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DESIGNING A COMPETENCY-BASED CURRICULUM FOR PEDAGOGY SUBJECTS AT HIGH SCHOOL LEVEL

DOCTORAL THESIS
SUMMARY

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Keywords and concepts: curriculum, curriculum design, curriculum-based design, pedagogic subjects, designing instructional-educational activities, management of instructional-educational activities, assessment of learning outcomes, knowledge, abilities, attitudes, cognitive content, operational content, attitudinal content, curricular model 3C, systemic approach.

The Ph.D. thesis *Designing a competency-based curriculum for pedagogy subjects at high school level* is comprised of two main sections. The first part that is entitled *Theoretical background. Analysis and meta-analysis of literature* contains two chapters that tackle the most relevant and current studies on the competence-based curriculum available in the national and international literature. In addition, this section provides our contribution to a number of fundamental-theoretical approaches of curriculum-based design on pedagogical subjects. Various definitions of concepts have been suggested: curriculum design, pedagogical competences, pedagogical knowledge, pedagogical skills, pedagogical attitudes, cognitive content, operational content, and attitudinal content.

The second section entitled *The research project. The design of a competency-based curriculum for pedagogy subjects* represents the largest part of this thesis and it comprises six chapters which are in compliance with the established stages of pedagogical research: the pre-experimental stage, the formative experiment and the post-test. I intended to implement and test the functionality of the curriculum-based design model in pedagogy disciplines. We have named this model *curricular model 3C*.

Chapter I - The curriculum - a pedagogical perspective. Conceptualization, design and development presents issues related to the importance and necessity of the curriculum and the curricular design targeting diachronic and synchronic approaches.

The concept of *curriculum* is a well-known term worldwide, being present in various structures and educational institutions, among experts and practitioners. Although this term has a clearly defined sphere of reference in contemporary literature, within the educational system in Romania it still raises methodological, theoretical and praxeological issues most likely due to the constraints imposed before 1990s when the term "curriculum" was forbidden. Another reason may be the lack of theoretical and practical experience which has generated confusion among teachers but, perhaps more important, and among educational policy makers, this is because the term has a wide field of coverage.

The pedagogical literature still could not provide a single definition of the curriculum to be universally accepted and therefore it is defined from different perspectives (Stanciu, M., in Bocoş, M., 2008):

• *The systematic learning perspective of school subjects* – a perspective that emphasizes the formulation of educational objectives and necessary content in order to achieve these;

• *The student-centred perspective* – a perspective that emphasizes the relevance of the curriculum to the student in order to meet the individual characteristics, the age, the interests and the experiences of the learners;

• *The comprehension and improvement of society perspective* – a perspective that considers that the role of the curriculum is to facilitate a rapid and effective social integration of the student, this being an indication of the effectiveness of the teaching-learning process;

• *The design-centred perspective* – focuses on valuing the process and the stages that have to be undertaken in the development of the curriculum;

• *The systemic-holistic perspective* – it values the systemic articulation of multiple interactions established between the components of the educational process.

Lunenburg, F. (2011) has also developed an inventory of the various perspectives on defining the curriculum in the international literature. The author identifies five such perspectives of curricular approach:

- *A content-centred curriculum* (perspective provided by: Phenix, P. (1962), Bestor, A. (1956), Hutchins, R. (1980) or Oliva, P. (1977) in which the focus is placed on what has to be learned, the information that has to be transmitted to students. The curriculum promotes from this perspective the establishment of as many school subjects as possible being considered that a large number of subjects will develop the students' knowledge and skills.
- *The curriculum as a learning experience* is a perspective that has been developed by authors such as Taba, H. (1962), Bobitt, F. (1918), Dewey, J. (1938), and Tanner, D. (1995). It promotes and supports the idea that the curriculum needs to plan and guide primarily the positive learning experiences of the students. In this vision, the goals that are designed into the curriculum have to have as source the systematic reconstruction of knowledge.
- *An objective-centred curriculum* is an approach prevalent among authors such as Tyler, R. (1949), Bloom, B. (1956), Burke, B. (2009) and Marzano, R.

(2010). In this approach, the definitions of the term curriculum are mainly focused on expressing the importance of establishing and formulating educational outcomes that should guide the entire educational process and to which relate to the other components of the educational process. The most important contribution in promoting an *objective-centred curriculum* has been provided by Tyler, R. (Tyler's reasoning) and Bloom, B., with his proposition of taxonomy of objectives.

- *The curriculum as a training plan* is a perspective encountered with authors such as Goodlad, J. (1998), Valerien, J. (1991). The theoretical approaches of the curriculum focus primarily on the importance and role in organizing the training process based on curricular products: syllabi, curriculum plans, lesson plans.
- *The curriculum as non-technical approach* is a perspective promoted by contemporary authors as Pinar, W. (2012), Apple, W. (2001), Einser, E. (1994), Greene, M. (2008), Gilligan, C. (2010). Theories that address the curriculum from a non-technical perspective promote curricular flexibility between the fundamental elements of the educational process thus rejecting the progressive and rational approaches in the curriculum, namely the idea of "plan". Non-technical curricular approaches promoted by the above mentioned authors support the social grounding of the curriculum, the curriculum for the development of critical thinking and the school-curriculum design, based on the freedom on educational institutions.

In Romania, a particular interest towards the concept of curriculum and its implications, from a systemic point of view, in education is provided by the following authors: Potolea, D., Cretu, C., Cucoş, C., Ungureanu, D., Cristea, S. , Bocoş, M.

Promoting the multidimensional nature of the curriculum, Potolea, D. (2002, p. 82) defines the curriculum as a concept construct, a mental construct that focuses on a reality that is bound to happen. The author considers the curriculum as an educational action project, approaching it from three perspectives: structural, functional and product.

The curriculum as a learning experience perceived from a progressive point of view, Cretu, C. (2000, p 30), tackles the curriculum as a learning experience, both the one established in the school and the one assimilated / internalized by the student. It is perceived as an experience that takes place not only in school, in a formal education, but also outside it, through non-formal educational activities.

By making use of the flexible-procedural perspective, Cucoş, C., (2006, p 182) defines the curriculum as a learning perspective, as a program that desires to prioritize the objectives that it focuses upon, then the suitable contents, the ways, the means, the power and the conditions that are required.

Ungureanu, D. (1999, p.14) proposes a triad curriculum: a curriculum as a representation, a curriculum as a representation of action and a curriculum as an action itself. He perceives the curriculum as an interactive reality between teachers and learners, there existing concrete effects anticipated in a realistic manner, either on the latter and on the process itself.

Cristea, S. (1998), considers the curriculum ‘’as a superior project" and "a fundamental concept" which is organized according to some principles and objectives. The first priority lies with choosing the objectives which determine the content, the learning experiences, the strategies for organizing the learning and the strategies for evaluating the results. Given these considerations, the author states that "the basic function of the curriculum consists in optimizing the pedagogical design related to the relationship between the stable dimension (teleological-substantial) of education, training and the flexible (methodological) one which can be adapted to a flexible context" (Cristea , S., 2006, p 47).

