

## TEACHING TRIP AND EDUCATIONAL SOFTWARE

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### ***Abstract***

*The teaching trip, as organizational form of teaching, is situated at the border between formal and non-formal education. An adequate teaching scenario for a teaching trip can place this activity in the field of formal education definitely. In educational terms, non-formal educational trip makes from itself, an attractive, dynamic and consistent activity, strongly influenced by technical memo elements, which combines intuitive scientific argument, rigorously and systematically. The paper aims to implement in an unitary teaching scenario, the attractive and spectacular elements specific to the educational trip, with the ones of formal teaching, leading to a logical project of educational software, which constitutes a turning point in the designing learning programs. The teaching scenario of the learning program allows to the student, to approach scientific context of the lesson, intuitive initially, afterwards using traditional teaching methods and procedures, as exposure, demonstration, explanation and also, to be presented the scientific content to the student, systematically and organized. The learning program creates a virtual scientific space and allows the student to explore and discover new content elements in a logical and intuitive context. Prospective manner places the student at the center of cognitive context, maintaining and feeding its interest for scientific content. The logical sequence of content elements generates a succession of visual frames for the virtual scientific space of the lesson. This script element of didactic scenario is inspired from the trip didactic. The teacher, who intervenes with rigorous explanations supported with audio, video or text format arguments, is the guide of the student in the virtual space of lesson. A return in similar contextual frame offers the possibility of implementation, a sequential feedback and formative assessment, in the learning program. The new manner of designing the learning programs, presented in the paper, allows an easy removal from the paradigm of instruction centered on student and an approach to the paradigm of learning based on resources.*

**Keywords:** *teaching trip; non-formal education; logical project; educational software; resource-based; learning paradigm*

## I. NON-FORMAL EDUCATION AND THE TEACHING PROCESS

The concept of non-formal education appears as a completion of the teaching process from the end of '60s. Sylvia Scribner and Michael Cole [2] argue for association knowledge acquired in school with students' learning experiences from everyday life. Sylvia Scribner and Michael Cole promote the idea that the most important skills acquired throughout the whole life are the result of non-formal education activities.

Based on a direct action, on intuition and less on scientific rigor, skills acquired through non-formal education activities form sustainable skills long-lasting. In 1997 UNESCO recognizes non-formal education as "organized and sustained educational activity that does not correspond exactly to what we call formal education.

This can be carried out within or outside educational institutions and targets on people of all ages (...). Non-formal education does not follow a hierarchy and can be different in duration, without involving the certification of outcomes learning, necessarily"[3].

### 1.1 Moving from formal education environment

Although there are methods of non-formal education, this (non-formal education) is a flexible and dynamic process, which becomes dependent on "ambient" and on the characteristics of the target population. The adaptability is vital and definitive. This process, well structured, with clear objectives, changes according to the community, group or person. The adaptation is not an accident; is a target and its achieving is supported by the desire of professional and personal development and also by the accumulation of new experiences.

Experiences with exotic names as "The Life library" [5] or "Forum Theatre" [6], promote activities that suggest the involvement in the natural, social and economic environment. By default, non-formal experiences involve moving from formal education environment, to nature and society, reason that we can identify this category of activities with the teaching trip.

The Life Science Library was one from a popular series of hardbound books published by Time-Life between 1963 and 1967. Each of the 26 volumes explored a major topic of the natural sciences. They were intended and written at an appropriate level for an educated lay readership.

In each volume, the text of each eight chapters was followed by a "Picture Essay" illustrating the subject of the preceding chapter lavishly. Each volume took complex scientific concepts and provided explanations that could be easily understood. Although progress has overtaken much of them, their explanations of basic science and the history of discovery in an area is still excellent.[5]

The forum theatre method is a type of interactive social theatre which has as a purpose, finding realistic solutions to the problems of community[6].

## **1.2 The teaching trip**

The teaching trip is a form of training organization that offers to the students, the opportunity to get into direct contact with the contents stipulated in the curricula of the disciplines which they are studying. The contents are becoming free of formalism, contextual, intuitive and attractive. The student has the opportunity to observe, investigate and know directly, the related scientific content items with the interdisciplinary character, and also to discover and assimilate the intuitive level content elements required for future lessons.

