

TRANSDISCIPLINARY EDUCATIONAL SPACES

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Abstract

We define an opened educational space, as a context of scientific content, that can be associated with different approaches, at several disciplines. The opened educational space is used as an integrative and unifier auxiliary teaching, for various disciplines in the curriculum and it allows increasing and accelerating the formation of transversal skills. The opened educational space is a digital auxiliary teaching, with educational valences specific to learning programs. It implements in different and unitary teaching scenarios, the elements of scientific content specific to a discipline, in a real situational context, intuitive, common to several disciplines. This manner of design outlines the characteristics of a transdisciplinary educational software. The teaching scenario for the learning program, afferent to each discipline, allows the student to approach the scientific context of the lesson in an interdisciplinary context, without affecting the rigor and consistency of approach monodisciplinary. In this way, it creates a scientific context that allows students to explore and discover new elements of scientific content in an interdisciplinary context, logical and intuitive. The student is placed in the center of the cognitive context. The manner of approach maintains and supplies its interest to the approached scientific content. In this way, it outlines skills that enable the student to adapt to the dynamics and complexity of reality, in the diversity of contexts in which the reality is manifested. There are also targeted, professional or extra-professional skills, scholar or extracurricular skills, formal or non-formal, local or global, familiar or unfamiliar skills. The knowledge system, the abilities, the habits, the formed and attitudes skills, "cross" the professional or different disciplinary fields, being present in each of them, but being specific to neither of them. These are the defining characteristics for transversal skills. This manner of designing the training process allows the teacher a concentration of resources in the direction of raising the formation, internal and external components of the involved skills. It is noticed a sensitive and visible nearness by the resource-based learning paradigm, through the integrating and unifying character of their exploitation.

Keywords: opened educational space; opened educational content; transversal competences; educational software; resource-based; learning paradigm.

I. TRANSVERSAL SKILLS TRAINING

In the thoroughgoing study curricular cycle, but especially in the Specialization curricular cycle, higher level of high school, the formation of transversal skills is an essential target. The transversal skills are considered skills for life, that allow the person to adapt to the dynamics and complexity of reality, in the diversity of contexts into which reality manifests itself; professional or extra-professional, scholar or extracurricular, formal or non-formal, local or global, familiar or unfamiliar and so on[1]. These are called transversal because they 'cross' the disciplinary competences of the various areas, being present in each of them, but not specific to any one. An open educational space, represents a context of scientific content, which may be associated by distinct approach, to several disciplines, contributing decisively and without any mediation to outline the transversal competences. An opened educational space is constituted, in this way, as an integrative auxiliary teaching, unifier, for various disciplines in the educational plan and allows the emphasizing and the acceleration of transversal skills formation. Synthesizing the different approaches, D. Crutzen [2] identifies the significant features to the transversality attribute:

- a transversal skill is transdisciplinary, what it means that this type of competences is formed through all the disciplines, are interdependent and forms an unitary ensemble;
- a transversal skill allows the transfer in contexts and in different areas, emphasizing opportunities for transfer by analogy;
- the transversality attribute of a competence is accentuated by the amplitude of the contexts covered by this.

1.1 Transdisciplinary educational software

The desideratum of the formation transversal skills can not be touched without the defining and establishing the teaching methods that support this demarche. An opened educational space is formed as a teaching digital auxiliary, with educational valences specific for learning programs, that allow achieving this desideratum by implementing in teaching scenarios distinct and uniform elements of scientific content specific for the disciplines of the curriculum, in real situational context. This manner of design outlines the characteristics of an educational

software, transdisciplinary. The teaching scenario afferent to the learning program, corresponding to each discipline, allows the student to approach the scientific context of the lesson in interdisciplinary context, without affecting the rigor and consistency of a monodisciplinary approach. It is created, in this way, a scientific context which allows students to explore and discover new elements of scientific content, in an interdisciplinary context, logical and intuitive. The content elements, specific to different disciplines, we may say they correlate and complete each other, forming a whole image, coherent and unitary. An opened educational space creates the best context for identifying the three fundamental concepts that define transversal skills: decentering, the paradox and analogy [3]. The common context of approaching, allows the student to release itself from the constraints of the reference systems, own of each discipline, to seek meanings, stakes, common standards and codes of practice, to be able to relate with these. The student develops abilities that allow it to leave the limited reference frameworks that are characteristic of monodisciplinary approaches and also to relativize the perception of reality to its own point of view. The opened educational space accentuates the paradoxes of complexity; the outing from duality, uniformity, to take into account the complexity, plurality, diversity; develop the ability to correlate the contradictory elements of reality apparently, to perceive positive uncertainty, without feeling the threatening of problem situations, or of the improvisation of time answers. The release of stress occurs from the moment when the ability to handle the analogy and to practice the transfer in learning is formed in everyday life, too. This means to be able to discern the similarities and differences, to take into account what is common from one situation to another, putting in evidence the significant differences at the same time. The certainty condition, sometimes challenged in the perspective of success, is the consequence of adaptation to a constantly changing reality. At the same time, the certainty condition leads to the development of the ability to learn how to learn, continuously.

