

# PROCESSES OF PEDAGOGICAL DIFFERENTIATION: PERSPECTIVES OF THE STUDENTS OF THE INITIAL FORMATION AND OF TEACHERS OF THE 1ST CBE

**Vanessa Duarte\***  
**Conceição Pereira\*\***

\*Lisbon Higher School of Education, Interdisciplinary Center of Educational Studies

\*\*Lisbon Higher School of Education

\* [vanessa.filipa.l@hotmail.com](mailto:vanessa.filipa.l@hotmail.com), \*\* [clanca@eselx.ipl.pt](mailto:clanca@eselx.ipl.pt)

## **Abstract**

Dealing with the diversity of students in today's classrooms is a challenge teachers face. Indeed, to believe that equal teaching for all can be advantageous is an illusion. It is precisely in this context that pedagogical differentiation appears as a response that allows the teacher to promote equal opportunities for all students.

The study that we propose to present is developed within the scope of this problem, under the theme "Processes of pedagogical differentiation: perspectives of students of initial formation and teachers of the Basic Education". The purpose of the research is to analyze the conceptions and practices of teachers of Basic Education and students of initial teacher formation on the process of pedagogical differentiation. The following specific objectives are identified: (i) characterize the conceptions of students of the initial formation and teachers of Basic Education on the processes of pedagogical differentiation; (ii) identify the practices of pedagogical differentiation enunciated by teachers; (iii) compare the conceptions of students (future teachers) and teachers about the processes of pedagogical differentiation and (iv) compare the teachers' conceptions about the processes of pedagogical differentiation with the practices they enunciate. For this purpose, a quantitative methodology was used. Thirty-one students from the initial teacher formation courses and 51 teachers from Basic Education participated in the study. For the data collection, the questionnaire survey was used. Data processing was carried out using the Statistical Package for Social Sciences (SPSS) software.

The results of the study made it possible to show that the students of the initial formation have conceptions closer to the theoretical references than the professors in exercise. For their part,

teachers who show greater agreement with the appropriate conceptions about processes of pedagogical differentiation, also refer to the use of pedagogical practices of differentiation with their students.

**Keywords:** Pedagogical differentiation; Students of initial formation; Teachers of Basic Education; Concepts and practices

## INTRODUCTION

Since it is now possible to observe the growing diversity within the classroom, the response to this heterogeneity constitutes one of the greatest challenges that educational communities face (Tomlinson, 2008).

The pedagogical difference should be approached as "a conception of teaching and learning, a philosophy and not just a teaching strategy" (Morgado, 2003, p. 27) assuring the importance that this study acquires, once it advocates the removal of some acquisitions and practices of students in initial formation (future teachers) and current teachers.

In this sense, the research titled, "Processes of pedagogical differentiation: perspectives of students of the initial formation and professors of the 1st CBE" has studying the concepts and practices of professors of the 1st CBE and of students of the initial teacher formation on the process of pedagogical differentiation as its purpose.

The following research questions were identified in accordance with the objective of the study:

- I. How to establish practices that differentiate teaching for such diverse students?
- II. What concepts and practices do teachers and students in the initial teacher formation have relative to this topic?
- III. Does initial formation respond to the need to awaken future teachers to the importance of this problem?
- IV. Does initial formation provide teachers with strategies so that they can develop a practice with a view to the inclusion of all students?

As a result of the research questions, these are constituted as the specific objectives of the study:

- I. To characterize the concepts of students of the initial formation and teachers of the 1st CBE on the processes of pedagogical differentiation;
- II. Identify the pedagogical differentiation practices enunciated by teachers;
- III. Compare the concepts of students (future teachers) and teachers on the processes of pedagogical differentiation
- IV. Compare the conceptions of teachers on the processes of pedagogical differentiation with the practices they enunciate.

## **METHODOLOGICAL OPTIONS**

On this segment it is described the nature of the study, as well the characterization of the data collection and data-processing techniques.

### **Nature of the study**

The choice of methodology is presented as one of the most important stages of this research, as this allows the researcher to structure his research (Sousa & Baptista, 2011).

In this sense, in order to carry out the present study, a quantitative methodology was adopted.

### **Data collection techniques**

According to Haro et al. (2016), "the type of scientific study chosen determines the nature of the data to be collected, the analyses that will have to be made on said data and the meaning and applicability of the results" (p. 34). As such, for the collection of data, and depending on the objectives of the research, the inquiry by questionnaire was chosen. This instrument thus allowed the collection of information in accordance with the objectives set for the research.