The teaching trip forms teamwork skills, develops capabilities of interdisciplinary approach, through flexible approaches by content, directly in contact with everyday reality, much closer to the student's perception than the rigor of contents approached by formal education methods. It generates enthusiasm, voluntary mobilization, stimulates curiosity to discover new phenomena and processes, targeting, at the same time outlining the skills from the affective-attitudinal register, by cultivating a positive attitude, collegial, aesthetic sense, love and interest for nature and its beauties.

A careful design of the teaching scenario, corresponding to a trip teaching, allows cross-curricular approaches, with integrator character. As a method, direct observation has great heuristic and participative value, because it allows a multimodal perception, based on more senses, facilitating the detection and extraction of new information through own efforts. Through direct observation aims, explanation, description and interpretation of phenomena in a concrete learning task, contributing in the same time, to the formation and development of behavior skills, such as: consistency, patience, perseverance, insight and imagination, causal thinking, the spirit of observation and collaboration [1]. The stress assessment, the rigor of imposed discipline, the tiring homework is replaced by the pleasure to know and discover something new, to form a bridge between knowledge assimilated during the class and their practical applicability. This takes the shape of a manner of motivated and attractive learning,

which involves the use of traditional methods, with greater flexibility and freedom of expression and action.

In non-formal education, seemingly intuitive approach, based on multimodal perception, sensorial, causes an inversion of Bloom's taxonomy of cognitive processes. In the formal education, the student's is imposed on, at the stage of new knowledge communication, to undergo the cognitive processes by memory, understanding and application. The memorizing as a process, creates cognitive discomfort, either because of volume or difficulty of content, either cognitive instinct by preservation of the student.

In non-formal education, initially, the accent is focused on understanding and application, the memorization appearing as a facultative and involuntary process, which creates cognitive comfort. In reality, through a rigorous design of non-formal educational activities, it returns gradually to the natural sequence of cognitive processes, in a context of cognitive comfort, enthusiasm and volunteer mobilization. The nonformal education supplementation the formal education successfully and remains one of the major variants to support the process of training and education.

The mentioned advantages are favorable arguments for integration of the organization and development methods of non-formal education in the teaching scenarios of learning programs. A scenario of educational software that includes the essence of these educational activities is perfectly possible. The educational software for non-formal education could lead to the promotion and streamline of non-formal education methods, to promote them among youth and teachers and it could close the formal education by non-formal education efficiently, preserving its benefits intact.

## **II. FROM TREPAP TO SOFTWARE**

In the following we present in a study case, a teaching scenario of educational software for a teaching trip.

### **2.1 The characteristic elements of learning programs**

The shaping of the teaching scenario for educational software involves defining the characteristic elements of learning programs:

a) defining a virtual learning space. In contrast to the educational software that aim formal educational situations and that, as a rule, borrow the presentation features of own manual contents (text, images, audio and video), but in an apparently static and limited context

suggested by curriculum content, in this case, the non-formal context, will be made by imagining the virtual learning space, as a real space, free from programming constraints, own of a free expression. This space must illustrate the context of approach the contents and it can be implemented by a logically linked succession of images, initially apparent static, but that suggests the movement in a real space to those points of interest, which creates learning situations.

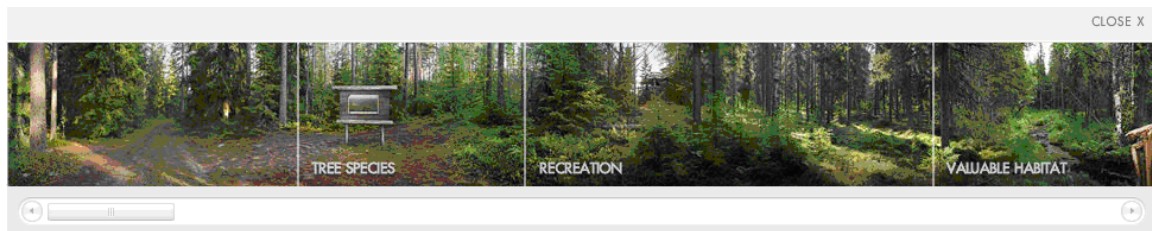


Fig. 1. Virtual learning space [7]

Moving forward and backward allows enlarging the frame (figure 2). It is made depending on learning trajectory established by projected teaching scenario, but in a flexible manner, to the student's desire. It may return to previously covered areas, or to review the content elements, or to correlate them with those covered further.