II. OPENED EDUCATIONAL SPACES

A characteristic of open educational space is also the forming of those skills that enable the student to adapt to the dynamics and the complexity of real life, in the diversity of contexts in which the real is manifested. These skills are both professional or extra-professional, scholar or extracurricular, formal or non-formal, local or global, and familiar or unknown. The knowledge system, the abilities, the habits, attitudes and formed skills, "cross"

the professional or different disciplinary fields, being present in each of them, but being specific to neither of them. These are the defining characteristics for transversal skills.

2.1 The creation of a open learning space

Creating an open learning space supposes the definition of the characteristic elements: virtual learning space (figure 1), specific contents, teaching scenario (establishing critical areas of learning space, the design of learning situations, feedback and formative assessment assuring, the review and systematization of contents).

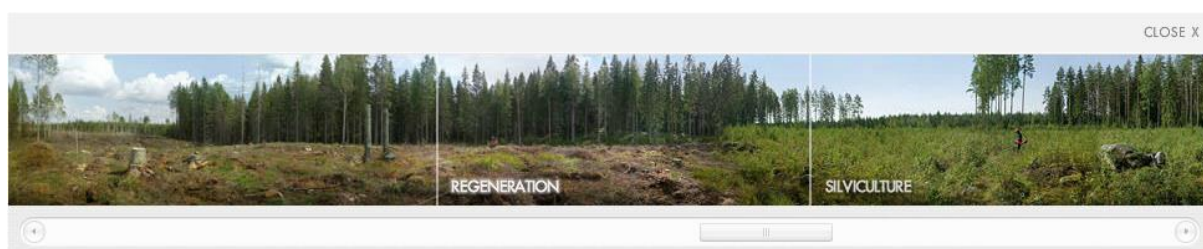


Figure 1. Virtual learning space [4]

The definition of virtual learning space is the essential contextual element of auxiliary teaching. Taking advantage of a non-formal context, virtual learning space is represented graphically, as a real space, free of constraints, own of a personal expression. This space illustrates the context of approaching contents for more disciplines from the curriculum, ensuring the initial multidisciplinary character, but during the temporal evolution of the teaching scenario, this takes transdisciplinary valances. Initially, a succession of images, apparently static, logical correlated, suggest the dynamic of the system that we represent in a real space, the virtual learning space guides the student to points of interest, which are accessed successively and produce learning situations.



Fitotehnie Biologie Ecologie Pedologie Agrochimie Agrotehnic Fitopatologie

Figure 2. A menu options [5]

In a restrictive acceptance, throughout lower-level cognitive processes, virtual learning space can be accessed mono-disciplinary, by selecting of menu options (figure 2). This approach leads to formation skills specific to selected discipline and in the same time it is necessary to be used according to some specific features of the target population. Multidisciplinary approach, subjected to the didactic path established by the teaching scenario, converts the specific skills successively into competent transdisciplinary elements. Unlike the traditional situation of presenting the new content, the teaching approach, facilitated by the open educational spaces, involves the combined transmission, simultaneous, of the specific contents of several disciplines, in a logical, integrator context. In the presentation of new contents they usually use teaching and proceedings methods, adapted to the specific of contents and which facilitate the intuition, understanding and memorizing process.



Figure 3. Presence of teacher in opened educational spaces[6]

The opened educational space is the most appropriate framework for expression, both for students and for the teacher, because it is not substituted to some elements of teaching scenario, it is permanently present and visible. It appears in a real context and presents the scientific content sustained permanently, by the real visual support of learning space. The presence of the teacher in opened educational space is not dominant (figure 3). He presents the essential elements of content and establishes the learning tasks. The student explores the educational space and learns by discovery.

III. CONCLUSIONS

This manner of designing the training process allows the teacher a concentration of the resources in the direction of accentuation and the formation of internal and external components of the involved skills. It is noticed as sensible and visible near to the resource-based learning paradigm by integrating and unifying the character of their exploitation.

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