From a modern perspective, which complies with the contemporary educational developments, Bocoş, M. (2007, p. 95) defines the curriculum by putting an emphasis on the systemic-interactional paradigm as "an integrating concept, that is approached in a holistic and systemic vision of educational activities, of their components and interactions that characterize them. The curriculum is a pedagogical project that makes use of the multiple and complex interdependences that are established between the following components: the instructional-educational content, the general educational objectives, the teaching and learning strategies, and assessment strategies. "

Taking into consideration the curriculum design it could be stated that it represents a comprehensive and extremely important field of research and action because it intends to ensure the premises of true manifestation of the interactions and interdependencies between educational objectives, the instructional-educational content, the principles and teaching-learning strategies, the evaluation principles and strategies in formal contexts.

The International Encyclopedia of Education (2003, pp. 1164-1168) identifies three main directions in curriculum design: *the content and the organization of school subjects as the source for designing the curriculum; the pupils and their characteristics as a source for curriculum design and the society as a source for curriculum design.*

The content and the organization of school subjects has been and continues to be one of the most common sources that are used in developing the curriculum design. According to this vision, the organization of content in relation to the subject of study and domain of study is a logical and rational organization that encourages the students' effective learning and understanding of the content and the development of a broad general background (Hunkins, F., 1980). However, we believe that by making use only of this curriculum design we would impose on students a rather mechanical learning where the teacher seeks only to cover and complete the planned content losing sight of the student. Therefore, the completion of the contents becomes the number one objective of the teacher. The student, his/her competences, the development of the learning motivation, and the development of the skills become a secondary objective.

The attempts to make this curricular design more flexible were objectified in organizing multidisciplinary and interdisciplinary contents. Likewise, the contents are no longer artificially separated, but they are studied in an integrated manner in order to facilitate their systemic understanding by the students.

The focus on the student and the student's characteristics represents another important source in curriculum design. It is a strong vision in contemporary pedagogy but it was in fact Dewey who expressed it for the first time in the early 1900s. From this perspective, the needs, the interests, the individual characteristics, the age, the students' prior learning experiences represent the basis for the curriculum design. This practice is prevalent in the American education systems. Thus, students have the opportunity to select and organize their learning path, and can make a personal or guided choice, as regards the

disciplines and the educational activities that correspond to their skills and interests and this is essential for lifelong learning skills (Saylor , JG and Alexander, WM, 1974). Such a curriculum design promotes a learning sequence that is organized by the student and not a learning session that others organize for the student. Likewise, the learning sequence becomes personalized and therefore relevant and intrinsically motivating for the learner.

The society represents a third important source in curricular design. From this perspective, the curriculum is designed by taking into consideration the development of the society in order to prepare students to cope and adapt to the society in which they live. The curriculum objectives are designed in terms of developing students' abilities to put in practice the knowledge they have acquired. The learning content is deeply rooted into the social life, it is relevant and in line with the current and the prospective developments of the society. The teaching activities also have an important social role as the students are involved in activities that require cooperation, communication and problem solving. Contemporary practices that exploit the society as a primary source in curriculum design focus increasingly more on facilitating the integration of students not only in the social and cultural environment of the country in which they live, but also in the European and worldwide socio-cultural environment thus promoting globalization.

Therefore, considering the complex nature of curricular design we suggest the following definition in this doctoral thesis: *The curriculum design is a rigorous and scientific pedagogical approach, which on the other hand is also flexible. It is organized systemically at varying degrees of generalization with the purpose of establishing and managing interactions and interdependencies between the educational aims, the instructional-educational content, the teaching strategies, the assessment strategies and the multiple contexts in which these occur in order to facilitate functional and educational pathways and to generate positive and constructive learning experiences.*

This definition aims to emphasize the importance of curriculum design as a teleological activity that is fundamental in an educational system that values both the interactional views on the curriculum and on the systemic and dynamic ones. In addition, we also intend to point out that curriculum design should be approached with the utmost responsibility and deliberation because it must ensure the premises of a functional education in terms of facilitating student learning paths and the development of competences;

curriculum design is therefore not only a mere project for organizing formal education, but also a project of human development and personal growth.

Moreover, in the first chapter of the thesis a comprehensive analysis of curriculum development in education in Romania is performed. This provides a perspective on the development of our educational system, its aims to evolve and meet the needs of both the students and the society during the 22 years of attempts.

The curriculum has known different stages of evolution in this period. However, it has to be acknowledged that there is a positive development both from a conceptual and a theoretical point of view. Many important authors and researchers in the field of pedagogy and praxeology have contributed to this. One can observe, based on the details presented above, that the Romanian curriculum development has occurred over time and that it is still trying to evolve from Tylerian models to systemic, interactional models, by making use of diverse curriculum design strategies that have proved to be effective in other countries. Although the results of any educational system can only be perceived in the long run, the social, economic and cultural contexts play a paramount role. Therefore, one should pay careful attention to investigate if the current curricular perspectives would prove to be functional.

Chapter II - Curriculum design of pedagogy subjects from a competency-based paradigm - proposes a pragmatic approach of the curriculum specific to teaching subjects in secondary education. Thus, the systemic vision it starts with the identification of design principles of pedagogical subjects curriculum, the main design models of centered curriculum on skills are identified, and by capitalizing specialized literature the term competence is clarified on conceptual terms.

Regarding the principles of curriculum design they represent philosophical directions intended to guide axiological and methodological curriculum practices, ensuring consistency and rigor, and also contributing to the theoretical and praxeological foundation of curriculum design field. Curriculum design principles are not formal laws but we consider that they are important regularities which must report all decisions and activities influencing curriculum, regardless of their scope and level of generalization (made in macro-or micro).

Very low number of studies on curriculum teaching subjects, lead to the lack of consecration of certain curriculum design principles with precise guidance on educational subjects. In Romania there are studies which have determined the development of construction and design principles of the National Curriculum, conceptualized by authors such as: Cerkezy, M., Crisan, A., Singer, M., Oghină, D., Sarvian, L., knuckle , L. (1998). We believe that these studies are important milestones for determining design principles of teaching disciplines curriculum, relying on international acquisitions in the curriculum field. Thus, based on our findings mentioned above, in trying to adapt the principles enshrined of the National Curriculum, **we propose the following scheme of curriculum design principles of educational disciplines:**

1. The principle of functionality
2. The principle of coherence
3. The principle of flexibility
4. The principle of equal opportunities, of accessibility and student centeredness

Also, studying international scientific literature (the works of authors like Yorke, M, Macfarlane-Dick, D, Roy, A., regarding the micro teaching curriculum design) led us to the identification and proposal of another two important pedagogical disciplines curriculum design principles:

5. The principle of valuing the feedback
6. The principle of promoting efficient and independent learning

Based on the above principles, the paper proposes a series of postulates in designing educational disciplines curriculum:

Postulate 1: Designing pedagogical subjects curriculum is achieved by making functional interrelationship between educational disciplines and other school disciplines throughout the study years.

