations and communications:

- Firstly, we observe the conversion of cultural content from all over the world into a digital form, thereby making the produces available everybody, everywhere and everytime. The loneliness is bygone and there take place a substitution of insufficiency and superannuation with the ampleness and arhisufficiency of its.

- Secondly, there are developed multiple ways to represent informations, to simulate interactions and to express ideas, extending the acquisitions of inteligence, thus altering the spectrum of civilization, modifying the requirements of participation to the culture.

- Thirdly, the people externalize various current abilities – to compute, to write correctly, to memorize, to visualize, to compare, to select – regarding the digital instruments with which they work, thereby obtaining a real mastership concerning these abilities, sometime results of education. The digital technologies amplify the individual potentials.

The new paradigm is bound up with the effects of print civility overtaking:

1. technological development
2. new pedagogical theories
3. dealing of responsibilities for education.

## 2. NONFORMAL EDUCATION

The french educationalist G. Mialaret (1993) extends the „education concept” and demonstrates that it represents simultaneously: an activity organized institutional according to some educative purposefulness; a product of acivity, determinable and adaptable at society requirements; a process between many human beings, in different communication and reciprocal modeling relations.

The educational systems known till now was based on institutional monopoly of the publicscool. Such a model could function optimum while the educational

alternatives out-of-school were scanty developed and could not become competitor. But the last decades emphasized a development of new educational mediums out-of-school, able to become an alternative (either complementary or concurrential) for formal education by scholar type. The nonformal and formal education extension emphasized also some deficiencies of the scolar education.

In termonology of scientific and technical education, besides the term of formal education, synonymous with „institutional education” we find the term of „non-formal education”, education attended out of the the scholastic system, into a regular or intermittent maneer, considered as an assembly of extra-scholastic means for obtaining of the general knowledge or professional competence; synonymous term for the extra-scholastic education. In the International Education Dictionary we find three correlative notions: formal education, informal education and nonformal education. The nonformal education is defined: „the education received out-of-school or besides the years afected through the statute of instruction period”, forexample adult education. The second definition whould be: „education which carry on ou-of-school, through the influence of the family environment, of the friend groups and of the life medium”.

The nonformal education contents aim the projects for the development of an activity with forming character, par excellence, controled by the professional personnel in close connection with parents, pupils, social-cultural and social-politcal organizations.

The main object of nonformal education, in the outlook of the European Council, is to promote equal oportunities for youth in the order that they should construct their own future, to offer support for their integration and inclusion into the society. One special object is the personal and social emancipation of the youth over the depedence and exploitation. The „nonformal education” is the expression similar to „work with youth” and/or „activites with and for youth” of social, cultural, educational etc. nature and reffers, as a rule, to the domain of out-of-school activities.

In contrast with the formal education, the nonformal education is characterized by the following features: has facultative or optional character; the students are involved into designing, organization and deployment on these activities; there not given references, it not made a rigorous evaluation; allows to emphasize the childrens' and youth's aptitudes and interests; allows a large variety of forms, increasingly flexibility of forms; knows different modalities for financing; facilitates the promotion of the team work and of one multi- and

interdisciplinary demarche; emphasises objectives of formativ-educative type.

Nonformal education object: the improvement of the life quality and of the children's and young people's growing through the forming at them of the knowledge, attitudes and, that is the most important, of the behaviour to get through of risks, provocations, choices and possibilities offered by life; the presentation – for each young along its forming individual way – of possibilities, support and learning experience for the positive self-determination, achieving its personality and forming of the own dignity sentiment, due to what it should desire and should be able to assume the initiative and responsibility for society developing.

### 3. ATLANTYKRON SUMMER ACADEMY

The Academy takes place on an island on the Danube river near the village and ancient Roman ruins of Capidava in Romania. A remote and wild island for most of the year... it is transformed into a special and almost magical place for ten days each summer.

The academy continues to change the lives of the people it touches and gives the youth knowledge and life experiences that will help them succeed in an adult world.

In 1990, a small group selected this remote island as an ideal place to go to study and learn from each other. The place served the purpose very well from another point of view: they weren't exposed to inquisitive looks of the ones who might have denounced them as conspirators against the communist regime.

