From teaching to learning –when will we take it seriously in forest sciences education?

Struggling with learning outcomes in integrated practice courses in Lleida, Spain

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Integrated practice courses (IPC, 6 ECTS, 150 h) were established in 2009 at the School of Agrifood and Forestry Science and Engineering in Lleida, Spain.

Part of the new Bologna Bachelor in Forest Engineering.

Four-year degree with three IPCs (1-2-3 years) + Applied period + Final Degree Project.

They were PBL courses to be developed with substantial time devoted to field work, hands-on experience and few or no lectures.

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The three IPCs were focused on:

1.- a basic regional environmental study (1st year)
2.- a watershed scale study (2nd year)
3.- a forest management plan (3rd year)

These practical courses were to take place after students completed other related courses, at the end of each academic year.

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The basic regional environmental study stated as learning outcomes:

▪To know the main physiological processes of the plants and the influence of the ecological factors on them
▪To know the more relevant aspects of animal and vegetal biology, as well as the main factors of their distribution
▪To know the zoological and botanical basics, as well as the essential contents of morphology and systematization that allow to differentiate models of organisation, diversity and complexity
▪Identify the different physical and biotic elements of the natural environment and their interrelations

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- **Understand and analyse interactions between the ecological factors that allow to determine the structural and functional properties of ecosystems and forests, as well as their spatial-temporal organisation**
- **Understand the importance and ecological value of the different physical and biotic elements of the natural environment**
- **Use and apply methodologies for an ecological characterisation of a region, and common methods in vegetal eco-physiology**
- **Draft technical reports/documents, manuscripts, professional assessments and characterizations**

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The regional environmental study was related to 18 competences linked to the courses in Climate, geology and soils, Biology, Botany, Zoology, Entomology, and Forest ecology.

It was given to 9 teachers who organized this IPC over 20% classroom work and 80% field work, with evaluation based in a diagnostic descriptive report of the area, also defended orally.

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The watershed scale study (2nd year) stated as learning outcomes:

▪**Capacity to carry out an integrated diagnostic of a watershed, identifying disturbances and/or processes of degradation of the natural environment, establishing guidelines for restoration**
▪**Capacity to design, project and execute infrastructures and engineering work required for forest and environmental management**
▪**Capacity to apply and develop defensive techniques and rehabilitation of natural systems: natural risks, hydrological restoration, rehabilitation of natural systems and degraded areas**

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The watershed scale study listed 23 general competences and 32 specific competences linked to Topography, GIS, Remote sensing, Hydraulics, Forest hydrology, Engineering and Reforestation.

It was given to 8 teachers who balanced computer labs with field work 20-20h with the rest in small group guided work.

Evaluation is based on one report on physical environment constraints, computed discharges and soil losses, and one of three project types: a forest road, a reforestation or a small dam.
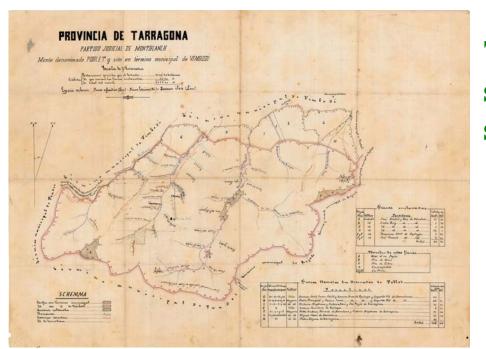
The forest management planning exercise (3rd year) would be taken after Forest health, Fire science, Wildlife management, Forest inventory and mensuration, Silviculture, Forest management and Forest harvesting

The forest planning study listed 20 Forestry specific competences

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The forest planning IPC was assigned to 11 teachers who balanced lectures, computer labs and field work, and small group guided work (forest goal specific).

Evaluation was based on several deliverables ending in an oral presentation based on planning for a certain focus-goal: wood or non-wood products, game, conservation, recreation, landscape, mining, etc. followed by discussion. Agreement not always possible: role-playing for stakeholders views.

Though this exercise, students were expected to:

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Though this exercise, students are expected to:

▪**Quantify and inventory natural resources**
▪**Evaluate potential forest products, uses and services**
▪**Design budgets and apply economical principles to forest management**
▪**Manage/cope with forest health issues or other disturbances (fire) within strict demands for biodiversity conservation**
▪**Plan for silvicultural treatments and regeneration action within a sustainable, adaptative and participatory frame**

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Our limited experience on the development and achievement of learning outcomes on these type of courses, comes (NOT) from questionnaires presented to students in the past three years, but they have been influenced by unexpected factors:

1. IPC1& IPC2 have been run for two years and IPC3 for one year only: Re-scheduling to 2nd year.
2. Between approval of the Study Plan and execution, the Board of the University changed, and problems for recognition raised.
3. Budgets got reduced by half (field trips affected).
4. Questionnaires were not always passed to students.

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Available Questionnaires :

IPC1 11/12
45% (9 out of 20) response rate
2.82/5 value for the course, 3.82/5 value for teachers
IPC1 12/13
96% (49 out of 51) response rate
2.64/5 value for the course, 3.22/5 value for teachers
IPC3 12/13
40% (13 out of 32) response rate
3.10/5 value for the course, 3.56/5 value for teachers

Given that IPCs embodied our main effort in the teaching-to-learning shift implicit in the Bologna process adopted in Lleida, results are very disappointing.

Comments by students point at lack of adequate coordination between teachers, but the goals of the courses were highly valued.

GRADES vs. EVALUATIONS?

"*We are lab rats*"…….....……………………….…..Thank you

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