Postulate 2: Disciplines teaching curriculum design is done by following professional skills training, through the coherent integration of knowledge, skills and appropriate educational attitudes and networking them with cognitive content and behavioral act so as to avoid duplication of content between related disciplines.

Postulate 3: Curriculum design of teaching disciplines is done by providing students the opportunity to select themselves, or directed, depending on their interests and needs,

various disciplines of pedagogical specialization area and beyond them, while giving them the opportunity to deepen certain items or to recover any difficulties encountered in learning.

Postulate 4: Curriculum design of pedagogical disciplines is achieved by making a education route accessible to all students, respecting their individual characteristics, age, cognitive and affective-emotional.

Postulate 5: Curriculum design of pedagogical disciplines is done by relying on feedback from the students and teachers becoming a dynamic and flexible process.

Postulate 6: Curriculum design of pedagogical disciplines is done in such a way that its structural elements facilitate independent and effective learning of students, developing critical- reflective thinking, their abilities to organize their own learning and problem solving.

In the doctoral thesis, studying contemporary professional literature were identified several approaches to competence-based curriculum. The competence-based curriculum is approached from different points of view in terms of theories apparently different but, after a careful analysis we can conclude that they are in fact converging, because together contribute substantially to the scientific substantiation and the argumentation of the importance and necessity of centered on skills curriculum. Approaches we refer to and which we will analyze below:

(1) curricular approaches centered on learning outcomes;

(2) curriculum approaches centered on standards;

(3) curriculum approaches centered on learning process or student-centered curriculum.

1. Approachs centered on learning outcomes (Burns, R., and Squires, D., 1987, Seels, B., 1990, Ramsden, P., 1992, Brown, AS, 1998 Killen, R., 1998) promotes shifting the emphasis on content and focusing the curriculum and the whole process of education on the aims of education, seen as anticipated student learning outcomes, having the guiding role of the educational process. Thus, the curriculum describes the first "aims," of teachers regarding students in the educational process.

2. Approaches centered on standards (Sahlberg, P., 2010) is another approach to curriculum design, being in close relation and having practically the same background as

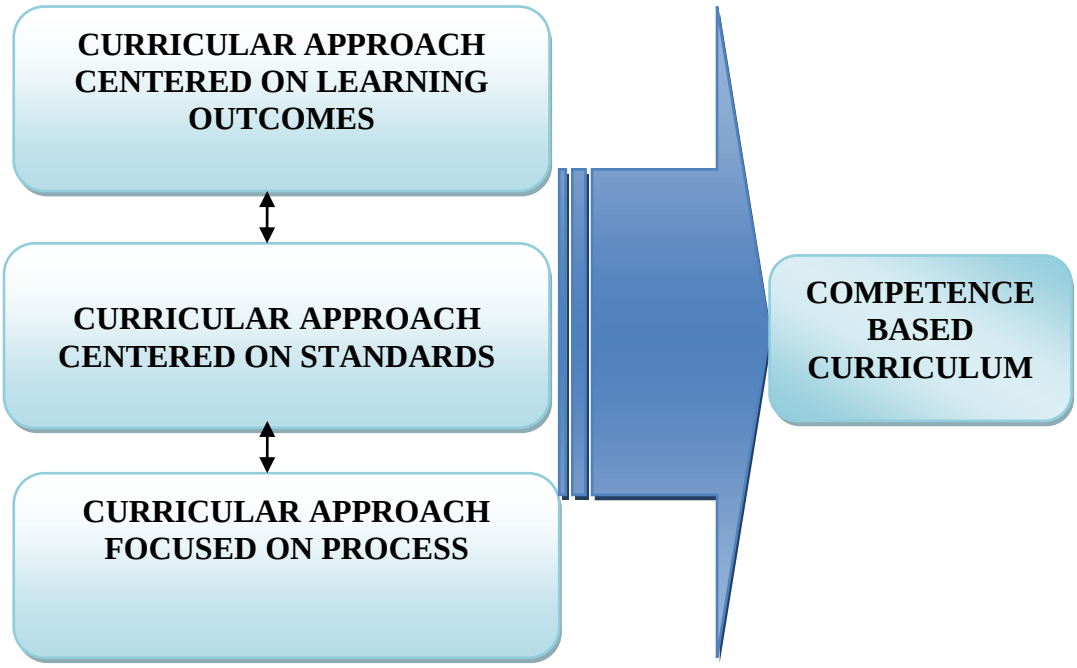
curricular approach centered on learning outcomes, this approach also contributes substantially to the development and foundation of curriculum focused on skills.

Focusing on standards in curriculum design, as the name suggests, promotes the design standards that students must achieve in the various school subjects and in different stages of schooling. Thus, in general, from the Ministry of Education are set different standards that all students nationally must achieve after a certain period of time.

3. Complementing the two curricular perspectives described above, and while contributing to support the competence-based curriculum, **curriculum approaches centered on learning process or student-centered curriculum.**, necessarily promotes the importance of student learning (Knight, PT, 2001 Hussey, T. and Smith , P., 2003, Maher, A., 2004). Thus, from this perspective, the central element from which starts the curriculum design is the student achievement, with its individual characteristics (cognitive, affective-emotional and psychomotor) and its specific learning process, marking, as the curricular perspectives centered on learning outcomes and standards, strong opposition to focus on content. Based on this consideration, the goals of the curriculum, curriculum content, the educational strategies and assessment strategies are set in direct relation to student learning and its process, based on a complex analysis of the research and theories of learning and child psychology (Hawes , H. cited. Brady, L., 1995).

Thus, watching the relations, mutual support and convergences established between approaches centered on learning outcomes, standards centered approach and focused on process approach, and their role in the curriculum centered on skills substantiation, we find that the learning outcomes expected from students may be expressed practically through curriculum standards which in turn are expressed in terms of skills that coherently integrate knowledge, skills and attitudes established in the curriculum through permanent direct relation to the student. Also, the obvious convergence of all these curricular approaches is their firm opposition to the curriculum centered on content and therefore opposition to curricular models in which the student is passive and only needs to collect and store information.

Also desiring to highlight the complementarity of all these curricular approaches and their contribution to the foundation of competence-based curriculum, we propose the figure no. 1.:



Picture no. 1: Theoretical foundation of competence-based curriculum

Realizing a complex analysis and synthesis of the literature, Kouwenhoven, W. (2010) also identifies several key characteristics of competence-based curriculum:

- competence-based curriculum is oriented towards professional practice;
- competence-based curriculum is student-centered;
- competence-based curriculum has a constructivist approach;
- in the competence-based curriculum, the teacher's role is to guide learning;
- competence-based curriculum promotes the creation of learning situations focused on skills training;
- curriculum centered on professional skills is implicitly centered on developing transversal, generic competences
- in competence centered curriculum, assessment also focuses on skills.

Regarding the design levels of pedagogical disciplines curriculum, in our doctoral approach, we refer with details to the curriculum design at the **level of study discipline (pragmatic level)** and **level of teaching (classroom level**), these two levels representing the focus of this paper and of the experimental approach.

