

## UTILISATION OF THE 3D RESOURCES IN TEACHING-LEARNING, A TRANS-CURRICULA APPROACH OF DIDACTIC DEMARCHE AT UASVM IAȘI

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### Abstract

*The actual educational policies are more and more focused on a modern approach of speciality didactics and recommends the active involvement of pupil/student in teaching-learning activity, by using interactive methods and discovering of novelties, by the ones who learn. To achieve performance in didactic activity, professor must be always in connection with the newest didactic methods needed for educative process. In this way being an educational professor I succeeded to familiarize the DPPD students from UASVM Iași not only with the classical teaching-learning modalities but also with the utilisation of the ones in 3D system. So the groups of students which have the best results at pedagogical training carried out in high schools have the opportunity to present a lesson in the 3D laboratories from UASVM Iași. This simulations used an educational software created in a trans-curricula approach by cooperation between expert team of laboratories with professors and students and have the advantage that allow: observation of some phenomenon impossible to view "live"; sequence repeating/replaying; control on model with modification possibilities of some parameters.*

**Key words:** 3D resources, performance, trans-curricula approach, didactic strategy

### MATERIAL AND METHOD

To achieve this complex educational goal were studied curricula of different disciplines and were trans-curricula thematic treated by the team which elaborate the whole educational demarche. Working methods utilised were: documentation, 3D projection, prognosis appreciation instruments by questionnaires, analysis and interpretation of obtained results. Presentation was realised like animations, 3D projects, Power Point presentations, virtual photo albums.

### RESULTS AND DISCUSSIONS

Actual society and implicit educational processes are into a continuous transformation and modernization state. Continuous dynamics of didactic-educative processes, determine modification of concepts regarding the way in which those ones took place. In this way, theoretical approach of instructive-educative phenomenon, due its complexity, surround a

various range of perspectives through it can be analysed. Actual speciality didactics focus of its preoccupations pupil/student, being an active and interactive didactic, which promote discovery of novelties by the one who learn.

Trans-curricula approach of agronomical lesson and inter-disciplinary links are necessary in studying agronomical sciences. In the frame of trans-curricula learning didactic demands are connected with updating of the notions specific for more disciplines and their presentation in new and interesting ways which complementary treat the subject, offering a general view on phenomenon.

This type of educational demarche runs in the last three years in 3D laboratories of UASVM Iași together with the students whom attend the DPPD lectures, in their pedagogical training.

Each academic year, the final lesson for the students with remarkable results, implies the usage of educational software developed together with the 3D laboratories team, pedagogical training mentor-professor and educational professor.

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The manuscript was received: 16.03.2013  
Accepted for publication: 15.05.2013

*Concretely, implementation of such lesson type was realised like this:*

- students realise the didactic project for a theme, like **“Horse osteology”**;
- mentor-professor presents the subject in a classic way;
- at University working team composed by technicians from 3D laboratories, students and educational professor developed the educational software necessary for this activity;
- we invited at University a class of pupils from the high school which is in pedagogical training partnership with us;

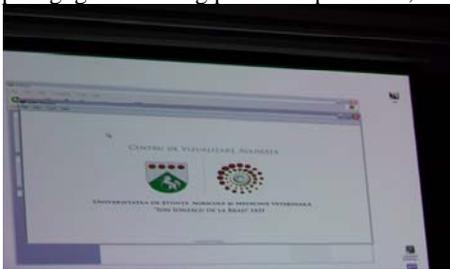


Photo 1 3D laboratory

- in 3D laboratory which have the adequate technology for this type of lesson was realised the teaching-learning activity.



Photo 2 Group of students

Group of students split their activities for each link of educational demarche and distribute the special glasses for viewing the 3D presentation. Assisted by an expert from 3D laboratory they could realise the presentation of sanguine apparatus, internal organs, horse osteology and ligaments, by rotating the animal in space for a good visualisation of it, stimulating in this way the pupils' imagination. Was realised the labelling

of the product with students' help and in this way is facilitated a quicker and more pleasant learning by pupils. Lesson had the character of a permanently debate between students and pupils, 3D product allowing to understand various situation and usage of heuristic conversations, learning process being more pleasant than the one from a classical lesson. At the end of activity students spread working fiches and questionnaires to have an activity feed-back. Each time was observed that pupils succeeded in assimilating quicker the large volume of presented information and considers that this type of learning is more pleasant, easier very useful, and this experience of learning type could determine some of them to enrol at one of UASVM Iași faculties.



