

Chapter 4

A Model for Implementing Non-specific Competencies (NSCs) in Degree Studies, Defined Using a Delphi Study in Spanish Universities

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Abstract This work discusses the difficulties currently being faced by Spanish universities in adapting their education system to the development of the competency-based curriculum introduced by the EHEA, especially with regard to the introduction of non-specific competencies (NSCs).

Using the Delphi technique, we performed an exploratory study to collate opinions and proposed actions to facilitate implementation or advancement of these competencies in university degree studies. The panel of experts consisted of university lecturers with different profiles identified in Spanish public universities.

The study's primary contribution is to establish an implementation model, consisting of a sequential process in three phases: (a) concept design; (b) organisational design; (c) launch and monitoring. The tasks involved in the planning, organization and development of the process are intended to facilitate the coordinated and gradual implementation of NSCs—by all teaching staff involved—in university degree studies.

The utility of the model lies in the fact is that it resolves many of the problems currently restricting progress in the universities' social commitment to the comprehensive education of new graduates, and does so within the area of action of university management and teaching staff, providing solutions related to organisation and coordination.

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4.1 Introduction

Since the signing of the Bologna Declaration in 1999, the Spanish university system has been in a process of convergence towards the higher education framework established for the European Higher Education Area (EHEA).

This change has involved a considerable number of new features for Spanish universities and many papers and studies have been published on different issues related to adaptation, particularly the move to a competency-based curriculum (Alonso, Fernández, & Nyssen, 2008; Alsina, J. (coord.), 2011; Ausín et al., 2009; De Miguel, 2005, 2006; González & Arquero, 2014; Portilla, Varona, & Otegi, 2012; Yáñez, 2006; Zabalza, 2003).

Accepting that university teaching staff need to perform teaching work based on competency development and despite some resistance to the change (Margalef, 2014), in this work we take a proactive attitude and focus on how to organise the introduction of competencies, taking into account coordination issues (González & Arquero, 2014) caused essentially by non-specific competencies, in such a way that they can be gradually introduced into degree courses. In light of the limitations and constraints in a number of areas which create a complex working context in Spanish universities, with this study we offer a framework that will facilitate the process from an organisational perspective.

The article is therefore structured into three principal sections and the conclusions. Firstly, as a preliminary and essential step for understanding the importance of the object of study, we will analyse the nature of NSCs in degree courses, since most of the problems that arise during implementation derive, essentially, from the essential nature of the competencies. Secondly, we shall explain the methodological approach we used for our empirical work—a study using Delphi methodology with experts from a diverse set of Spanish universities. The third part contains the results of the study, establishing from a holistic perspective the issues associated with the development of NSCs in degree studies and guidelines for preparing the implementation model defined by the study. Finally, we present the conclusions of the study.

4.2 The Nature of the NSCs

There is currently no unanimous agreement on the meaning of the concept of competency. There is an almost unlimited range of views on the notion. Nonetheless, the complexity and the very flexibility of the term have led to multiple interpretations that allow the concept to be applied in very different contexts (De Haro, 2004).

The term “competency” is attributed to McClelland (1973) in his studies of motivational issues related to professional success. In the university area the research group in the Tuning project (2003) addressed various lines of action for adapting Spanish courses to the European framework of higher education, which prioritised *knowing how to be* and *knowing how to do* over *knowing how to know*. As a result,

a difference was established between *specific competencies*, those that provide the knowledge and techniques pertaining to a specific professional area and *generic competencies*, which allow graduates to achieve higher levels of employability and citizenship. In both cases, they were considered to involve a mastery of a discipline of knowledge and, therefore, viewed within the traditional framework of the university teacher's responsibilities (Barnett, 2001).

Arising out of this approach, many authors have sought to classify, categorise and define the nature of competencies to create a conceptual framework that will help university teachers make the transition from academic-type methodological suppositions to more dynamic ones which they can use to address the teaching/learning process within the new regulatory framework, consistent with professional requirements (Freire, Teijeiro, & Pais, 2011; Corominas et al., 2006; Mora, 2003).

Such competencies are also known as *basic competencies* (Rull & Cambra, 2007), *cross-competencies*, in reference to the direction taken in implementing them by courses and subjects in the degree studies (Díaz, 2006), *cardinal competencies* (Alles, 2002; Oliveros, 2006) and *core competencies*, to emphasise their essential role in the individual's professional advancement. In this study, in order to unify the terminology employed, we have used the term NSC (*non-specific competency*).