At the level of study discipline, the first and necessary step for designing pedagogical disciplines curriculum is **to establish educational outcomes formulated in terms of pedagogical skills.** Pedagogical skills formulation stage is concomitant with **subcompetences identification stage** (Meyer, G., 2000), **their structural components**: **knowledge, skills, pedagogical attitudes**, as well as setting **subcompetences descriptors**, relational descriptors, so subcompetences structural components.

We present further conceptual clarifications specific to these stages of formulation and design of skills in pedagogical subjects curriculum.

Competence is the demonstrated ability to select, combine and use appropriate knowledge, skills and other acquisitions (values and attitudes,) to successfully solve a certain type of work or learning situations, as well as to personal and professional development, under effectiveness and efficiency conditions (methodology CNCIS, p 9).

Subcompetences we can state that also represent, such as competences, the ability to select, combine and use appropriate knowledge, skills, but they are derivatives of competencies so with a lower degree of generalization, and their dialectical interaction, more than their sum, leads to the formation of a full competence that will cover later development, modeling and refining „road".

Pedagogical knowledge are a structural component of a pedagogical competence and subcompetence, which represents information, facts, concepts and theories specific to pedagogical disciplines, being the result of a processing and abstraction approach.

Pedagogical skills are a structural component of and a pedagogical competence and subcompetence, and it refers to students' ability to apply and use in educational practice acquired pedagogical knowledge, and on this basis to solve problems and achieve various pedagogical tasks.

Pedagogical attitudes are the structural component of pedagogical competence and subcompetence and represent individual predispositions to assess - as favorable or unfavorable - various issues relating to the education field. Thus, pupil forms a set of beliefs and therefore manifests rejection or adhesion behavior to it or certain aspects of it.

Regarding **subcompetences descriptors**, they represent the description in terms of quality of each structural component of a subcompetence (knowledge, skills, attitudes), the sum of all subcompetences descriptors representing overall description of the quality of

competence, of course, the systemic approach. Thus, they indicate in operational manners expected results for each phase of training competence, being at the same time the main reference point for sequential and summative evaluation of pedagogical competence training.

To the complex phase of identification and formulation of pedagogical competence it follows the phase of establishing curricular content. In the design of curricular pedagogical subjects, contents shall be determined by reference to the competences and subcompetences identified in the previous stage of curriculum design and by relation to their structural components: knowledge, skills and attitudes.

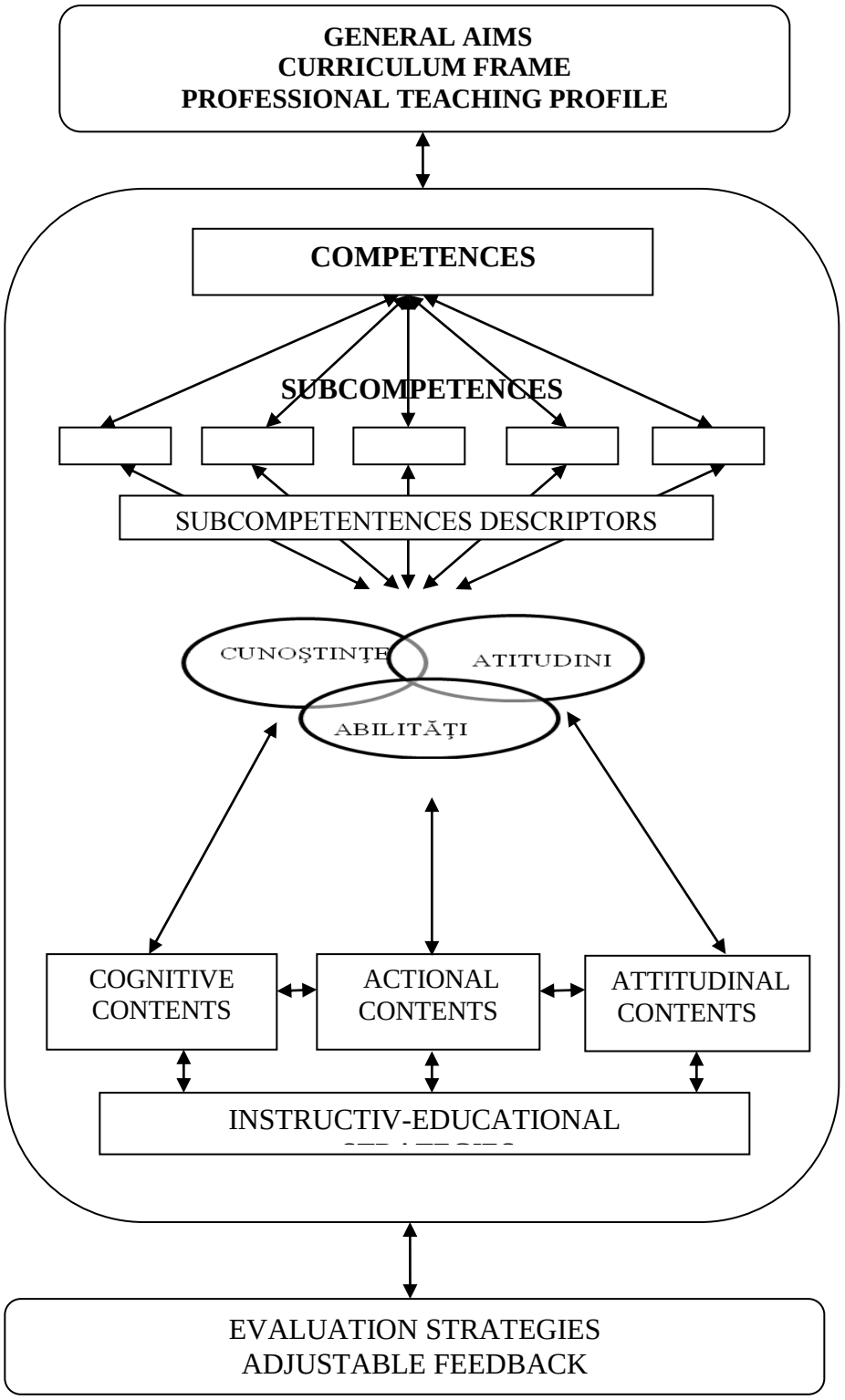
As contents that relate to the knowledge and lead to the formation and development of it are **cognitive contents.** Thus, in the context of Pedagogical disciplines curriculum design**, we define contents as cognitive systems knowledge (declarative, procedural, and conditional and metaknowledge) as to facilitate the learning, understanding, explanation, interpretation and resignification by students of various facts, concepts and pedagogical theories.**

On the other hand**, actionable contents,** completes cognitive content and in dialectical relationship with them, fulfill a role in the formation and development of pedagogical competence**.** Thus following content action-pedagogical skills axis in the context of pedagogical disciplines curriculum design**, we define actionable contents as knowledge systems that integrate cognitive contents and are designed to facilitate students' application and transfer of pedagogical knowledge in specific educational situations (theoretical or practical-applicative) while facilitating problem solving and critical and constructive reflection on the facts, concepts and pedagogical theories.**

Interacting with the other two types of content and contributing to the formation of attitudes and pedagogical competence formation and subcompetences formation, **we define attitudinal contents as knowledge systems that are designed to guide axiological and motivational, formate and develope the students in the context of exercising the teaching profession , the study of pedagogical and educational disciplines, considered globally.**

Wanting to highlight the processuality of curriculum design in the pedagogical disciplines, we propose the following scheme which represents synthesis of curriculum

design centered on competences model in pedagogical subjects (*model curriculum 3C*), which we have tested in the experimental approach:



Picture no. 2. Processuality of curriculum design at the level of pedagogical disciplines

At the level of didactic activities, curriculum design is shaped into didactic activities. They are a tool and a guide for teachers, giving an overall perspective, comprehensive and complex on the lesson, is a kind of scenario the activity to be done (Bocoş, M., 2007, p 386).