Photo 3 Cave chamber

The importance of this type of lesson during students' pedagogical training is significant by enlightening the following theoretical and practical contributions:

- a) orientation of the whole technologic leading of instruction using didactic methods, procedures and means, permanently connected with aims of teaching-learning-evaluating activities;
- b) continuous improvement of didactic activity project by using 3D means as being one of the most efficient methods, in conditions of permanent changes at the correlation level between subject-object; teacher-pupil;
- c) operational development of all resources involved in didactic activity.

Priority of inter-active learning strategies is conclusive demonstrated by actual research which shows that when pupil is an active participant at teaching-learning process, scholar performances are more obvious.

During the whole activity aims it to reach the proposed targets for this type of educational demarche.

1. Professors and students whom participate at the lectures presented in 3D laboratories must:

- aware their role as organizers of learning situations and learning conducting;
- to encourage pupils' implication in finding and elaborating of problem situations, to put themselves and others questions, having also the desire for solving alone;
- to organize knowledge in a "high structural" way so the pupils to go through step by step and entire;
- to elaborate didactic activity projects adequate with the desired aim;
- to realise formatting feed-back, based on which to be elaborated demarches, if it is necessary, for eliminating the observed learning malfunctioning and difficulties.

2. Pupils' activity requires:

- participation of these type of didactic activity not only with answers at professor's questions, but must practice to formulate questions and problem-question based on the observed phenomenon, to be able to solve by themselves, which could lead them to discover new knowledge (eventually with other colleagues and under teacher guidance);
- observation of 3D product using a specific language in describing the objects and phenomenon from simulation;
- formation of a right and efficient intellectual working style, which to be adopted in solving problems encountered at other disciplines.

*Pleading for frequent utilisation of trans-curricula learning* using 3D resources from **Advanced visualisation** laboratory at agronomical lessons, in the framework of educational partnerships:

- active learning became more interesting, stimulating, significant;
- pupils/students participate during whole activity, being stimulated cooperation and creativity;

- accent is on group activity and processes are presented in images in a logical way, fact which make the learning easier;

- aims of more disciplines planned in the same week are reached during daily activities which includes fragments from those disciplines into a single generic;

- it is facilitate a good quality knowledge acquisition, which will be remembered for a long time;

- manifestation possibility in the areas where pupils/students capacities are more eloquent;

- stimulates the involved youth (pupils and students) by developing critical, creative thinking;

- pupils/students deals with research strategy, which promote investigation and authentic demonstration of learning;

Trans-curricula learning are conducted by professor through important questions which link the specific competences from curricula of chosen disciplines, superior thinking capacities of pupil/student and contexts from real life.

## CONCLUSIONS

1. **This approaching type of speciality lesson offer as novelty** a friendly interface and relatively easy to use in 3D system which offers various advantage face to the classical teaching system.

2. Virtual lessons are accessible and exist the possibility of creating own lessons which will contribute at development and deepening of pupils/students knowledge.

3. Users of this type of educational software have the possibility to follow a personalised path of learning, having at disposal application also on their own computer, method being mere efficient than learning in a classical way on a unique product.

4. Is developed critical, creative thinking necessary to pupils and students in: taking decisions, self-organization and self-evaluation of the individual resources.

5. Participants (teachers and pupils) adopt a positive attitude towards formation of trans-curricula cognitive capacities.

6. Quality of teaching-learning increases due to capitalization of speciality, psycho-

pedagogical and methodical experience of the one whom propose such type of lesson in a trans-curricula approach.

7. Realization of a good didactic communication between professors, pupils, students and experts in the framework of educational partnership that UASVM Iași have with high school offer an increased quality to pedagogical training, by given the possibility of exercise in trans-curricula and working in a mixed team: pupils, students and professors offers.

8. Real problems from daily life could be solved much easier by pupils and students, no matter the complexity degree, due to achievement of knowledge, abilities and competences which couldn't be separated by one or another discipline.

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