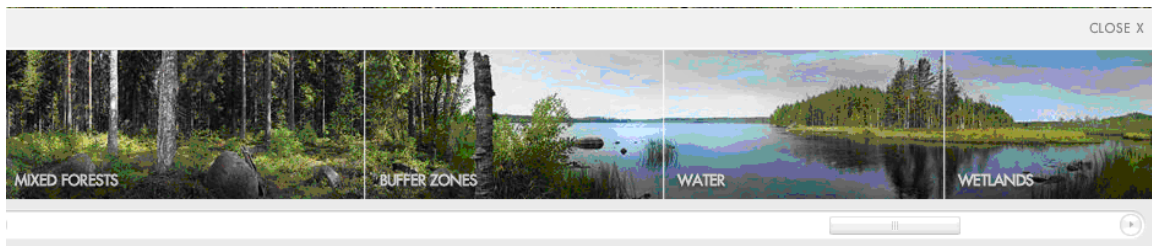


Fig. 2. Virtual learning space [7]

These frames from virtual learning space are associated to the paragraphs of classical lessons and they succeed logical, causing the controlled movement of the pupil in the learning space.



Fig. 3. Presentation of new contents [7]

b) the presentation of new content. Any formal or non-formal teaching approach involves to the student, the transmission of some contents, using teaching and procedures methods, in a particular form of expression. The role each frame is to create intuitive support for presentation of scientific content of the lesson.

In contrast to the traditional educational software, in which the teacher is substituted of some teaching scenario elements, in this case, the teaching scenario is always present and visible. It appears in a real context and presents scientific content sustained permanently by visual real support of learning space. The teacher presence in learning space is temporary. He actually presents the essential content elements and establishes learning tasks for student. This explores the learning space and leads to learning by discovering.

c) the establishing of critical areas of learning space (figure 4). Critical areas of learning space are marked, at the touch of the mouse on animated graphics, that suggest the student's to direct the attention to that area. A click on an area can create a diverse range of learning situations, illustrated in the images below.



Fig. 4. Critical areas of learning space [7]

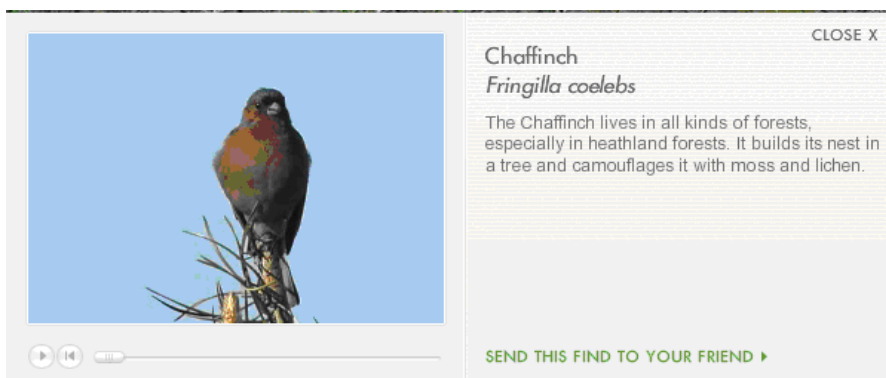


Fig. 5 Learning situations [7]



d) the design of the learning situations. In the design of learning situations we refer to traditional means of learning programs (text, image, audio and video).