Although not requiring a certain standard model for the design of didactic activity, it must be a flexible and dynamic one, we believe that for an efficient teaching and educational process, the following steps, validated by didactics theories, are necessary:

- identifying classroom characteristics, the peculiarities and psychological resources of students and identify environmental characteristics of the class curriculum, training environment in general;
- identify prerequisites students and use feedback by reporting to previous didactic activities;
- reporting to the curriculum and the purposes, general pedagogical competence of the study discipline;
- management of learning situations, which involves:
    - setting operational objectives followed in relation to pedagogical competence and their subordinate subcompetences;
    - fixing of cognitive contents, actions and attitudes;
    - setting learning tasks for students;
    - establish a methodology for teaching and learning;
    - establishing assessment methodology;
    - establishing of material resources for enviromental training and learning space;
    - anticipation and design of education communication;
- establishing training and educational strategy that involves:
    - determination of the type of learning experience in which students will be engaged;
    - methodological system utilized (identifying teaching methods and procedures);
    - determination of the means of education;

- establishing a form or forms of organization of students activity;

- establishment of assessment strategies and ways to ensure feedback on the effectiveness of student learning and conduct of teaching in general.

Regarding the term of competence, although it is increasingly vehiculated today in specialty literature, but also in educational practice, there is no widely accepted definition of it, considered to be a reference in education. Therefore, there is a great variety of perspectives to define competence which may lead to the risk of confusion among both experts, responsible for the design of educational programs based on training and competence development, but also among practitioners, those who implement competency-based training programs.

Therefore, approaches, definition of competence, presented in the PhD thesis are extremely diverse, some of them converging to specific points in common and others being largely divergent. Although you can not appreciate that a perspective or another is wrong or incomplete, Stoof et. al. (2002) considers that such definitions belong to the objectivist paradigm in the sense that objectivists are those who believe that in all areas there is an irrefutable truth, absolutely. The authors claim that existence of a consensus and a single definition of competence is impossible. Therefore, the optimal approach to defining the concept of competence is the *constructivist* approach for which the definition itself is not important but important is whether the definition has proved appropriate and viable in the context in which it was used.

Approaches and interpretation of constructivist nature (Eraut, 1995; Dall'Alba and Sandberg, 1996; Stoof et al, 2002; Sandberg and Pinnington, 2009 as cited. Ripamoti, S., Scaratti, G., 2011) believe that qualitative expression of competence is directly influenced and dependent on context and, more than that, are important contextualized experiences that individuals are living, in the sense that not only, entirely, the context can influence the quality of the competence manifestation itself but also subjective experiences of individuals, determined of context.

Given that the variables involved in defining competence (context, field, beliefs paradigmatic order), competence definitions designed to cover a wide range of possible applications can become too general and abstract, causing its inapplicability and thus decreasing its viability . Therefore, to prevent such a situation, we consider proposing an

operational definition of pedagogical competence, which is our working definition that we have reported throughout the experimental approach. Therefore, valorising relevant specialty literature in the field, whose synthesis and analysis we have done in the PhD thesis, ***we consider pedagogical competence is a set of knowledge, skills and pedagogical attitudes, interacting dialectic at the systemic level and structural-functional level ensure consistent and effective achievement of the various tasks required by background characteristics of the educational process.***

Chapter III - The general guidelines of the research defines research design (goals, objectives and duration of the research, research hypotheses and variables, methods and research tools valorised, the sample of participants and sample content).

Thus, the purpose of the research conducted is **to investigate and identify curriculum role and pedagogical disciplines valences, focused on formation competence and efficient development of professional competence of students following pedagogical profile.**

Based on the problems identified in the pedagogical disciplines curriculum analysis, in achievement of pedagogical research we formulated the following **research hypothesis:**

Implementation of design model competence centered curriculum (curriculum model 3C), in pedagogical disciplines will significantly boost students' professional competence training **- design and management competence of educational activities and learning outcomes assessment competence -** ***the program thus having beneficial implications on the educational process in terms of design, organization and its management.***

Given the general hypothesis we have outlined the following **specific hypotheses**:

- If the educational process will organize and conduct conforming to the curriculum model 3C, the students will develop their pedagogical knowledge related to educational activities design competene, their management and assessment of learning outcomes that will improve knowledge, understanding and use of pedagogical knowledge in a systemic manner.
- If the educational process will be organized and held conforming to the curriculum model 3C, the students will improve their pedagogical competence, related to

educational activities design competence, their management and assessment of learning outcomes.

➔ **The independent variable of the research:**

VI: Implementing the 3C curriculum model focused on the formation of professional competencies of students:

- Competence to design educational activities;
- Management competece of educational activities;
- Assessment competence of the learning outcomes.

➔ **The main dependent variable of the research:**

MDV: cognitive behavior, action and attitudes of students, the objective in the formation and competence development:

- designing educational activities;
- managing educational activities;
- assessment of learning outcomes.

➔ **Derived dependent variables of the research:**

D.D.V. 1: The development of knowledge related to the competence to design of educational activities;

D.D.V. 2: The development of competence related to the competence to design of educational activities;

D.D.V. 3: The development of attitudes related to the competence to design of educational activities;

D.D.V. 4: The development of knowledge related to management competence of educational activities;

D.D.V. 5: The development of skills related to management competence of educational activities;

D.D.V. 6: The development of attitudes related to management competence of educational activities;

D.D.V. 7: The development of knowledge related to assessment of learning outcomes competence;

D.D.V. 8: The development of skills related to assessment of learning outcomes competence;

D.D.V. 9: The development of attitudes related to the assessment of learning outcomes competence ;

In the research conducted we proposed the involvement of a total population of 220 students in the pedagogical experiment and a number of 315 students in the diagnoses research. Both students involved in the teaching experiment and those involved in diagnostic research studies in pedagogy and come from high schools in Cluj-Napoca, Abrud Blaj Zalau, Tirgu Mures and Bistrita Nasaud.

