



MODEL OF NON-FORMAL EDUCATION PROGRAM FOR STUDENTS IN BIOLOGY ON BIOMEDICINE AND GOOD SCIENTIFIC PRACTICE

P. Genova-Kalou¹, K. Yotovska², D. Pencheva³, T. Kantardjiev⁴

¹Department of Virology, National Centre of Infectious and Parasitic Diseases, Sofia, Bulgaria

²Department of Biology Education, Faculty of Biology, Sofia University "St. Kliment Ohridski", Sofia, Bulgaria

³Bul Bio-National Centre of Infectious and Parasitic Diseases, Sofia, Bulgaria

⁴Department of Microbiology, National Centre of Infectious and Parasitic Diseases, Sofia, Bulgaria

ABSTRACT

Non-formal education is flexible, more practically than mostly theoretical oriented, the center of it is the learner. It is flexible and based on the real needs of the participants and it is independent at programming level. The participants are active, they solve problems, think creatively. The main task of leading educators is to teach students after completion of a higher education and job opportunities in the experimental conditions and observance of all ethical rules and work in the laboratories.

The purpose of this article is to present a piloted model of a program of non-formal education for Biology students on Biomedicine and good scientific practice. The program was implemented in cooperation with the National Center of Infectious and Parasitic Diseases (NCIPD). The training is aimed at specific problems such as requirements and recommendations for health monitoring of experimental animals, good scientific practice - control of data, conflict of interest; informed consent; publication's policies and practices, etc. It is organized on a modular basis; each of the modules is described by unified algorithm. The course ends with telecollaborative projects. Student's participation in activities using the methodology of non-formal education, gave a direct opportunity for practical application of knowledge and skills in the field of formal education at Sofia University "St. Kliment Ohridski".

Key words: non-formal education, education program, good scientific practice

INTRODUCTION

Traditional school system provides scientific knowledge and specialization that do not prepare society for the clash with reality. Basically non-formal education is a continuous process of lifelong learning. In this context, non-formal education is linked with specific problems, rather than abstract knowledge. It is flexible, focused on the learner and extremely practical. The difference between traditional and non-formal education is that in traditional is acquired document, but obtained knowledge do not match the dynamically changing social processes.

This is the difference between non-formal and informal learning. Informal learning is never organized, has no set objective in terms of learning outcomes and is never intentional from the learner's standpoint. Often it is referred to as learning by experience or just as experience. The idea is that the simple fact of existing constantly exposes the individual to learning situations, at work, at home or during leisure time for instance.

The main difference between informal and non-formal education is the fact that the first is non-voluntary and mostly passive whereas the latter results from an individual voluntary action and is mostly active (3).

Adapting education systems worldwide to the new demands of society and the labor market is extremely slow, and in Bulgaria the process is

*Correspondence to: Petia Genova-Kalou, National Centre of Infectious and Parasitic Diseases, Department of Virology, 44A "Gen. Stoletov" Blvd., 1233 Sofia. E-mail: petia.d.genova@abv.bg

still slow. There is no real understanding of the issues and at the learners themselves. For a number of youth organizations have undertaken the difficult task to inform and help anyone who wants to improve their intellectual product.

At the end of 2014 in Bulgaria will start a system for the recognition of formal and informal knowledge, skills and competencies developed and tested within the project a new opportunity for my future, implemented by the Ministry of Education and Science and financed by the Operational Programme Human Resources Development. The aim of this initiative is to increase opportunities for vocational training of the workforce, which will increase its suitability for the labor market and facilitate labor mobility both within the state and beyond (4).

The purpose of this article is to present a piloted model of a program of non-formal education for Biology students on Biomedicine and good scientific practice. The program was implemented in cooperation with the National Center of Infectious and Parasitic Diseases (NCIPD). The training is aimed at specific problems such as requirements and recommendations for health monitoring of experimental animals, good scientific practice - control of data, conflict of interest; informed consent; publication's policies and practices, etc. It is organized on a modular basis; each of the modules is described by unified algorithm. The course ends with telecollaborative projects.

RESULTS

On the first stage we determinate the profile of the students in terms of:

- motivation for learning – we use a survey;
- learning style – the students check their own learning style
- by Kolb (online);
- the learners' needs;
- the level of learning experiences.