Regarding the structure of the instrument, it is possible to say that it is divided into three different parts, namely: a first part, in which we proceed to characterize the inquired, a second part, in which the inquired must respond to questions that try to understand their conceptions on pedagogical practices and, finally, a last part, in which we intend to evaluate the differentiated teaching practices of the inquired.

It is important to note that the questions presented are mostly of the closed type and that in the second part of the questionnaire there are questions constructed using a Likert scale (1 corresponding to total disagreement; 2 to partial disagreement; 3 to undecided; 4 to partial agreement and 5 to total agreement). In the third and last part, a frequency table was used (1 corresponding to never; 2 to rarely; 3 to sometimes, 4 to many times and 5 to always).

The elaboration of the instrument is based on an adaptation of another question that has already been created and used in an analogous study, by theoretical references on the subject. After the conclusion of the questionnaire, it was tested by a group of professors, in order to guarantee the simplicity and brevity, precision, clarity, impartiality and discretion of the questions (Haro et al., 2016; Quivy & Campenhoudt, 2017).

The chosen modality for the administration of the questionnaire was self-fill, once there was no direct contact with the participants of the sample and the distribution of the same was made online (Sousa & Baptista, 2011).

Finally, it should be noted that the data collection took place between April 27 and June 22, 2018.

### **Data-processing techniques**

To carry out the analysis of data collected through the questionnaires, the Software Statistical Package for Social Sciences v25 was used.

In order to validate the data, the suggestions of Sousa and Baptista (2011) were followed and the Cronbach Alpha test was carried out, with the objective of ensuring the reliability of the data.

Regarding the concepts given by the students of the initial formation, the value .70 was obtained. Relatively to their practices, the obtained value was -.29. This value, being negative, violates the assumptions of the reliability model. For this reason, in the chapter of presentation of the results, it was chosen only to compare the conceptions of the students of the initial formation of teachers with the conceptions of current professors.

In turn, concerning the data relative to the concepts of teachers, the obtained value was .71. Relative to the practices of teachers, the obtained value was .68. Thus, it is possible to refer that the degree of internal consistency of the values .70, .71 and .68 are, although mostly low, reasonable.

Subsequently, a descriptive analysis of the data and an analysis of the relationships between variables was carried out, resorting to different tests. For a more rigorous choice of the tests to be applied, an analysis of the distribution of the dependent variables in the study was carried out beforehand, noting the existence of a normal/symmetric distribution ( $z \leq 96$ ) in all the variables. Thus, parametric tests were used in the studies that were carried out.

Comparative analyses relative to pedagogical differentiation were always carried out between the two answer groups (students and teachers), being, therefore, carried out the parametric test Teste-T for comparison of the means between the two groups.

For the study of the analysis of the association between the concepts and the pedagogical differentiation practices within the group of teachers, the association test - Pearson Correlation Coefficient - was used.

In all the tests carried out, a significance level of 5% was used ( $p \leq .05$ ). The mean of the groups was considered significantly different when the significance value presented was less than or equal to 0.05.

### **Sample**

Forty-one initial teacher formation students (35 of the female gender and 6 of the male gender) participated in this study, with ages ranging from 21 to 35 years old. All the inquired ones carried out their last internship in the district of Lisbon and, in the same way, all attended the 2nd year of the master's degree in a polytechnic institution of higher education (Escola Superior de Educação de Lisboa).

Regarding teachers, 51 teachers (47 of the female gender and 4 of the male gender) participated in the study, with ages ranging from 25 to 60. It should be noted that all the inquired are professors who perform their teaching functions in the 1st CBE. The inquired are from the most diverse districts of the country, with emphasis on Lisbon (35.3%) and Faro (13.7%). In terms of academic qualifications, 76.5% of the inquired are graduates, 19.6% are masters and 3.9% have a bachelor's degree. From the 51 teachers, 86.3% lecture in public schools and 13.7% in private schools.

### **WHY DIFFERENTIATE AND WHAT IS DIFFERENTIATING?**

It is now sought to synthesize the main ideas derived from the theoretical foundation and from the bibliographical review.

In today's world, school should not be faced as a space that is closed, grey and sad, but as a space of pleasure, joy and learning. As such, the role of the teacher cannot be limited to the transmission of theories and concepts, often through processes and methods of exposition, nor can it be limited to a unilateral communication between themselves and the students. Their role changed, in accordance with the changes that occurred in the current society. To this end, Ferreira (2010) considers that the teacher, confronted with the alterations that occur in society, will have to ponder his role and identify what skills should be developed in the educational system, once the changes that occur in society determine new ways of being in the teaching profession and in the lives of all children. These changes surely require new roles and permanent adaptation and updating on behalf of the teacher. In the report of the Organization of the United Nations for Education, Science and Culture, some decades ago, Delors et. al., (1998) told us of what they said were the bases of education throughout life, highlighting, in this regard, the importance of the development of the teacher's skills including: (i) learning to know; (ii) learning to do, (iii) learning to live in society and, finally (iv) learning to be.