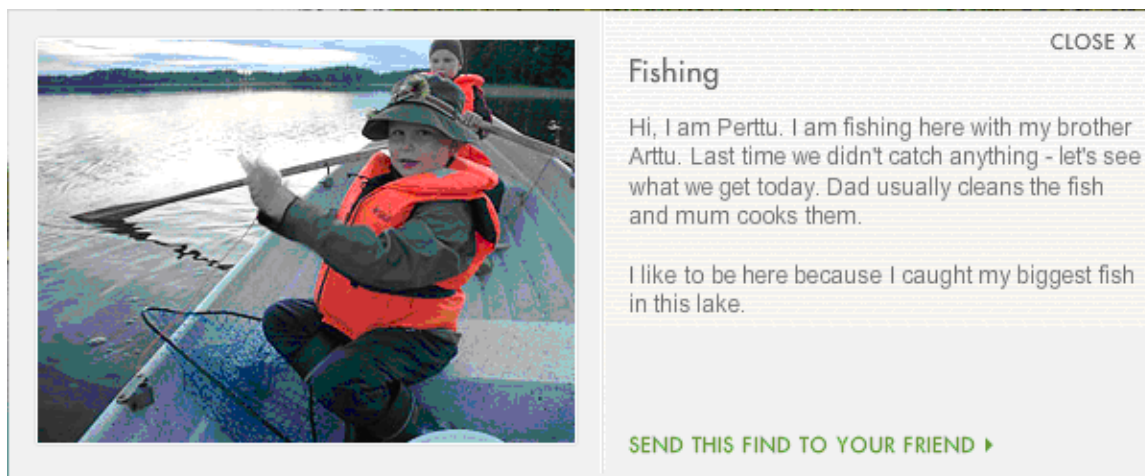


Fig. 6 Learning situations [7]

The diversity of the designing mode is conditioned by the nature of the content to follow to be presented, by quantity and the nature of information, by the modality of presentation and ultimately by the nature of the target population. In this case we can use all the features of information technology for playback the images, the text, the audio-video in combinations of these, these allow the optimization of the communication and assimilation of knowledge.

e) the reviewing and systematization of contents. A return on the educational route crossed by student, under the conditions of synthesizing and systematization of approached contents, is perfectly possible, using elements from teaching scenario designed for this purpose. In this way, it is ensured, the correlation of contents and the strengthening of retention.

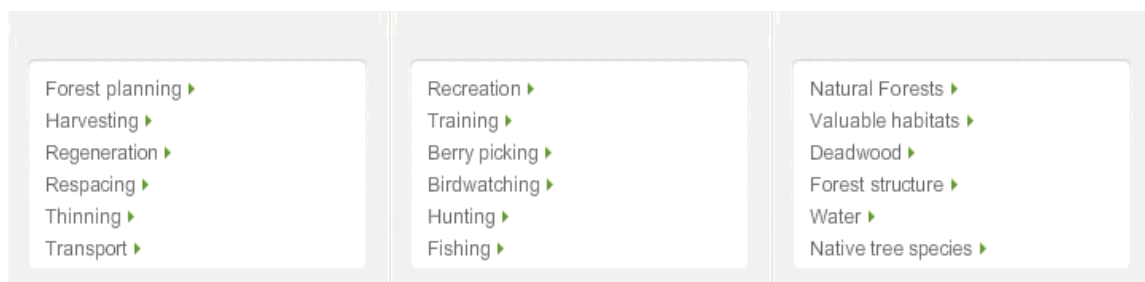


Fig. 7 Learning situations [7]

f) the ensuring of feedback. The feedback is an essential element in the design of learning programs. Using a wide range of objective, semiobjective and subjective items, in various forms of graphical representation, associated with content and form of their presentation, the feedback is the element which ensures the individualized interaction of student-software and implements in educational scenario, the formative assessment. This is the most important time to mark the returning of the teacher in the foreground of the teaching scenario, in co-worker posture and

„guide” in the virtual space for learning. This leads and accompanies the student in the learning space to solve the learning tasks successfully.

### III. CONCLUSIONS

The new manner of approaching the teaching process combines the rigor of classical teaching scenario with pleasure to know and discover an attractive universe, specify of the educational trip, as a manner of organizing non-formal education activities. The using of these learning programs ensures with low cost and equally, an efficient support for non-formal education, and also eliminates the inherent risks in organizing classical educational trip, with all the advantages that result from it.

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