Chapter IV - A diagnostic research of the current curriculum for pedagogic subjects investigates the current teaching subjects curriculum in terms of functionality, consistency and efficiency with which it contributes to the development of professional competence of students who are pedagogical profile.

Therefore diagnostic research conducted aimes at the following objectives:

- identifying students and teachers opinion regarding the extent to which current educational disciplines curriculum facilitates professional competence training of students, the design of educational activities, managing these and the assessment of learning outcomes;
- identifying students and teachers opinion regarding the extent to which current pedagogical disciplines curriculum facilitates formation of knowledge, pedagogical skills and attitudes of students;
- identifying students and teachers opinion of the manner in which the current curriculum of educational disciplines facilitates student learning.

Results obtained after, show that diagnostic research, both in teachers and students opinion, current teaching subjects curriculum is not sufficiently functional, it is only focused on the formation of knowledge, while training and competence development, although assumed is not performed coherently and according to new theories and developments in curriculum theory.

Chapter V - Pre-experimental stage aimed to identify the initial level of students in the formation of the three competencies pursued along formative experiment: educational activities design competence, manageration educational activities competence and assessment of learning outcomes competence.

Since the pre-experimental phase involved the initial assessment of all three competencies levels, this stage of the pedagogical experiment, involved at its turn the existence of several steps required by the structure and organization of our undergraduate education (we refer to the organization of classes and disciplines). Therefore, the steps involved are:

- *initial assessment of the level of knowledge, skills and attitudes related to the design competence of educational activities* - was made at the beginning of the Second Semester of the 2010-2011 school year, in the study of theory and methodology course, Class IX ;
- *initial assessment of the level of knowledge, skills and attitudes related to the management of educational activities competence* - was made at the beginning of the first semester of the 2011-2012 school year, in the discipline of studying the theory and methodology of training, Class X;
- *initial assessment of the level of knowledge, skills and attitudes related to the assessment of learning outcomes competence* - was made at the beginning of the Second Semester of the 2011-2012 school year, in the discipline of studying the theory and methodology of the assessment, Class X.

The purpose for which took place the pre-experimental research, was to *identify both within experimental sample as in the control sample, the initial level of knowledge, skills and attitudes related to design competences of educational activities, their management and assessment of learning outcomes.*

Related to this **purpose**, the pre-experimental phase targeted both within experimental sample and control sample, the following objectives:

- Identify initial level of knowledge, skills and attitudes related to the design of educational activities competence;
- Identify initial level of knowledge, skills and attitudes related to the management of educational activities competence;

- Identify initial level of knowledge, skills and attitudes related to the assessment of learning outcomes competence;

Results obtained after pre-experimental phase, are presented in the doctoral thesis for each initial assessment of the three competencies pursued. Also were conducted for each of these stages, comparative analyzes of the results of the experimental group and control group in order to ensure the statistical comparability of the two groups in terms of the dependent variables.

The results achieved by the pre-test, detailed in the paper based on the t-test shows that between the experimental and control group there is no significant differences at the average level of development of the three competences: the design of instructional activities, educational management, activities and assessment of learning outcomes.

To highlight the comparability of the two groups we present here the results for management of educational activities competence:

	Group	N	Mean	Std. Deviation	Std. Error Mean
Knowdledge	experimental	115	7,2304	1,52794	,14248
	control	110	7,1045	1,70717	,16277
Skills	experimental	115	6,6435	1,72255	,16063
	control	110	6,5455	1,87548	,17882
Attitudes	experimental	115	7,7770	1,61965	,15103
	control	110	8,3614	1,62816	,15524

Table no. 1: Averages obtained from the experimental group and control group after the test on the initial level of knowledge, skills and attitudes related to the management of educational activities competence

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
knowdledge	Equal variances assumed	,248	,619	,583	223	,560	,12589	,21579
	Equal variances not assumed			,582	217,780	,561	,12589	,21632
skills	Equal variances assumed	,754	,386	,409	223	,683	,09802	,23992
	Equal variances not assumed			,408	219,332	,684	,09802	,24037
atitudes	Equal variances assumed	1,446	,230	2,699	223	,007	,58441	,21656
	Equal variances not assumed			2,698	222,446	,008	,58441	,21659

Table no. 2: T-test results for the average level of knowledge, skills and attitudes related to the management of educational activities competence

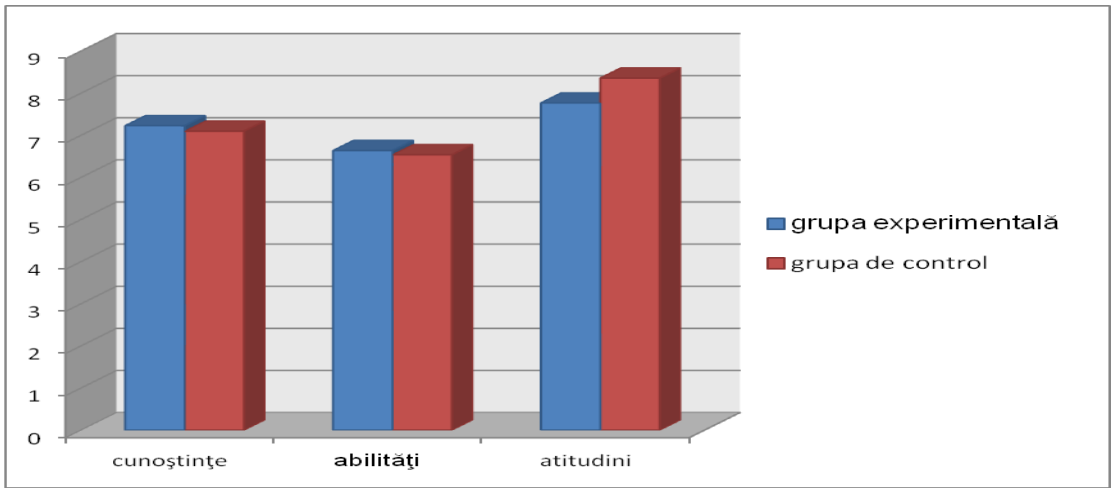


Chart no. 1: Graphical representation of the comparability of the experimental group and the control group regarding the initial level of knowledge, skills and attitudes related tmanagement of educational activities competence

Therefore, starting from the fact, demonstrated statistically, that the two groups are comparable at the time of pre-test, which allowed us to accomplish comparative analysis post-test in order to identify the impact of proposed curriculum model of the experimental group, in relation to the control group, group that we did not intervene formative.

Chapter VI - The stage of the formative experiment consisted in developing and implementing competence-based curriculum model at the level of pedagogical disciplines model that we called the *3C curriculum model* , the implementation of this model being realized at the experimental group for a period of three school semesters, since the Second semester of the 2010-2011 school year until the end of the Second semester of the 2011-2012 school year, in the disciplines Curriculum Theory and Methodology (class IX), Theory and Practice of Training and Assessment (class X).