According to Rull and Cambra (2007), NSCs can be grouped into categories depending on whether they relate *to the individual* (self-learning competency or "learning how to learn", personal initiative, autonomy and entrepreneurial spirit); *to society* (social and citizen competency) or *to systematic* knowledge and skills (linguistic competency, competency in foreign languages, scientific, mathematical, technological competency, competency in information management and ICT and cultural and artistic competency).

Whatever term we use, NSCs operate within a much more ambiguous framework of assignment of responsibilities than simply academic competencies, because their development at university is viewed as the continuation of a process begun at earlier educational levels (Pérez, 2007) and one which will continue to develop throughout their lives, thus establishing a degree of continuity between the academic and labour world (Rodríguez, 2006).

This lack of definition in assigning responsibilities for NSCs at the different stages of an individual's educational cycle is further exacerbated by the position given to them in the curricula of degree courses. It is necessary to plan gradual implementation throughout the students' university curriculum, being mindful of the gradual and accumulative nature of their development in the academic context and each centre must make its own proposals based on the specific teaching circumstances and the course(s) taught.

The way the university's work is divided up and organised does not favour rapid adaptation to the demands of new working methods, since each university has its own structures and forms of development. As Bauman (1997) said at the start of this entire adaptation process, the most difficult thing [for universities] to cope with adequately is "*the 'metachange'; the change in the fashion in which the situation is changing*" and having seen the direction taken so far by the adaptation process, we agree with the remarks of the Universidad de Barcelona's group on interdisciplinary

coordination and competency-based assessment that: *“surprisingly we have begun to design curricula oriented towards development [of the competencies] and to apply evaluation procedures without sufficient prior debate to clarify the concepts involved and to analyse the most suitable models for managing the learning processes associated with the development of competencies”* (Alsina, 2011).

For all of these reasons, there is a danger that only lip-service will be paid to competency-based education, which is present in the planning and design formats, but has little chance of transforming the core of educational action—how students are taught and how they learn—thus fulfilling the predictions of authors who worked on the subject in early phases of the reform (Bolívar, 2008). Although university curricula are complemented with on-the-job training (Tejada, 2012) with the possibilities it holds out for acquiring professional competencies, in accordance with the philosophy of the degree curricula, it has proved very limiting to restrict their development to this phase of the student’s education.

Aware of the importance of the issue and the need to incorporate new forms of organisation into universities, we have made a study using the Delphi method, in order to pool the experience of several Spanish universities and establish a number of guidelines or recommendations that will help the universities in the various stages of this task, with collaboration from active agents who can influence the process.

4.3 Delphi Study

The Delphi method is particularly well-suited to a study such as this, in that it favours the compilation of information with a high input of qualitative contents, thus enabling in-depth reasoning of the issues to be studied (Okoli & Pawlowski, 2004). It also allows for geographical dispersion and heterogeneity in the profiles of participants, as was the case with our panel of experts.

The panel of experts was selected on the basis of two criteria, the depth and plurality of their knowledge and their motivation to collaborate in the survey. The aim, as stated by Bolger and Wright (2011), was to select real rather than “social” experts, i.e., those with no special skill, but who are deemed “experts” because of their social condition. Following these authors’ recommendations, in the process of selecting participants, we took into consideration each one’s motivation and heterogeneity, as this would improve feedback, and thus the results of the process.

Using these criteria, we identified two types of experts; in some cases, a single individual matched both profiles, thus enriching the contribution they could offer:

- “Academics” who have dealt with the issues from a scientific and conceptual perspective, in specialised publications.
- “Professionals” or in general individuals at different levels with responsibility in organising the process of implementing NSCs in their university, school or degree-course.

Table 4.1 Design and details of the Delphi study process

Rounds	First	Second
Objective	Identification of problems, organisational processes and specific recommendations for implementing NSCs.	Discussion and validation of the joint results identified.
Number of participants	20	20
Problems identified	37 problems identified, linked to the institutional framework; teaching staff; students and the social and economic framework.	Validation of the list of problems by 95 % of the experts.
Organisational processes identified	1 model comprising 3 phases, a result of aggregating the recommendations partially provided by the panel of experts.	Validation by 90 % of experts.
Specific recommendations for implementing NSCs	Specific and practical proposals for implementing the NSCs established in the model.	Validation by 90 % of the experts.
Feedback to experts		Qualitative information, grouping individual responses and offering a joint perspective of the answers received.
Validation of average results		92 %

Source: Authors

The experts were identified using snowball sampling to achieve the ideal number of participants, based on the recommendations of Okoli and Pawlowski (2004) who advise a group of 10–18 experts. Our panel was comprised of 20 experts based on the established profiles, from 16 universities throughout Spain of different sizes and ages, forming a diverse sample group within the current Spanish university world.