Without the distractions of the material world, participants are given the opportunity to study and learn, side-by-side with world experts, with a clarity, focus and inner peace that is not easy to find in their homes or traditional classrooms. These areas of study touch and explore the most important issues and sciences shaping our world today and tomorrow.

Many programs for education and fun are offered across the major areas of Science, Creative Writing and Communication, Art, Sports, Culture, Music and more. Each area of study is managed by Atlantykrone program coordinators with multiple instructors and classes (see list below). These classes are designed to focus on the challenges and opportunities most affecting the shape of our world today and tomorrow.

„Atlantykrone” represents, for 21 years, one of the most important summer academies from Romania, an area of nonformal education for young people, a summer school unique in the world. Beginning from 2000, the action is organized under the auspices of the

National Commission of Romania for UNESCO, by the Center for Complex Studies (CSC), CYGNUS Scientific Society, Romanian Association for Sport and Culture (ARSC), World Genesis Foundation – SUA in partnership with the National Agency for Youth Initiative Encouragement (ANSIT) and Stefan cel Mare University of Suceava.

In this year were 22 workshops, with lecturers/instructors from Romania, SUA, Germany, and the covered domains were: science, culture, arts, sports, communication, music.

Within 10 days, more than 450 Romanian young people from all districts of Romania and foreign young people from United States of America, Germany, Russia, China, Niger and France, Italy and Republic of Moldova participated at courses and workshops with diverse thematics, as Theory of fractals and chaos, Robotics and artificial intelligence, Initiation into computer aided graphics, Science of complexity, Microsensors and nanotechnologies, Alternative energies, Astronomy and astrophysics, Biometrics, Bioenergy and boundary sciences, School of OZN, Radio-amateurs, Journalism, Education on tourism and ecology, Methods of technical writing inside a global organization, Science Fiction, Literary creation, Graphics and visual arts (sculpture, face-painting, photography), Sport and holiday activities („Adventure days” competition, check competition, boxing demonstrations, martial arts and kickboxing), Advertising, Personal development (leadership, interview technique, career planning and development), Old musical instruments, Course of photography and an interactive course of literary creation dedicated to the children.

There were achieved many video conferences with guests of the program which could dialogize with the participant young people, hereby achieving the organizers' dream from more than 15 years. Thus, Atlantykrone academy extended its area by communication with all the young interested by here debated ideas.

At this edition, national and international famous personalities from the fields of science, SF, sports and culture participated. Guests as Peter Moon, writer and publicist (SUA), Joel Castelanos, doctor on physics, expert on fractals and chaos theory (SUA), Roberto Quaglia, vicepresident of the European Society of Science Fiction and Alexandru Mironov – Romanian Academy, Irinel Burloiu – INTEL Romania, Viviana Vlăduțescu, expert NASA, SUA.



Fig. 1. The Complexity Science Workshop

The series of „Planetary projects” and “Complexity Science” conferences was coordinated by mr. Alexandru Mironov and mr. Florin Munteanu; guests: the american writer and publicist Peter Moon, dr. David Anderson, Dan Milici, Cristian Parghie, Werner Caspers, Viviana Vlăduțescu, the physicist Joel Castelanos, Roberto Quaglia and Ștefan Ghidoveanu, the parapsychologist Teodor Vasile and the UFO specialist Dan Farcaș; moderators: Sorin Repanovici, David Anderson. The conference theme: „The enigmas of the planetary history – Mountauk Experiment – Future energies: nuclear energy – Globalization provocations and oportunities – Global warming – Artificial intelligence – Next Generation, European Science Ficton at the millenium beginning”. Four book releasing events was organized (Nemira, Corint Junior and Tritonic publishing houses), at which directors of publishing houses and writers whose books were released at Atlantykon were invited to comment.

The program, joint into the fundamental activity of the Center for Complex Studies of promoting in Romania the paradigm of Complexity, purposed to accumulate copies in the view to structure a „Profesor’s guide for teaching the chapter of complexity physics into the highschoools”. Inside the allocated hours to this workshop but also after the constituted groups ad-hoc discussions a series of copies were generated and structured into a data base as well:

- a list with the main questions concerning the broached subjects: fractal geometry, chaos theory, computational modeling and simulation;
- a list with the main terms considered unknown and which will be explained under the form of a term glossary;
- a list of links to sites dedicated to the complexity study;

- a list with personalities which founded the science of complexity;
- a list of documentaries.