The design of competence-based curriculum at teaching subjects (*3C curricular model*) proposed by us, is supported by the following lines of force:

The force lines of the curriculum model 3C	Short description
Adopted vision	Adopted vision is a systemic vision, interactionist, dynamic. The curriculum model is designed by exploiting a systemic vision of the multiple interactions and interdependencies that are established between subcompetences-competencies-knowledge, skills and pedagogical attitudes and between all these and cognitive, actional and attitudinal content.
Model focus	In the center of curricular model is the ***paradigm competence*** and ***student-centered paradigm***, exploiting its pedagogical features.
Methodological approach valued	From the methodological point of view, *3C curricular model* values ***fundamental curricular elements*** promoted by national and international literature.
Teleological nature	Teleological nature of the proposed curriculum model is ***to support students' cognitive learning,*** in their pedagogical vocational competence training, and support teachers in the design, organization and manageration of the educational process.
Formative stake	*3C curricular model* promotes the importance and necessity of ***pedagogical competence formation*** and thus supporting the students in developing functional learning paths, generating

	positive and constructive learning experiences.
Curricular approach involved	Is to ***formulate pedagogical competence*** pursued (skills to design educational activities, their management, assessment and learning outcomes competence) as well as formulating subcompetences derivatives. Also, curricular approach involves establishing internal components of pedagogical subcompetences and therefore competences, respectively the establishment of knowledge, skills and pedagogical attitudes, and directly related to the latter are formulated cognitive contents, actional and attitudinal. Also, to achieve an objective evaluation of the proposed curriculum model are established descriptors for each subcompetence.
Action levels of curricular model	*The curricular 3C model*, through its structure acts at the following levels: 1. learning subjects level; 2. learning unit level; 3.instructiv-educative level/lesson activity level; 4. the individual student's learning and activity.
Fundamental structural components of the curriculum model	The proposed curriculum has the following interrelated components: **a**) ***the basic structural components***: 1. pedagogical competences 2. derived subcompetences 3. subcompetences descriptors 4. subcompetences internal components 4.1 pedagogical knowledge 4.2 pedagogical skills 4.3 pedagogical attitudes 5. curriculum content 5.1 cognitive content 5.2 actionable content 5.3 attitudinal content **b**) ***support components***: - Tests to monitor the process of training / development of competence.
Operational character of the curricular model	Operational nature of *3C curricular model* is ensured by the following: - explanatory formulation of subcompetences through pedagogical derivation starting from competences;

	- operational formulation of subcompetences descriptors in terms of observable and measurable behaviors; - determining the types of curriculum content directly related to internal components of subcompetences / competences and ways of combining these types; - possibility of permanent and formative monitoring of the training process, modeling and development of subcompetences and pedagogical competence; - the model is operational in curriculum practices of pedagogical subjects study (and others) it integrates general principles of modern curriculum design, which provides easy possibility of practical application

Development curriculum design model of pedagogical disciplines, competence-based (*curricular model 3C*), involved four fundamental stages:

1. Diagnostic phase of current situation of pedagogical disciplines curriculum

This stage valued in developing the *3C curriculum* is materialized in a research diagnostic aiming to analyse the current curriculum of pedagogical high school subjects.

This phase allowed us to identify functional and dysfunctional aspects of pedagogical disciplines curriculum regarding the manner in which it directs strategic educational process, with the purpose of training and development of professional competence of the students.

2. Design stage of curricular model

Design stage of *curricular model 3C* was established as a teleological stage, according to the results obtained in the previous stage and based on analyzes and meta-analyzes of specialty literature, which is the theoretical foundation of the curriculum model. During this stage it was made the systemic and algorithmic structure of the curriculum.

3.Implementation stage of curricular model

The new curriculum proposed was implemented in the classroom by teachers who teach pedagogical disciplines during three semesters of school (2010-2011 school year and 2011-2012 school year) on a sample of 115 students.

4.Curricular model evaluation and validation stage.

Curricular model assessment occurred during its implementation through questionnaires and tests that can be seen in appendices work. Also note that the results of the curricular model are presented in Chapter VII of the thesis.

Chapter VII Post-experimental stage compares the performance of students in the experimental group and control group, after the formative experiment, with the purpose to assess the impact of curricular model 3C, in terms of training and design competence development of educational activities , management of educational activities and assessment of learning outcomes and implicitly in terms of formation and development of their structural components: knowledge, skills and attitudes.

The data presented and analyzed in this chapter refers to quantifiyng results in grades obtained by students in the experimental group and control group. Thus, we aimed to identify functionality and impact of 3C curricular model by performing the following steps:

- Measuring results of students in the experimental group and control group students, regarding the development of knowledge level related to design competence of educational activities;
- Comparative analysis of students results in the experimental group and control group students, regarding the development of knowledge level related to competence to design educational activities;
- Measuring results of students in the experimental group and control group students, regarding the development of skills development related to design competence of educational activities;
- Comparative analysis of students results in the experimental group and control group students, regarding the skills development related to competence to design educational activities;
- Measuring results of students in the experimental group and control group students, regarding attitudes development related to design competence of educational activities;
- Comparative analysis of students in the experimental group and control group students, regarding attitudes development related to design competence of educational activities;

- Measuring results of students in the experimental group and control group students, regarding the development of knowledge level related to managerial competence of educational activities;
- Comparative analysis of students results in the experimental group and control group students, regarding the development of knowledge level related to managerial competence of educational activities;
- Measuring results of students in the experimental group and control group students, regarding the skills development related to managerial competence of educational activities;
- Comparative analysis of students results in the experimental group and control group students, regarding the skills development related to managerial competence of educational activities;
- Measuring results of students in the experimental group and control group students, regarding the attitudes development related to managerial competence of educational activities;
- Comparative analysis of students results in the experimental group and control group students, regarding the attitudes development related to managerial competence of educational activities;
- Measuring results of students in the experimental group and control group students, regarding the development of knowledge level related to assessment of learning outcomes competence;
- Comparative analysis of students results in the experimental group and control group students, regarding the development of knowledge level related to assessment of learning outcomes competence;
- Measuring results of students in the experimental group and control group students, regarding skills development related to assessment of learning outcomes competence;
- Comparative analysis of students results in the experimental group and control group students, regarding skills development related to assessment of learning outcomes competence;

- Measuring results of students in the experimental group and control group students, regarding attitudes level development related to assessment of learning outcomes competence;
- Comparative analysis of students results in the experimental group and control group students, regarding attitudes level development related to assessment of learning outcomes competence;
- Measuring the degree in which development of knowledge, skills and attitudes related to three competences, relate to each other.

Results achieved by the post-test showed on the calculation *t* test and Cohen's *d* index, which measures the effect size, the 3C curriculum model proposed by us is functional, leading to superior results to the experimental group compared to the control group. Because of the diversity and complexity of data from post-testwe will present here, for example, only a comparative analysis of the results obtained by students in the experimental group and the control group regarding the development level of knowledge related assessment of learning outcomes competence.