The Delphi study was performed by e-mail in two successive rounds between January and February 2014. The number of rounds was determined by the experts' validation, in the second round, of the research group's systemisation of the information gathered in the first round (Linstone & Turoff, 2011). This process is shown in Table 4.1.

The first round was carried out in the last fortnight of January, 2014, when we sent a letter of introduction with a detailed explanation of the purpose of the study.

The questionnaire for this first round specifically addressed the following issues:

- *Q1. Discussion of problems that hinder or prevent practical implementation of non-specific competencies in degree studies.*
- *Q2. Discussion of organisational guidelines and processes that will facilitate coordinated and gradual implementation of non-specific competencies.*
- *Q3. Recommendations on practical aspects for implementing NSCs, regarding the ideal profile of the person responsible for teaching NSCs, the type of subject in which they should be developed, the ideal number of competencies to be*

addressed per subject, the weight given to these competencies in the final grade for the subject and the degree, and whether it would be advisable for this score to be given separately in the students' academic record.

General recommendations in closed questions are difficult to respond to, and an open space was provided with the questions in the third block to allow experts to give a brief explanation of their reasons for each reply. As well as providing qualitative information on the questions asked, this explanation helped improve the interpretation of the previous questions. For this reason they have been included in the explanation of the phases and tasks of the model.

The open responses were coded through a review of independent peer review (Krathwohl, 1998) by a third person who was tasked with comparing and highlighting any differences.

Analysis of the first question showed a high level of agreement among experts, who identified the same problems in implementing NSCs, albeit with different terminology. In contrast, the answers to the second question, on organisational processes for implementing NSCs, proved heterogeneous, making analysis more complex. Most of the panellists clearly identified implementation models comprising different phases that had to take place sequentially. However, there was no agreement on either the number or sequence of the stages to be included. The research team therefore had to compile and sort all the stages identified by the experts sequentially, to create a single organisational model based on the various contributions, given the similarity and consistency of the models proposed. Finally, the answers to the final questions were coded on the basis of the questions asked, using a frequency count and the reasons given by each participant for their answers were reported in aggregate form.

The second round, which took place during the second fortnight of February 2014, consisted of sending the aggregated answers from the first round to the experts for their validation and for them to add their thoughts on the report.

The second questionnaire consisted, firstly, of a list of problems identified by all the experts. The panel was asked whether they agreed with the coding made and whether their answers had been correctly interpreted and collated. They were also invited to discuss the results obtained and to add, if they thought fit, any additional problems not originally discussed. This question generated few remarks, suggestions and contributions from the participants. Ninety-five percent of the experts validated the problems identified in developing NSCs and 15 % added some remark or qualification regarding the match between their answers and those in the study. No expert added any additional problem, considering that they had been included in the proposed list.

Our second question related to the NSC implementation model. In this case, the experts were invited to validate the process in overall terms or discuss it partially, questioning the order in which the implementation phases were established, the suitability of the totality of the stages or the need to incorporate any further stages and to make any other remarks they considered necessary on the proposed model.

In general, the remarks received completed the information contained in the summary model, helping to clarify and endorse it. In this phase, the model was

validated by 90 % of the participating experts. Finally, the answers given in the last questions were again coded on the basis of the questions asked using a frequency count. There was little variation in the answers given in the first round, with a stability rate of 90 %.

Given that the replies received in this second round included almost no additional remarks and those that were included mostly consisted of clarifications and qualifications that helped ratify the results presented, the Delphi study was concluded in this second round with an average validation rate of 92 %.

4.4 Results of the Delphi Study

The results of the study are shown below in two main sections.