In the Astronomy and Astrophysics Workshop the discussions had axed on the physics’ theories which reign over the movement of the celestial objects: starting from Galilei, Kepler and Newton to the Einstein’s Theory of restricted relativity and Theory of generalized relativity and also to problem resulted from Quantic physics.

Inside the observations with telescope could be viewed Saturn and Jupiter planets, the Moon in the first part of evening and the galaxy from Andromeda (the nearest galaxy from ours). Without optical instruments it had indetified constellations and it had observed the Perseide meteoric flow.



Fig. 2. The Astronomy Workshop

The Future Sciences Workshop have the discussions had added in two field of maximum interest inside of the international scientific world: energy regenerable and unconventional supplies, nanotechnologies and nanomaterials, all applied into the robotics field. The activities were connected with the courses included into the general program of the Summer academy and which had as subject the Energetical crisis and Artificial intelligence. Inside the practical demonstrations there were studied solar cells, combustion cells which use hydrogen, simulations and movies which present the working principle of the nuclear fusion power plants. Inside of the same workshop was assembled a meteorological ministration which measure automatically 7 environmental parameters: temperature, humidity, pressure, dew point, quantity of precipitations, wind speed and direction.

In Radioamateurs Workshop there were achieved more than 5000 radio communications using different analogic and digital techniques (telegraphy, telephony, etc.) with amateurs from our country and from foreing countries using the YP01IP radio indicative of camp

(Inelul de Piatră – Stone Ring). Although few remained during the entire period of summer academy, those 18 radio amateurs completed the permanence program and allowed the information transfer between generations. Besides the radiotransmission activity, inside the workshop there made expositions, informations and there were achieved experience changes between beginner radio amateurs and those with experience (among the guests was a mondial telegraphy vicechampion). Inside the same workshop, it was achieved an air balloon under the form of one tetrahedron with side of 5 m. It was equipped with an emitter and with temperature sensors. This balloon reached the altitude of 10000 m and was carried till a distance of 420 km over de Black Sea when the generated signal could not be received due to the earth curvature.



Fig. 4. The Radioamateurs Workshop

#### 4. NEXUS-T PROGRAM

The NEXUS-T program is elaborated to contribute at the young people's intellectual progress through direct implication in research activities, starting from ages of minimum 9 years. By interest stimulation of the pupils of gymnasial level together with those older (highschool and university) the program proposes to generate the communication frame between different ages, to motivate the activity and the educational act of those small allowing the knowledge transfer between generations, improving the capacity of collaboration, of mutual aid, of work in teams with members having different or complementar training levels.

The NEXUS-T program proposes to structure an area dedicated to some extracurricular activities, intended in the main to state the reason for the interest for school in general and to allow certain training activities of the young people by extrapolation-research inside of some scientific projects by which,

the knowledge obtained into the classroom can be valued and integrated into the knowledge.

Being joined the class of nonformal education programs and with a part of the objective alike to some similar international programs, as Hands on Science, Design & Discovery, the NEXUS-T brings as novelty an assembly consisting of:

- the Nexus room, space dedicated and equipped specific for documentation, courses, dialog and multidisciplinary assistance, the achievement of laboratory experiments. The activity in the room is developed on groups, structured around some themes selected by the Open Project base.

- the complex educational object (ODC) – hard/soft assembly which allows the experimental and multidisciplinary exploration of the processes and phenomena of interest, in accordance with the selected themes from an Open Project. ODC is projected so that to allow the creativity stimulation and formation of new abilities: attention, the capability to correlate the knowledge obtained during the course hours, initiative, spirit of collaboration and communication capability inside of some interdisciplinary teams etc.

- the accommodation program of the professors to the problems of the assumed Open Project – intensive courses (inclusive e-learning) dedicated to the assimilation of concepts and notions needful for infrastructure using, for curricula supplementing with novelties and for correlation between different elementary knowledge in sense of one integrative and multidisciplinary approaching.