With this, society today needs (i) new ways of thinking, which are creative, innovative and oriented towards problem solving, (ii) new ways of working, making it essential to learn to work cooperatively, (iii) new working instruments, meaning, information and communication technologies and (iv) new ways of living, based on the concept of citizenship (Cardoso, 2013). In this context, the role of the teacher is simultaneously complex and challenging.

In this new century, Perrenoud (quoted by Pires, 2001), considers the school's main not the teaching of disciplinary contents, but the development of skills. Thus, in this context, the teacher is called upon to assume responsibilities as an agent of development and change in the school community. New relationships are established in the school, such as the teacher/student relationship, teacher/teacher and other specialists, teacher/student's parents and different members of the community. It moves from a pedagogy centered on both the teacher and the student to a pedagogy centered on the group of students/teacher. The skills will be different - skills that, within the current framework of new concerns, will be grouped under the following headings: diagnosis, response, evaluation, personal relations, curriculum development, social responsibility. Currently, it is hoped that teaching will be able to give the student abilities focused on problem solving, innovation, cognitive development, as well as teamwork.

A good professional will have, in this perspective, a vision about Education and its contributory role for a better world. In analogy, it should show its students the «windows» for that world and open them in an order that, for them, is logical and intelligible (Cardoso, 2013). Nóvoa (quoted by Cardoso, 2013) considers that teachers, at the beginning of the 21st century, "emerge again as irreplaceable elements, not only in the promotion of apprenticeships, but also in the construction of inclusive processes that respond to the challenges of diversity and in the development of appropriate methods of using new technologies." (Cardoso, 2013, pp. 357-358).

In short, today's education must be an education capable of valuing the curiosity and autonomy of students, the pleasure of understanding, knowing and discovering, an education capable of promoting teamwork, initiative and cooperation, the acceptance of the existing diversity within the school context, "the capacity to elaborate autonomous and critical thoughts so that the individual can decide, for himself, how to deal with the different circumstances of life" (Cardoso, 2010, p. 46). 46).

It is in this sense that it is possible to refer to the pedagogical differentiation as an instrument capable of promoting the competences previously referred to, through learning processes in which the student achieves success (Ferreira, 2010), being "the actor of his own learning" (Cardoso, 2013, p. 219).

Another of the fundamental reasons for which there should be pedagogical differentiation is related to the concept of inclusive school. In this sense, it is important, before anything else, to clarify what is understood by inclusive school. In the words of Pereira (2011), "if initially the concept of inclusion was related with responses to students considered to have special educational needs, it is currently a necessity to attend to such diverse and divergent audiences that make up the school population. (p.3). The inclusive school thus seeks to consider and perceive the needs of all and any student, through the promotion of an apprenticeship and individual development for all students. Inclusive education is, therefore, a declaration of a fundamental right for all, of access to education and of not being excluded. For the realization of this right, the promotion of inclusive practices in education systems becomes fundamental. In conformity, it is recommended that teaching recognizes "different starting points for students, offers differentiated learning paths and accepts that they reach different levels" (Pereira, 2011, p. 4).

A single school model becomes obsolete, since it does not meet the needs of all students. In this context, the pedagogical differentiation is constituted as an instrument that allows to respond to the needs of the students, thus promoting the possibility of truly creating a school for all (Chousa, 2012). Through curricular differentiation, which allows respecting the learning rhythm of each student and creating learning situations based on the interests of the students, an inclusive education is thus promoted (Pereira, 2011). In the words of this last author,

in this school setting, all students have learning potential and are respected in their difference, learning «with and in the class», benefiting from inclusive differentiation practices, promoted by teachers who conceptually accept the heterogeneity of students as a factor of professional enrichment. Acting in this way is fundamental when it comes to inclusive education, because it implies getting to know all students, their differences, their difficulties and abilities, their life history and preparing each lesson with the concern of reaching everyone within the classroom, without mistakes. (Pereira, 2011, p. 5).

In this way, it is possible to conclude that "the development of inclusive schools and, therefore, capable of sustaining educational paths with success for all students implies an educational action that differentiates the different contexts of intervention and its operational aspects" (Chousa, 2012, p. 41).