4.4.1 Problems in Developing NSCs in Spanish Universities

The list of issues identified by the panel of experts as limiting or constraining implementation of NSCs in Spanish universities is broad and diverse. It affects both the organisations themselves and groups whose actions are related and synergic, but whose areas of action and interests may on occasions come into conflict with the universities'. We are referring to the institution, teachers, students and the social and economic framework in which the university education is provided. A summary of the list of problems identified by the experts, organised into categories, is given below:

4.4.1.1 Problems Related to the Institution

The prevailing teaching methodology in Spanish university culture is oriented towards knowledge transmission, which explains the lack of experience in developing competencies. Added to this, a strong cultural inertia creates a resistance to changing the educational paradigm. In short, teachers have not taken on board the need for change and do not assume this responsibility, showing resistance to a change in the organisational paradigm, using academic freedom as their justification.

The public universities have shown insufficient impetus and leadership, both from the institution itself and in the individual university centres.

In conjunction, all of these issues have led to a clear lack of institutional support (due to lack of resources, a desire to avoid confrontation with teaching staff, etc.) to any advance in the process of change.

The institutional area is promoting progressive implementation, but because NSCs are being developed at different paces, the process has generated discontent among defenders and opponents alike.

The decentralisation of the university system limits the possibilities for effective control, and because professional performance in the public university is structured horizontally, it has proven difficult to distribute responsibilities.

The structure intended to guarantee the courses, represented by the coordination systems, has ultimately proved formalist and inoperative due to a lack of incentives and legitimation for the work of the coordinator. In short, the role is frequently only accepted on paper.

The university curricula were designed by committees with no involvement from grassroots teachers. Although there are many NSCs in the programmes, there is a lack of any accurate definition which might allow teachers to integrate them into their teaching work. Nor has any in-depth work been done to design a curriculum structured to advance NSCs with their grading levels, which might serve as a guide or framework for the teacher within the framework of the course.

There is no interest in outsourcing training in NSCs within the curricula, as this would involve relinquishing the staff's teaching credits.

4.4.1.2 Problems Related to University Teaching Staff

Teachers tend to relativize the importance of NSCs in university education, in the belief that they should be acquired at other educational levels or will be learned with maturity and through professional experience. Priority is given to subject-specific competencies and NSCs are considered to deflect time and effort away from these specific ones.

The academic vision of university teaching staff is focused on educational rather than employability-related goals.

They have little methodological training for developing NSCs because it is not a prerequisite for university teaching, and training in active methodologies is still not in general practice in Spanish universities. Moreover, the generation gap is an important handicap when it comes to the methodology used in some NSCs (e.g. ICT).

Teachers have no motivation to undertake the additional teaching work involved with developing NSCs, because of their dual situation as teachers and researchers. Insufficient recognition of teaching merits reduces motivation, because for all types of promotion incentives, priority is given to the 6-year research period.

4.4.1.3 Problems Related to University Students

Students do not demand training in NSCs in the university because they still do not see their importance in their education. Moreover, they tend to give precedence to opportunistic behaviour in achieving results ("memorising versus learning") and feel overwhelmed by the large number of additional assignments and tests involved in continuous assessment.

They sense the teachers' inexperience and diversity of approach and feel they are being used as a test bench.

4.4.1.4 Problems Related to the Socio-economic Framework

A lack of economic, physical and technical resources impacts the possibilities of adapting classrooms originally designed for lectures and the provision of the necessary media (ICT). Budgetary restrictions also limit the provision of teacher training in active methodologies or complementary training courses in NSCs for all students. This situation is further complicated by continued class overcrowding in many courses

Other basic problems include: the heterogeneity of university access levels in NSCs, making it difficult to unite the design and pace of classroom work; the absence or scarcity of complementary public NSC offers, which could alleviate the deficiencies of the least advanced students; the difficulty in offering an education that is tailored to the resources and capacities of each student, a necessary feature of some NSCs; the disconnect between the university and the business community in designing implementation of NSCs with a sense of continuity; and insufficient external social monitoring of the university's work.

4.4.1.5 Conclusions on the Problems Identified

Our analysis of the problems identified shows that most of the issues detected among students appear to emanate from the way in which NSCs are being taught. The action of teachers in turn appears to be the result of a lack of institutional support, defects in training and a lack of motivation. This domino effect among the various agents involved in the process has a multiplier effect, reinforcing and exacerbating the problems.

For all of these reasons, we believe that there is also a positive side to the difficulties detected; actions at individual university level could help remove the stumbling blocks to the teachers' work, in turn resulting in a better perception and use of the teaching/learning process by students.