Nexus-T-Sv has on the base a program-contract signed by:

- Center for Complex Studies from București
- „Petru Rareș” Colege from Suceava
- „Ștefan cel Mare” University from Suceava
- Children Palace from Suceava
- Cygnus Scientific Society – UNESCO center.

The 2007-2008 scholar year was a pilot year in which the program was tested and also the activities rhythm inside the curricula. Already had adhered at the program other unities from the country (Otopeni, Buzău, ...). At the end of the year 5 teams were registered of whom 3 from Suceava.

The study teams were formed so that to include five young people with opening to different disciplines: mathematics, physics, biology, chemistry, informatics. Also it was desired the implication of the instructors from different circles and of some voluntary professors, with specializations on the respective disciplines. One can say thus about a mixed competence professor-pupil/student fact which lead to a better linking between the professor and pupil/student, respectively to a better

interdisciplinare communication, essential inside the curricula for incorporation of the knowledge taught at the Sciences discipline. Those five profesors component of the team cover the following competences: manager, experimentalist physicist, theoretician physicist, biologist-chemist. The team can be completed with members which to sustain the activity action and visibility and with technicians.

The teams were strutured also an age categories: gymnasium (at the Children clubs level), highscool and students. These teams interact and help themselves reciprocal at the possible levels.

## 5. CONCLUSIONS

If the education system is planned to promote the creativity, to discover the reality, to connect the theory to the real life, to aply practically the knowlegde, to discover laws and new knowledge, then the curricula is centered round the multiple criteria, the evaluation is made multidirectional, complex, so that to allow for coursist to appreciate its direction and to correct its bad points. In this case, the curricula has chapters interweaved between its, is full of open problems which give birth to debates, organizes the contents on thinking instruments and on principles which lead through the thinking systems, the exposed knowledge being representative for these principles. Also, the activities are based on the visual content which exemplify the written texts so that the contents can be discovered from the images analisys as also from the speech listening. The elaboration of such curricularas, handbooks-evaluation-programs demands professionalism, is made elaborately, but has also the exceptional results on children education.

An evident indicator of the formal education leeway is given by the methodology which demand for coursist only memorization and reproduction. This ingore the simpliest individual and of market needs regarding the formed intelectual abilities, on the knowledge using and aplicability, on the creativity and inventiveness and on more other learning features which must formed inside the scholl and tested finally. The learning by memorization-reproduction without individual abilitites

development is considered unanimous in the world as being the most destructive for human personality.

What consist the great reform of education systems in? The answer is only one on many direction in the education humanization, in centering round the children's individual special needs, in the human nature emancipation, in orientation to practical and applicative equally with prospectiv and theoretical.

Fundamental research is an expression of human aspiration for world understanding, as well a source of some human aspirations on what should become the world. The aspirations are desires for which exists in principle the possibility of some concrete achievements. The aspirations are the first step towards the materialization of „something" that exists only in spirit and that can become gradually the expression of spirit manifestation in physical reality. There are own aspirations and aspirations that have no sense unless its are common, if around its a sufficient number of individuals united by the same vision is closed. Only then a functional project is born.

## ACKNOWLEDGMENT

This paper was supported by the project „Progress and development through post-doctoral research and innovation in engineering and applied sciences– PRiDE - Contract no. POSDRU/89/1.5/S/57083”, project co-funded from European Social Fund through Sectorial Operational Program Human Resources 2007-2013.

## REFERENCE

- [1] **Holland J.H.** *Adaption in Natural and Atificial Systems*, Academic Press, New York, 1975
- [2] [http://www.didactic.ro/files/12/referat\\_learning.doc](http://www.didactic.ro/files/12/referat_learning.doc)
- [3] Education theory: <http://www.educatiecopii.ro>
- [4] <http://www.supradotati.ro/>
- [5] Atlantykrone Summer Academy: [www.atlantykron.org](http://www.atlantykron.org)
- [6] Center for complex studies Bucharest: <http://www.complexity.ro/>
- [7] Cygnus Scientific Society - UNESCO center: <http://www.cygnus.ro>
- [8] Nexus-T program – Suceava, Petru Rareș National College: <http://www.nexustsv.ro>