The adoption of an inclusive school for all goes, obligatorily, through attention to the individual characteristics of each student, because "everyone learns best when the teacher respects his or her individuality and teaches by attending to differences" (Chousa, 2012, p. 41). Pedagogical differentiation thus becomes an instrument that allows students to reach success. It is precisely in this educating in diversity that the differences of the students are approached as a way of enriching the teaching-learning process (Pereira, 2011).

It is now considered imperative to present and clarify the concept of pedagogical differentiation, as well as to identify and clarify some erroneous concepts about it.

Dealing with the diversity of students existing in today's classroom constitutes a challenge with which teachers are defronted. To believe that an equal education for all can be advantageous is an illusion. Pires (2001) corroborates this opinion by affirming that "it is necessary to recognize that the students in one group are different from the others and that, if we practice an education for the average or for the majority of the students, we are neglecting the others, which is equally reprehensible" (p. 36).

It is precisely in this context that the pedagogical differentiation emerges as a response that allows the teacher to promote equal opportunities to all students (Tomlinson & Allan, 2002; Niza, 2015). In this sense, differentiated teaching implies that "teachers have to select methods and strategies of learning and teaching of students in a way that is more appropriate to the needs of the students in order to ensure that everyone can progress satisfactorily in the curriculum" (Niza, 2015, p. 329). Thus, differentiating teaching means responding specifically to the progress of each student in their apprenticeship (Heacox, 2006) providing diverse ways for this to be achieved (Tomlinson, 2008). Differentiating means "defining different curricular paths and options for different situations, which can enhance, for each situation, the consecution of the apprentices" (Roldão, 1999), (p. 52). In this sense, the differentiated teaching becomes incompatible with the practices of a traditional teaching. In the words of Perrenoud (quoted by Pires, 2001) "to differentiate is to be able to break with the magisterial pedagogy - the same connection and the same exercises for all at the same time" (p. 35). Thus, for this author, it is necessary that the teacher empowers their students with devices that allow them to learn in the best possible conditions.

In this sense, pedagogical differentiation emerges as a way of "breaking with indifference to differences" (Pires, 2011, p. 37).

Corroborating the perspective previously presented regarding the need to respect the differences of each one, several authors suggest a set of variables that sustain the need to follow the practices of pedagogical differentiation (Grave-Resends and Soares, 2002), Heacox, 2006) and Tomlinson e Allan, 2002). They are, namely: (i) cognitive abilities of two students; (ii) socioeconomic factors; and (iii) receptivity.

Regarding (i), the definition of intelligence has undergone modifications, the result of studies carried out in this field. With the creation of Howard Gardner's Theory of Multiple Intelligences, the concept was established that students not only learn in different ways, but also expose their presentations in different ways. Thus, in a differentiated teaching perspective, the teacher will be able to take these characteristics into account when they elaborate activities for their students, being able to promote tasks based in the strongest or weakest points of the students.

Relative to (ii) it is impossible to start from the principle that all students have identical family environments. In this sense, the differentiation recognizes this situation, trying to establish different paths, for different students.

Finally, in regard to (iii), the teacher should consider that there are students who may not have the basic skills necessary to progress in the learning process. In the same way, there are students who have knowledge that allows them to progress more easily. Consequently, teachers should organize different courses of work learning in collaboration and cooperation that allow students to progress in their learning, according to their abilities and individual interests.

Naturally, it is not possible to ask a teacher to master infinite knowledge and skills. However, as the teacher is responsible for his own development, he is expected to assume responsibility for his personal and professional development. (Morgado, 2003).

However, it is recognized that it is difficult to innovate infallible practices in a classroom context. In this sense, in order to help the teacher to organize and develop practices that allow adequate responses to be given to each one of the students, some principles are then stated that seek to achieve processes of effective pedagogical differentiation, namely: (i) the flexibility of situations of teaching and learning, that is, teachers and students understand that objectives, materials, time, forms of work organization, etc. should be used in different ways for each student; (ii) the evaluation as a way of getting to know the student better and, later, adjust the teaching process to them. The same would be to say that the needs and desires of the students are taken into account in the sense of providing a greater efficiency in their apprenticeship; (iii) or to privilege different forms of work. In this sense, in the classroom where these practices exist, collective, individual and cooperative work can be distinguished. It should be noted that this organization can be carried out in a homogeneous, random way, based on the difficulties of students and their interests; (iv) work in tasks that are adequate and challenging for themselves. The teacher should therefore try to ensure that each student considers their learning process to be interesting, at the same time as they guide the students in this process. However, it is important to note that "the differentiation does not presume different tasks for each student, but only a flexible and adequate management of the challenges in proportion to the students . . . allowing the various types of students to understand the learning process as a significant and rewarding process" (Tomlinson & Allan, 2002, p. 21) and, finally, (v) students and teachers as collaborators in the learning process. This way, the teacher provides adequate tasks to each student, providing feedback to the students relatively to their performance, taking into account the comments and opinions of the students (Tomlinson & Allan, 2002).