4.5 NSC Implementation Model

Most experts identified processes of NSC implementation which, although not exactly identical, did contain a series of common features and phases. This allowed us to design an implementation model that combined the various guidelines and recommendations. This was the model finally validated by the experts (see Fig. 4.1).

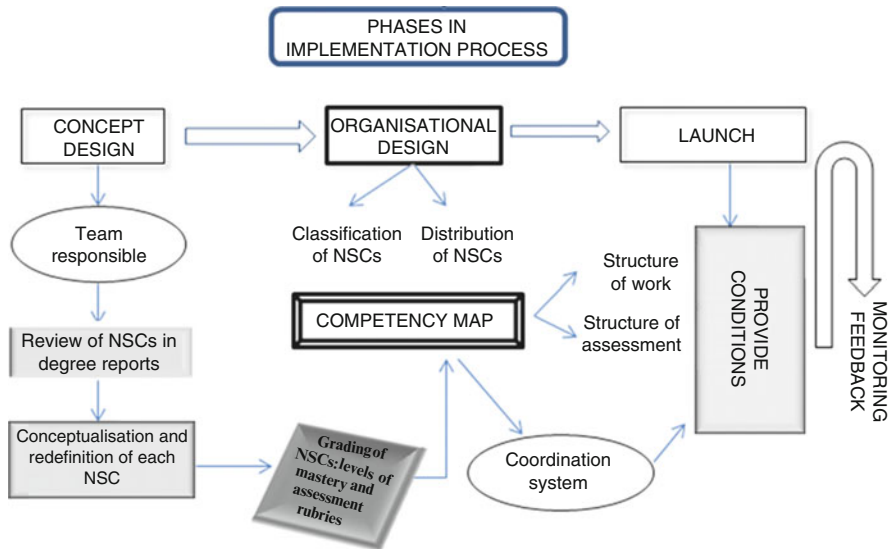


Fig. 4.1 Phases and tasks of the NSC implementation model

4.5.1 Phase I: Concept Design

The panel believed that in order to ensure success, it was necessary to start by designating a team of people to would lead the process, who enjoyed the respect of other teaching staff and sufficient academic authority among their colleagues. At the same time, it is essential that this team has institutional, regulatory and operational backing.

Following appointment of the team, the NSCs should be reviewed, since although the degree reports (documents structuring the content of the degree studies) prepared by each university and ratified by the Spanish National Agency for Quality Assessment and Accreditation, ANECA, refer to and list these competencies, it is frequently necessary to redefine them. This task should be performed within the framework of the ratified degree reports, but should seek to make them more operative. This will require prior clarification of the concept behind each NSC, where each teacher knows and understands exactly its precise meaning, in order to establish a common and working base, with agreement from everyone involved in developing it.

Given that the competencies involve different levels of mastery, it is also necessary to specify the progressive levels of implementation during the period of the degree. It is also necessary to set out possible learning results with evidence for each level, to serve as indicators of whether or not a given level has been attained (assessment rubrics).

4.5.2 Phase II: Organisational Design

The NSCs must be developed and achieved in crosscut form across the degree studies. However, because they are not specific to any one area of knowledge, they are not directly linked or assigned to any subject on the course curricula, nor to any specific type of teacher. There is therefore a need for an *a posteriori* adaptation of the universities' curricula, which should be complemented with a *competency map* clearly showing who is responsible for working on and/or assessing each NSC depending on its grade level.

The experts also agreed that in order to begin distributing the competencies, it is necessary to take into account the nature or type of NSC, as it may involve different teaching and assessment approaches. The classification distinguishes between two groups:

- NSCs more traditionally associated with the methodology of the teaching/learning process of a university academic discipline, albeit they may be reinforced with active teaching methodologies. (i.e. analysis, critique, etc.).
- NSCs that require the introduction of active methodologies in the university teaching/learning process (i.e. teamwork, verbal communication, etc.).

Design of the competency map, leads to the creation of the structure of each degree based on the subjects and/or teachers responsible for developing and/or assessing the NSCs according to their grading levels. This mapping process makes the process of teaching NSCs transparent for students, and lays the foundations for the organisational structure so that the teachers can situate their performance within a framework of general action because they know what NSCs are being addressed by other teachers/subjects and at what levels.

