NEW TRAINING FRAMEWORKS IN THE AREA OF CIVIL ENGINEERING

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The Spanish government has recently approved Royal Decree 640/2021, of July 27, which implies important changes for the development of university activities. Regulates, among other things, the creation, recognition, authorization and institutional accreditation of university centers. The entry into force of this Law will entail major changes that universities will have to deal with in the coming years, and will have important consequences both for Spanish students and for foreign students studying in our universities.

In this text we will analyze the consequences that the decree has on the activities to be developed in our center, the School of Civil Engineering, both for the positive aspects introduced by the text, particularly in the effort to improve research activities and dissemination of activities as in the negative aspects. These include the reduction of university independence and the functionalization of the educational system.
Keywords

Formative frameworks
Civil engineering
University education
Graduates
LOSU
ANECA.
1 INTRODUCTION

New educational environments need to be oriented towards collaboration and flexibility. Collaboration is the development of networks between tutors and students.

The creation of collaborative networks allow finding novel solutions.

Networking is a form of collaborative work, focused on sharing knowledge and resources. The formative processes evolve with the formative levels acquired by the students, in such a way that the Final Work to be presented to obtain the corresponding degree (Final Degree Project, Final Master's Project, Doctoral Thesis) represents the public presentation of the level reached by the students.
On the other hand, flexibility should make it possible to improve the resources used in training processes.

Keeping in mind that the two most valuable resources in training processes are the effort made by the student, and the time needed to reach a certain level of knowledge.

It is very important to apply these criteria because in a globally competitive educational environment, students with serious demotivation problems and with a very rigid educational system are at a disadvantage compared to motivated students who study in open or less rigid environments.
1 INTRODUCTION

In this context, the Spanish government has presented a draft bill of the Organic Law of the University System (LOSU) and two Royal Decrees. Royal Decree 822/2021 of September 28 for the organization of university education and the procedure for assuring its quality [8] and Royal Decree 640/2021, of July 27, on the creation, recognition and authorization of universities authorization of universities and university centers, and institutional accreditation of university institutional accreditation of university centers.

In this text we will consider how we can develop training activities in the area of Civil Engineering, studying on the one hand the existing legal framework and a proposal for changes to make university activities more flexible.
2 METHODOLOGY

The draft law deals with several important issues in the University, although most of them are linked to administrative and social processes. On the other hand, it delves into the processes of supervision of administrative bodies over university independence.

Topics:
- Good governance
- Equality policies
- Job stability
- Accessibility to higher education
2 Methodology

All the issues addressed in each of the topics are important and closely linked to the political frameworks in which this law has to be approved, but unfortunately they contribute little to the competitiveness of university centers.

Axes for the development of the university activity:
- Training
- Creation
- Collaboration
- Financing
2 METHODOLOGY

2.1 Training Axis

We understand by training axis the development of lifelong learning activities, adapting the contents, methodologies and means of work to the needs of the users, i.e. the students.

The University is the meeting place for the development of these processes, which must be developed in the most efficient way, for which the necessary spaces and resources must be available to guarantee the achievement of the desired results in the most efficient way possible.
2 METHODOLOGY

2.2 Creation Axis

This axis encompasses the activities associated with research, transfer and valorization. It is very important because it is the fundamental tool for obtaining resources from society, which serve to finance it.

University must be self-financing through the resources it creates for society. This self-financing is achieved both by participating in competitive project competitions and by developing technological solutions for companies and institutions.
2 METHODOLOGY

2.3 Collaboration Axis

The objective is the search for excellence that must be incorporated in all the processes involved in the universities.

Collaboration favors the creation of networks that, on the one hand, help students to integrate into the labor market, and on the other hand, help professors to transmit the hottest topics in which they work within their area of specialization.
2 METHODOLOGY

2.4 Axis of Financing

An important objective is to make universities self-financing. University autonomy is incompatible with direct funding from public administrations. Since education is a good for society, it is necessary to find financing procedures in society.

Self-financing mechanisms can be developed in many ways: aid from companies through some kind of relationship, foundations that provide scholarships or aid to students, for example, through checks, so that the student can choose the educational center and pay the center with that check for the services it provides.
3 RESULTS

The guiding idea proposed in this communication is that the university is a collaborative network and therefore has a social network structure. On this basis the fundamental elements for the implementation of the project are the following:

3.1 Network as a link generator
The links make it possible to collaborate to learn, to find solutions to new problems, to find employment, to be on the cutting edge of the area of work in which the users are working. The network serves to select students, teachers, and professionals interested in the subject for various reasons. This will be the leitmotiv of the project.
3 RESULTS

3.2 Evolution as a working model

Training centers should be created through the orderly growth of their members. The reason for this design is that traditional university structures are driven primarily by social inertia but are increasingly less suited to a changing society.

The West needs to revolutionize its training processes if it wants to maintain its leading role in the world arena because the technological differential is becoming smaller and smaller.
3.3 Training, research and transfer

These activities must be integrated processes. The most valuable university training is at the highest levels of the formative process, and the large university centers focus on developing large master's and doctoral programs, but the evolution will be continuous training.

In this way, the people who participate in the network will sometimes participate as students and other times as teachers or tutors and in some cases as contractors or marketers of the technology developed in the institution. The social value of the university will be determined by this process of knowledge and technology creation and will of course be the main source of funding for the institution.
3.4 Communication and Dissemination

Excellence is constituted by a set of dynamic social indicators that must be constantly adapted. The university must be a reference body in the areas in which it specializes, both in terms of the publication of contents, the hosting of places for discussion and exchange, the organization of acts and events related to its activities and, in general, its social protagonism in the scientific and technological area.

The universities that are currently adapting best to these processes are the large American universities such as the Massachusetts Institute of Technology (MIT), Stanford University or Harvard University, to give three examples, but the process is becoming more generalized.
4 CONCLUSIONS

The new draft of the Organic Law of the University System (LOSU) is an opportunity for change for universities, although it is too rigid and interventionist. Universities should develop through the greatest possible competition, not only at the national level but also taking into account international competition.

Civil Engineering is a highly technical area, where projects and competitions are international. The development of the proposal should be oriented to the following criteria:

- Flexible and highly adaptative training.
- Systematic participation in research and valorization process.
- Research, transfer and valorization processes must be one of the main means of financing.
- Collaboration between students, teachers and specialist, aimed at creating work networks.
- Unding must be competitive: Teaching must be financed, especially in undergraduate and masters’s degree programs free of charge for students.
REFERENCES

questions?
THANK YOU

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