The professor thus constitutes themselves as a facilitator of differentiated teaching (Heacox, 2006). As such, there are passive strategies to be adopted by it that facilitate the dynamization of a differentiated education.

In conformity, Tomlinson and Allan (2002) affirm that the way of organizing students (e.g. in interest groups, peers collectively), tasks elaborated by the teacher, having as support the information received by the student and alternative forms of evaluation, are some of the strategies that can be used by teachers. Heacox (2006) mentions other strategies such as offering students the possibility of choosing what they want to study and the respectful products that allow them to demonstrate their apprenticeships (not excluding the idea that the teacher can decide), per time, which are the activities best suited for the students to complete), using

the time granted for the completion of an activity in an appropriate way for each student or grant more time of instruction to some students who may need it.

These strategies constitute, this way, some examples of tools that can be used by teachers having as purpose the improvement of the learning process of the students.

In this follow-up, it is important, now, to refer to what can be differentiated in a classroom context. In the perspective of Heacox, (2006) and Tomlinson and Allan, (2002), the elements of the curriculum that can be differentiated are three, namely: (i) contents; (ii) processes and (iii) products. Regarding the first aspect, these can be defined as "facts, concepts, generalizations or principles, attitudes or skills related to a discipline, as well as the materials that allow access to these elements" (Tomlinson & Allan, 2002, p. 21). Thus, the contents correspond to the "what" and can be differentiated through a different approach in contents, concepts or processes or through a level of complexity of these elements. An example of this type of pedagogical differentiation will be to allow students who find it difficult to use manipulative materials in a Mathematics classroom.

As far as processes are concerned, they can be circumscribed as "the way the student attributes meaning to something, understands and holds the contents" (Tomlinson & Allan, 2002, p.22). This way, the processes are characterized as being the "how" of how students acquire certain skills. The teacher can thus differentiate this aspect using a more complex or simpler process when it comes to learning issues. An example of this kind of differentiation occurs when a teacher divides his students (taking into account their interests) and asks them to evaluate the version of a story.

Finally, regarding the products, they are related to "the items that one can use to demonstrate what one learns, understands and is able to do as a result of a prolonged period of study" (Tomlinson & Allan, 2002, p. 23). Thus, examples of products can be portfolios of work or a test (palpable elements), a dialogue or debate (verbal elements) or a play or a dance (action elements).

Finally, it is important to note that when teachers propose to implement differentiated teaching in the dynamization of their classrooms, constraints may arise to these practices. Pires (2001) and Heacox (2006) identify as the main difficulties (i) the extension of the curriculum, being possible to refer that the extension of the curriculum leads to the need to differentiate an extended number of contents and competences; (ii) the orientations, at the national level and as imposed by the respective school institutions, relative to the contents and skills that all students must master. Teachers thus face the difficulty of differentiating homogeneous orientations by higher entities; (iii) the absence of or insufficiency of human or material resources, (v) the time needed to plan a differentiated teaching, as the result of the teacher's activity, is the pedagogical differentiation of his or her practices which can be constituted as an additional work requirement; (vi) the need to explain to the parents what a differentiated teaching consists of, because the parents can express concern about the differentiated work that each child carries out, and finally, (vii) the need to explain to the students the differences between the work they perform, since, as in the case of parents, students may feel wronged when comparing the work they do and the work of their colleagues.

## **PRESENTATION OF RESULTS**

The answers to the specific objectives outlined above will be presented at this time.

### **Conceptions of the students of the initial formation on the processes of pedagogical differentiation**

In order to characterize the conceptions of students of the initial formation on the processes of pedagogical differentiation, the theme was divided into three sub-themes, namely: (i) the concept of pedagogical differentiation; (ii) the pertinence of pedagogical differentiation and (iii) the constraints of the process of pedagogical differentiation.

#### **Concept of pedagogical differentiation**

With regard to the conceptions of the students of the initial formation, in relation to the concept of pedagogical differentiation, it can be said that the majority of the inquired believe that the pedagogic differentiation consists of making the common curriculum accessible to all students ( $\bar{X} = 4.6$ ). However, students partially agree with the idea that pedagogical differentiation consists mainly of supporting pupils with special educational needs ( $\bar{X} = 4.2$ ). Nonetheless, the inquired are undecided about the preposition which states that pedagogical differentiation consists in teaching each student individually ( $\bar{X} = 3.7$ ).