Based on the panel's answers, we identified three possible systems for allocating responsibilities for development and evaluation of NSCs, with different levels of involvement in coordination by subjects, modules and degrees:

- Distribution of NSCs with their corresponding grading levels among the degree subjects.
- Distribution of NSCs among teachers at the centre so that each one can specialise in this NSC, as is the case with the specific competencies.
- Linking of NSCs to the students' curricular development, managed by the students themselves and certified by the teachers as part of their tutoring work (requires that each student has the same tutor throughout the degree).

With regard to the assessment process, which other studies (Ion & Cano, 2012) have identified as a critical aspect in implementing the competency-based curriculum, the Delphi experts did not consider it necessary to work on and/or assess the NSCs in all subjects in every degree. However, they did consider that it should be the teaching staff from each university who should be responsible for teaching NSCs. They recommended that each teacher should be assigned responsibility for a maximum of two NSCs and identified two possible alternative forms of assessment:

either based on compliance with the level of mastery of the NSCs—as validated by teachers, with feedback in the form of guidelines on improvement, with no specific separate grade; or by grading the NSCs using a score that would count for part of the grade in one or several subjects.

The experts considered that a suitable specific weighting in development and/or grading of each NSC within the general context of the course, might lie within a range of 10–20 % for one subject and 10–30 % for the overall framework of the degree.

Some experts recommended having independent grading of NSCs that could be listed as a separate qualification in the students' academic record.

4.5.3 Phase III: Launch and Monitoring

The launch and/or development of the process depend to a very large degree on the teachers involved in each centre, as they are the principal agents and guarantors of its execution. In view of the general, overall problems identified, the experts consider it necessary to provide, within the framework of action of the universities and especially in the areas of responsibility of their management teams, the necessary conditions to facilitate implementation of the system through awareness-raising actions, training, motivation and the provision of whatever physical, technical and infrastructure resources are possible.

In the same area, the experts discussed the need to design and establish an effective system of vertical and horizontal coordination that will guarantee consistency, monitoring and feedback of the process to allow for improvements to be made; the model must be dynamic, so that once implemented a system of permanent review and improvement can be established.

4.6 Conclusions

This exploratory study represents an advance in our current understanding of aspects linked to the practical, joint, coordinated and gradual application of non-specific competencies (NSCs) in universities.

The study is intended to be useful for the management and teaching staff involved at each university, facilitating progress in fulfilment of their social commitment to comprehensive education of graduates.

In order to introduce NSCs into degree courses, it is essential to know and identify the problems that may affect their development. The results of the study identify a series of specific problems that impact implementation, resulting both from specific idiosyncrasies in Spanish universities and from the social and economic context of their action. Knowledge of these overall issues will make it easier to understand them and allow solutions to be devised from different areas of action by generating a framework to facilitate the process. Although the current crisis has resulted in a lack of resources, it is necessary to open up to new perspectives that

allow the principal problems to be resolved with efficient solutions. It is not within the remit of this study to explore solutions to all the problems encountered, since they lie outside the scope or area of action of the universities and their principal actors, the university teachers. Nonetheless, based on the problems identified, it is possible to make an individualised reflection on the specific problems of each university in order to prioritise the actions to be undertaken in resolving these problems.

The study, based on the opinions of the panel of experts, has allowed us to identify a model which, through the systemisation of phases and tasks, will enable and facilitate coordinated and gradual implementation of NSCs in degree studies. Although no previous guide existed on the best way of designing, organising, launching and monitoring the process, it is noteworthy that the approaches to the processes implemented by the different Spanish universities coincide to a significant degree. One may therefore infer that the model identified could serve both as a guide for universities at a more incipient phase of NSC development and others that are reconsidering their organisational model or want to continue with already advanced phases and tasks.

The principal benefit of the model is that the procedure defined helps universities—through consensus between the majority of teaching staff—to configure a formal structure in which all teachers involved in the development and/assessment of the NSCs can do so within an organised and coordinated framework.

Finally, we may conclude that in the face of the general issues identified, there is a need for change in the proactive perspective of teachers and heads of management teams in universities. Such change will strengthen and facilitate their participation in implementing the NSCs in the degree courses and contrasts with the unyielding perspective that all progress is impossible given the scale of the problems identified in general, overall terms in the study. The implementation model identified will therefore contribute, through its sequential development, to alleviating and resolving some of these problems. And in this regard it demonstrates the positive progress towards improving university education that can be achieved through the combined efforts of all the agents involved.

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