The main didactic principles of the program are:

- Using many examples and many methods of non-formal learning.
- Using folders, including comments on the strengths and weaknesses set of methods and materials.

Forms of organization are: Workshops, newsgroups, seminars.

The students are involved in non-formal learning activities. They are done individually or in tandem such as peer review of materials or plans, reading, visiting interesting links, etc. non-formal educational programs. In the process are included also young scientists who make the atmosphere of the learning process more informal as closing the gap caused by the age difference between students and teachers.

We illustrate one of modules of the program below (**Table 1**).

Table 1. Module “Good scientific practice”

Duration	Topic and learning	Media / Materials	Comments
15 min	Introduction module, motivation	Flipchart	Expectations, concerns, attitudes of the group
60 min	Control of data - teamwork; planning process - a matrix of activities; surveillance; modeling; experiment	Ppt Flipchart Posters Pencils	Assessment of the applicability of knowledge in standard and non-standard situations
60 min	Informed consent – case studies; surveillance; modeling	Ppt Leaflets	Assessment and transfer in everyday activities
120 min	Conflict of interest - teamwork; didactic play "You may, should"; surveillance; modeling	Ppt Puzzle Flower petals Scissors	Assessment of the applicability of knowledge in standard and non-standard situations
120 min	Publication's policies and practices - brainstorming; work in two "Discussion club"; surveillance; modeling	Ppt Handout Poster	Reflection To gather a bank of ideas
15 min	Discuss reached during the day, conclusions, next steps	Ppt Flipchart	To formulate appropriate conclusions and to plan the next activities

From a pedagogical perspective, there are many benefits to be gained by making the learning

process interactive and collaborative. Learners have to continually strive to become an integral part of the community. Interest to us was the

opinion of students on the benefits to them of formal learning and informal learning.

Benefits of Formal Learning /at the University/:

- Large numbers of employees learn the same information and/or processes at the same time – 67%.
- If properly designed, the course content should be accurate and up to date – 54%..
- Employees learning through formal training programs come up to speed faster once they start their jobs – 67%..
- Properly designed formal training programs can include a variety of methods to appeal to all learning styles and conform to adult learning principles – 78%.

Benefits of Non-formal Learning:

- It is flexible, focused on the learner and extremely practical – 88%.
- Creating informal learning situations can be less costly and more time efficient given all of the technologies and electronic devices we have today – 78%..
- Learning informally can be more personal and less intimidating for some people – 56%.
- Subject-matter experts may be more willing to share their knowledge with others this way – 78%.
- Since learning this way happens more naturally during the flow of someone's work day, employees may be less likely to resist learning new things – 58%.
- It is oriented towards a specific goal and purpose – 78%.
- Is aimed at specific problems and rarely taught to abstract subjects – 72%.
- Could support the creation of a program or project after a certain phase of experimentation.
- It is a flexible, learner centered in and participative.
- It is more practical than theoretical – 58%.
- Autonomy at program level and provides fewer opportunities for external controls.

The results of the survey show a high evaluation of both the formal and non-formal learning. Dominate the view that in this format formal training complements and builds informal.

- Non-formal education is extracurricular learning that is planned and implemented with the active participation of partner facilitator and participants, such as: participants are active, they solve problems, work with their hands;
- Think creatively;

- Learning is practical, flexible and based on the real needs of the participants; the purpose of formal education is rather to support the life of the individual or the community than to ensure the transmission of individual skills or knowledge.

Non-formal education is based on mutual trust and respect while encouraging questioning and reflection.

CONCLUSIONS

Acquisition of skills and experience outside the labor process and the school prepares young man stand much more of a free labor market, rather than sometimes classical education. Accumulated knowledge of such practical training could use them when applying for a job or continue their education in graduate programs at home and abroad. Statistics show that much easier is the access to the labor market of people with practical skills and knowledge, and the most difficult young people with an entirely theoretical. Interest in training courses and qualifications is growing steadily, and free internships in law firms, accounting firms and others. Young people right now understand the need for practical experience to be able to sell at the asking price of the labor market. Trend is towards learning, to be able not only to work for a high price, but you like the work. The students assess adequately the benefits of formal learning and informal learning. They considered as a good practice formal and non-formal education to complement each other.

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