#### **Pertinence of the processes of pedagogical differentiation**

Concerning the conceptions of students of the initial teacher formation regarding the pertinence of the processes of pedagogical differentiation, it is possible to indicate that they agree to a high degree with the affirmation that the pedagogical differentiation allows the teachers to better adapt the teaching processes to the characteristics and needs of students ( $\bar{X} = 4.9$ ). Likewise, students demonstrate high agreement with the propositions that indicate that the implementation of pedagogical differentiation strategies is fundamental for all students to succeed ( $\bar{X} = 4.7$ ) and that pedagogical differentiation is fundamental in all curricular areas ( $\bar{X} = 4.7$ ). However, the students also agree to a high degree that differentiation is unnecessary in the artistic and physical education areas ( $\bar{X} = 4.6$ ). Likewise, students also agree that in some classes it is not justified to differentiate processes of pedagogical differentiation ( $\bar{X} = 4.4$ ). Finally, it is possible to mention that initial formation students are undecided ( $\bar{X} = 3.9$ ) regarding the affirmation that the implementation of strategies of pedagogical differentiation is important, but not fundamental for students to achieve success in school.

#### **Constraints to the implementation of the process of pedagogical differentiation**

Regarding the constraints to the implementation of processes of pedagogical differentiation, students of the initial teacher formation agree in high degree with the affirmations that the pedagogical differentiation demands of the teacher a deep knowledge of the students ( $\bar{X} = 4.9$ ); that the practice of pedagogical differentiation implies an increase in the work of the teacher ( $\bar{X} = 4.2$ ); that pedagogical differentiation can foster indiscipline in the classroom, since students are not all working in the same way ( $\bar{X} = 4.2$ ) and that the lack of a teacher of educational support in the classroom makes it impossible to implement pedagogical differentiation practices ( $\bar{X} = 4.0$ ).

On the other hand, the students are undecided about the affirmations that indicate that the institution/grouping guidelines can condition the practices of pedagogical differentiation ( $\bar{X} = 3.9$ ), that the high number of students in the class can be a constraint to the to the implementation of pedagogical differentiation practices ( $\bar{X} = 3.6$ ) and that although the learning process is differentiated, the teacher should evaluate all students according to the same criteria ( $\bar{X} = 3.6$ ).

### **Conceptions of teachers of the 1st CBE on the processes of pedagogical differentiation**

After the characterization of the concepts of the students in initial formation, it is now important to characterize the conceptions of teachers of the 1st CBE on the processes of pedagogical differentiation. In order to do this, the theme was divided into three sub-themes, as follows: (i) the concept of pedagogical differentiation; (ii) relevance of the processes of pedagogical differentiation and (iii) constraints to the implementation of processes of pedagogical differentiation.

#### **The concept of pedagogical differentiation**

Regarding the concept of pedagogical differentiation, teachers agree, in great measure, with the statement that pedagogical differentiation consists in the use of means to make the common curriculum accessible to all ( $\bar{X} = 4.2$ ). However, regarding the statements that refer the pedagogical differentiation consists in supporting mainly students with special educational needs ( $\bar{X} = 3.8$ ) and that the pedagogical differentiation consists in teaching individually every one of the students ( $\bar{X} = 3.2$ ), the teachers show themselves undecided.

#### **Pertinence of the processes of pedagogical differentiation**

Relative to the affirmations that sought to assert the conceptions of teachers regarding the relevance of pedagogical differentiation processes, the inquired agree that differentiation allows teachers to better adapt teaching to the characteristics and needs of students ( $\bar{X} = 4.4$ ). However, when questioned if the implementation of strategies of pedagogical differentiation is fundamental for all students to achieve success ( $\bar{X} = 3.9$ ), if the pedagogical differentiation is fundamental in all curricular areas ( $\bar{X} = 3.8$ ) and if the differentiation is dispensable in the artistic and physical education areas ( $\bar{X} = 3.8$ ), teachers are undecided.

In the same way, they also showed themselves undecided in relation to the prepositions that affirm that in some classes it is not justified to differentiate between teaching-learning processes ( $\bar{X} = 3.5$ ), that the differentiation from teaching is a strategy to be implemented when students finish tasks before the scheduled time ( $\bar{X} = 3.5$ ) and that the implementation of pedagogical differentiation strategies is important, but it is not fundamental for students to succeed in school ( $\bar{X} = 3.3$ ).