So to highlight the differences between the experimental and control group, after applying post-test, we present the chart below:

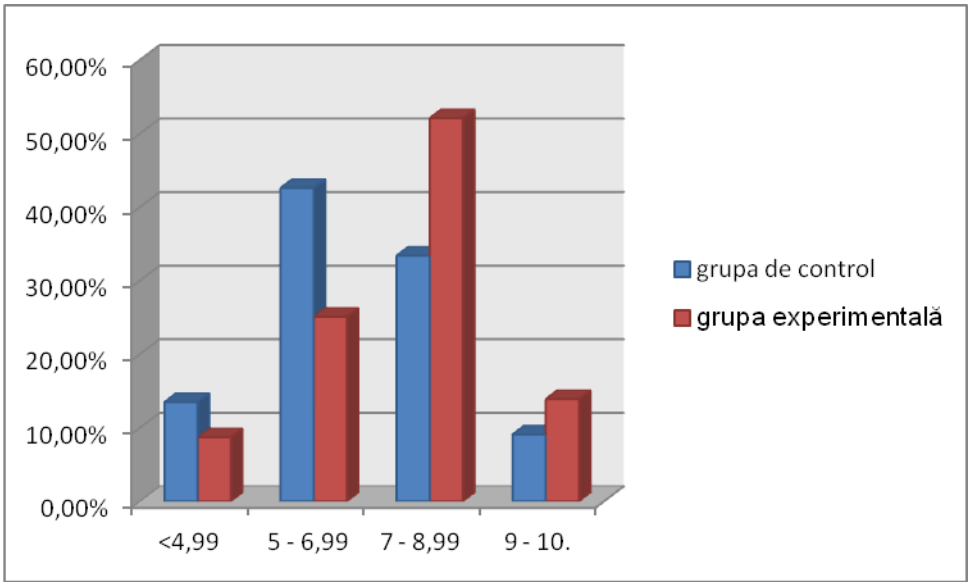


Chart no. 2: Comparative results obtained from experimental and control group regarding the development of knowledge related to assessment of learning outcomes competence

Regarding the differences shown in the chart above, the calculation of the t-test shows that they are significant at a p-unidirectional limit <0.001, t = - 5.202.

	Group	N	Mean	Std. Deviation	Std. Error Mean
knodledge	experimental	115	7,5131	1,35753	,12659
	control	110	6,3795	1,87992	,17924

Table 3: Averages obtained from the experimental group and control group after the test to monitor the evolution of knowledge related assessment of learning outcomes competence

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Knodledge	Equal variances assumed	5,341	,022	-5,202	223	,000	-1,13358	,21790
	Equal variances not assumed			-5,166	197,802	,000	-1,13358	,21944

Table 4: Results of t-test for the experimental and the control group regarding the average level of knowledge related competence assessment of learning outcomes

As shown in the above tables, it is found that the application of the post-test in the two groups involved in the study, the average results, in terms of knowledge related to the development level for evaluating the results of learning competence, for the experimental group (M = 7.51, SD = 1.35) were significantly higher (t = - 5.202, df = 223, p bi = 0.000) compared to the results obtained by students in the control group (M = 6.37, SD = 1 , 87).

Also we mention that by calculating Cohen's *d* was obtained a value of 0.66, which is a high effect of the difference between experimental and control group in terms of knowledge development related assessment of learning outcomes competence.

At the same time, in Chapter VII, seeking to identify the extent to which knowledge, skills and attitudes, related to each of the three competencies, relate to each other. We resorted to using Pearson correlation coefficients, which were found to be positive-significant. Therefore it was found that between knowledge, skills and attitudes promoted by *3C curricular model*, there are interrelations and interdependencies. The experimental group students with a developed level of knowledge, show both a high level of skills and

attitudes and vice versa, as well as students with a developed skills level show a developed level of attitudes and vice versa.

Also, given the diversity of the data, also in this case we will present for example in the summary results of the Pearson correlation, obtained for the structural components of competence to design educational activities, which are as follows:

		knowdledge	skills	attitudes
knowdledge	Pearson Correlation	1	,861**	,782**
	Sig. (2-tailed)		,000	,000
	N	115	115	115
skills	Pearson Correlation	,861**	1	,825**
	Sig. (2-tailed)	,000		,000
	N	115	115	115
attitudes	Pearson Correlation	,782**	,825**	1
	Sig. (2-tailed)	,000	,000	
	N	115	115	115
**. Correlation is significant at the 0.01 level (2-tailed).				

Table .5: The correlations obtained between the structural components of competence to design educational activities

It can be observed from the above table that between all three fundamental structural components of design competence of educational activities, there are significant positive correlations ($p < 0.001$). Therefore, the development of knowledge positively correlated with the ability level for $r = 0.80$ and attitudes level for $r = 0.78$. Also, it is positively correlated the development of skills with attitudes level for $r = 0.82$. Therefore, we can draw the following conclusions about the fundamental structural components of competence to design educational activities, followed by implementing *curricular model 3C*:

- students with a high level of competence related knowledge to design educational activities have also a high level of skills related to this competencies;
- students with a high level of knowledge related to design educational activities competence have increased levels of attitudes related to this competence;

- Students with high levels of skills related to design educational activities competence have increased level of attitudes related to this competence;

Chapter VIII – Conclusion, argues in operational terms by reference to the data obtained in the course of research, that training and development of competence to design effective educational activities, their management and assessment of learning outcomes can be achieved through a rigorous, scientifical curriculum design, leading thus to optimize the educational process, in terms of design, organization and its manageration. Therefore carried research general hypothesis and particular hypotheses were confirmed, demonstrating thus the efficiency and functionality of *3C curricular model* proposed by us.

Also, chapter VIII presents conclusions on theoretical contributions showing that competence-based curriculum foundation are complex pedagogical theories and research, the point of maximum convergence of this being the need to integrate in a coherent, functional and flexible manner, knowledge, skills and attitudes and the importance of correlation in curricular design professional competence with the transversal ones. However, designing the curriculum centered on competence is regarded as a procedural-dynamic one, involving different stages and valued in a systemic manner.

De asemenea, în cadrul ultimului capitol sunt prezentate şi unele recomandări educaţionale pe care le considerăm necesare, atât pe termen scurt cât şi mediu-lung, recomadări care se referă la:

Also, the last chapter presents some educational recommendations that we consider necessary, both in the short and medium term, recommendations relating to:

- Redesigning the current teaching subjects curriculum in order to harmonize it with the current theoretical developments in educational sciences. We refer here specifically, to curriculum redesign taking advantage of relevant research about pedagogical training and competence development, research that we we have considered in the doctoral approach;
- Matching fully the educational curriculum-frame in order to ensure coherence between components of written curriculum;
- Design of new curricula, focusing on competence training and that explicitly harnesses all internal structural components of pedagogical competence: pedagogical knowledge, pedagogical skills and teaching attitudes. Also we

consider necessary the circulation in school programs of all types of content: cognition, action and attitude in order to form the full enjoyment of all the structural components of a competence.

- Conceiving alternative textbooks and additional curriculum resources (any manual for educational disciplines has not been developed in the last twelve years) to provide student learning support and teacher support, guidance in conducting and selection of teaching scientific content.

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