#### **Constraints to the process of pedagogical differentiation**

In regard to the pedagogical differentiation process, teachers agree that the pedagogical differentiation requires from the teacher a deep knowledge of the students ( $\bar{X} = 4.3$ ), that the high number of students in a class can be a constraint to the implementation of pedagogical differentiation practices ( $\bar{X} = 4.3$ ), that the practice of pedagogical differentiation implies an

increase in amount of work for the teacher ( $\bar{X} = 4,1$ ) and that the pedagogical differentiation can promote indiscipline in the classroom, because students are not all working in the same way ( $\bar{X} = 4,0$ ).

On the other hand, teachers are undecided about the orientation of the institution/group ( $\bar{X} = 3,6$ ) and if the absence of a teacher of educational support in class ( $\bar{X} = 3,6$ ) can be constituted as constraints to pedagogical differentiation. In the same way, teachers consider themselves, still, undecided if the teacher should evaluate all students according to the same criteria ( $\bar{X} = 3,4$ ).

#### **Practices of pedagogic differentiation enunciated by teachers**

Before we can proceed to characterize any pedagogic differentiation practices, it's considered pertinent to firstly justify why we won't characterize any practices enunciated by the students. This situation relates to the results, presented previously, relative to the trust test performed regarding the practices of the students. These results make us theorize that the students themselves have indicated as responses not their understanding of what should be the correct differentiation practices to perform towards students, but instead, the practices observed by the teachers where they were interning in. Another possible reason to explain this discrepancy of results is related with the impossibility of initial forming students to even develop any pedagogic differentiation practices at all. Lastly, we can infer that the students, although globally present higher-level concepts than the teachers, they are unable to execute them. As such, they may have responded to the questionnaire in a random fashion.

Presenting the reason for why we won't characterize any practices enunciated by the students, we proceed to identify the practices of pedagogic differentiation enunciated by teachers.

In this sense, we must mention that these teachers frequently adapt the execution time of the tasks/assignments to the student's individual capabilities ( $\bar{X} = 4,0$ ).

We can also verify that the teachers state that they occasionally promote working in pairs ( $\bar{X} = 3,8$ ), privilege formative evaluation ( $\bar{X} = 3,8$ ), identify different learning goals for each student ( $\bar{X} = 3,6$ ), grant the same execution time for all students ( $\bar{X} = 3,6$ ), evaluate each student individually from the others ( $\bar{X} = 3,3$ ), identify the same learning goals for all students ( $\bar{X} = 2,9$ ) and privilege cumulative evaluation ( $\bar{X} = 3,1$ ).

On the other hand, they rarely propose the same task/assignment for all students in class ( $\bar{X} = 2,9$ ), privilege collective work during class ( $\bar{X} = 2,5$ ) and propose separate tasks/assignments for select students ( $\bar{X} = 2,2$ ).

#### **Comparison between the concepts of the students (future teachers) and teachers regarding pedagogic differentiation practices**

After characterizing the concepts from both students and teachers, we must perform a comparison between them. To this end, the result analysis reveals statistically significant differences on the averages for the provided answers, with higher scores on the student group, on questions regarding the concepts that pedagogic differentiation practices are meant to majorly support special educational needs students (G1\_P3), that pedagogic differentiation practices allow teachers to better suit the teachings to the individual needs and characteristics of the students (G1\_P8), that the inexistence of an educational support teacher prevents the

implementation of pedagogic differentiation practices (G1\_P13) and that pedagogic differentiation practices consist in the use of resources to make accessible the normal curriculum to all students (G1\_P17) ( $p < .01$ ). It's also possible to observe on Table 1 – cf. Annex X – significant values higher on student side, for questions stating that pedagogic differentiation practices demand from the teachers an in-depth knowledge of the students (G1\_P6) and that pedagogic differentiation practices are dispensable in artistic and physical education areas (G1\_P9). In the same way, results show highly significant positive differences, for the student group, on questions that state that the implementation of pedagogic differentiation practices are fundamental to maximize school success to all students (G1\_P2), that in some classes it's not justifiable to implement pedagogic differentiation practices (G1\_P4) and that pedagogic differentiation is fundamental for all areas (G1\_P15).

#### **Teachers of 1<sup>st</sup> CBE: from concept to practice in pedagogic differentiation**

Comparing the results from the concepts between initial formation students and current teachers, it matters to now proceed with the comparison between the teacher's concepts regarding pedagogic differentiation practices with their reported practices.

To analyze whether the teacher's concepts regarding pedagogic differentiation practices are related with their reported practices, we used the Pearson Coeficient Correlation association test ( $r$ ).

The correlation found between concepts (total score) and practices (total score) is of 0.45 with an associated probability of  $p = 0.001$ . Thus, we are dealing with a statistically significant positive correlation ( $p < 0.05$ ), which allows for us to conclude that the higher concordance with the concepts of pedagogic differentiation, the higher the references for differentiation practices.

#### **CONCLUSIONS**

Given the results of the study, we can now identify the primary conclusions that have been reached by the investigation.

We can thus conclude that initial formation students, although showing contradictions on their concepts regarding pedagogic differentiation (since they consider that this concept bases itself in the use of resources to make the common curriculum accessible to all students, and, simultaneously, they believe that pedagogic differentiation resides primarily on special educational needs students), they present more accurate portraits of concepts defended by the authors, as they consider that a differentiated teaching environment allows to better suit the educational process to the individual needs and characteristics of each student, which is fundamental for all students to gain the right to a successful education.

Regarding the current teachers, we can conclude that the concepts of pedagogic differentiation aren't clear to them, as they have shown themselves indecisive regarding most of the statements made on these concepts.

Thus, we can conclude as well, that the concepts of the initial formation students are more approximate of the concepts and pertinence of pedagogic differentiation than the teachers concepts. To justify these results, we can conjecture that students are confronted with these theoretical references in some of their curricular classes during their initial formation, which in turn, the undervaluation of pedagogic differentiation in the teaching profession in normative document, for example, can justify the position of teachers in this subject. This is equally a good

indicator that students will be able to develop pedagogic differentiation practices for teaching in the future.

Relative to the teacher's practices, we can conclude that the surveyed teachers showed, at times, pedagogic differentiation practices. Although the frequency of these practices is not high, when compared to the concepts these professionals iterated on, we can conclude that the higher concordance with the concepts and pertinence of pedagogic differentiation, the higher the references for differentiation practices

As such, nowadays, the changing times demand that teachers assume a new role on the education context, pertaining the dynamization of a teaching-learning differentiated process (Heacox, 2006). This way, the initial formation of teachers can be used as an effective way to change the teaching process in the future (Tomlinson & Allan, 2002).

## REFERENCES

- Cardoso, J. R. (2013). *O professor do futuro*. Lisboa: Guerra e Paz.
- Chousa, M. M. N. (2012). *Sala de aula inclusiva – práticas de diferenciação pedagógica* (Dissertação de mestrado, Escola Superior de Educação Almeida Garrett, Lisboa). Consultada em [http://recil.grupolusofona.pt/bitstream/handle/10437/2705/disserta%C3%A7%C3%A3o\\_MC.pdf?sequence=1](http://recil.grupolusofona.pt/bitstream/handle/10437/2705/disserta%C3%A7%C3%A3o_MC.pdf?sequence=1)
- Delors, J., Mufti, I. A., Amagi, I., Carneiro, R., Chung, F., Geremek, W., ... Nanzhao, Z. (1998). *Um tesouro a descobrir: Relatório para a UNESCO da Comissão Internacional sobre Educação para o século XXI*. Paris: UNESCO.
- Ferreira, S. M. S. P. (2010). *Competências profissionais do docente em tempos de mudança* (Dissertação de mestrado, Universidade de Aveiro, Aveiro). Consultada em <http://hdl.handle.net/10773/3539>
- Grave-Resendes, L. & Soares, J. (2002). *Diferenciação pedagógica*. Lisboa: Universidade Aberta.
- Haro, A. F., Serafim, J., Cobra, J., Faria, L., Roque, M. I.,
- Heacox, D. (2006). *Diferenciação curricular na sala de aula: Como efetuar alterações curriculares para todos os alunos*. Porto: Porto Editora.
- Morgado, J. (2003). *Qualidade, inclusão e diferenciação*. ISPA: Lisboa.
- Pereira, A. B. S. (2011). *Promover a inclusão através de uma pedagogia diferenciada centrada na cooperação* (Dissertação de mestrado, Universidade Lusófona, Lisboa). Consultada em <http://hdl.handle.net/10437/1610>
- Pires, J. (2001). Heterogeneidade e diferenciação. *Escola Moderna*, 12, 5.ª série, 35-38.
- Sousa, M. J. & Baptista, C. S. (2011). *Como fazer investigação, dissertações, teses e relatórios*. Lisboa: Pactor.
- Tomlinson, C. A. (2008). *Diferenciação pedagógica e diversidade*. Porto: Porto Editora.
- Tomlinson, C. A. & Allan, S. D. (2002). *Liderar projectos de diferenciação pedagógica*. Porto: ASA.