The Professional Competence of Teachers: Which qualities, attitudes, skills and knowledge contribute to a teacher's effectiveness?

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Abstract

In this paper, the qualifications considered essential by teaching professionals to be effective in pedagogical and didactic work are put together based on the results of a national survey carried out in Greece, to which secondary education teachers of all subjects contributed. One of the aims of this study was to systematically record the qualifications deemed essential by teachers for them to successfully perform their pedagogical and didactic duties. The findings of this research verify the conclusions reached in related literature regarding a holistic approach to the tools making up the profile of a "good teacher", as most teachers seem to associate their effectiveness at work with both personal traits and "didactic and pedagogical skills", as well as pedagogical knowledge. These particular findings contributed to a systematic and analytical description of the content of professional knowledge required for the successful performance of a teacher's pedagogical and didactic work.

Keywords: Teacher education, knowledge base of teaching, professional knowledge, pedagogical studies, teachers' qualifications

1. Introduction

The basic functions schools are called upon to perform in the framework of compulsory education differ according to each situation. However, apart from the specific needs of each time period and location, the main mission of a school is to ensure, on the one hand, excellent student performance, and on the other, the equal enjoyment of opportunities by all students. Schools, especially today, are asked to carry out these functions, taking into consideration the challenges of our times, such as multicultural co-existence, the dominance of technology, the evolution of the sciences and the rapid renewal of knowledge. At the same time, schools aim at preparing students not only for the present, but also for the ever-changing future.

The abovementioned characteristics of the modern school define, to a great extent, a teacher's role too. A teacher should possess the qualifications and professional knowledge required. The question, therefore, is "What qualifications are necessary for a teacher to be effective in his work?". A definitive and absolute definition of these qualifications is neither possible nor desirable, given the transient nature of teaching and the complexity of a teacher's role. However, a provisional list of these qualifications is essential for both the planning of teachers' education programmes and the establishment of the criteria for the recruitment, evaluation and self-evaluation of teachers. What is definitive in the recording and definition of these qualifications is the influence of multiple factors, which are referred to as "spheres of influence" (Corrigan & Haberman 1990, Christensen 1996, Imig & Switzer 1996). The contribution of working teachers is of primary importance, as they have the experience gained from actual practice and are therefore in a position to evaluate their needs in terms of the qualifications that can facilitate their work and guarantee their effectiveness.The term that has been used over the past few years to render the matter of teachers' qualifications is "competence". In the framework of a broader perception of the term, a holistic approach is adopted (Ingvarson 1998 a & b), according to which competence presupposes the individual qualities and attitudes of teachers, as well as their skills and knowledge that arise as a result of their work.

In this paper, the qualifications considered essential by teaching professionals to be effective in pedagogical and didactic work are put together based on the results of a national survey carried out in Greece, to which secondary education teachers of all subjects contributed. The following questions were examined in detail:

a) What qualities and attitudes contribute to a teacher's effectiveness?
b) What skills and knowledge contribute to a teacher's effectiveness?

c) Do teachers use their pedagogical knowledge and skills in order to improve their pedagogical and didactic work?

2. ***Delineation of teachers' "professional competence"***

Since the 1920s, the issue of teachers' qualifications, which can guarantee their effectiveness, has been of concern for not only the science of Pedagogy, but also for those in charge of staffing schools with qualified professionals. As regards this issue, modern studies have revealed that the way in which a teacher carries out his work is determined by the union of his personality traits and acquired knowledge. A "good teacher" should possess a wide range of qualifications, which could, schematically, be classified as follows:

I. Personality traits, attitudes and beliefs

These include personality traits related to the professional role of a teacher, which can be nurtured and developed through initial education and continuous training (Whitty 1996: 89-90). Specifically, studies have shown that traits such as flexibility in terms of the appearance of students, a sense of humour, a sense of fairness, patience, enthusiasm, creativity, care and interest in the students, all contribute to the effectiveness of teachers (Malikow 2005, Harslett et al. 2000).

These also include a teacher's attitudes and beliefs on teaching, learning, his role, all of which affect the way he chooses, evaluates and comprehends the knowledge acquired, as well as the way he benefits from this knowledge in practice, as this very practice is shaped by that knowledge (Feiman-Nemser 1990, Schön 1983, Zeichner & Liston 1996). The attitudes of teachers affect their degree of commitment to their duties, the way they teach and treat their students, as well as how they perceive their professional growth (Chen & Rovegno 2000, Darling-Hammond 2000). Specifically, teachers that have high expectations for their students and insist on promoting learning for all students tend to be more effective (Malikow 2005, McBer 2000). Another factor which contributes to the effectiveness of teachers is a feeling of commitment to the job at hand (Coladarsi 2002) and interest in the personal life of students and their families (Harslett et al. 2000). Lastly, "knowledge of self" and contemplation are worth mentioning, in that they presuppose critical and careful reflection, on the part of the teacher, on his actions and self (Turner-Bisset 2001: 110-112).

McBer (2000), from a series of interviews with teachers, identified 16 "professional characteristics", including personality traits and individual attitudes, which she then classified into five groups: a) Professionalism: commitment, confidence, trustworthiness, respect;. b) Thinking: analytic and conceptual thinking; c) Expectations: disposal of achievement of high objectives, disposal for permanent comprehension of reality (e.g. the students, the order), and undertaking of initiatives; d) Leadership: flexibility, accountability, passion for learning; e) Relations with other: fertile interaction with involved in the educational process, skills of common work, comprehension.

II. Pedagogical Skills and Knowledge

Didactic and pedagogical skills are not only understood as familiarisation with techniques that are then used mechanically, but also as the acquisition of routines which, without a doubt, every teacher needs in order to save time and energy for the more significant aspects of his work; at the same time, they refer to a set of theoretical principles and research data that lead to a variety of techniques and strategies which a teacher chooses and shapes, depending on the circumstances (for the discussion on teacher skills as an element of professional competency, see Beyer 2002: 311, Conczi et al. 1990, Oser et al. 2006: 1-7).

A plethora of related studies shows specific actions by teachers which can be considered factors for their effectiveness. With regard to the teaching approach, it seems that the more effective teachers (McBer 2000, Jasman 2002, Anderson 2004): set realistic objectives, try and give incentives to students for learning, apply various teaching methods, select participative forms of teaching, test and create didactic material, present information in a clear manner, combine words with pictures, use various teaching aids, maximise teaching time through systematic measures (e.g. planning, reduced disturbances in the classroom), assign work that will stir the interests of the students, monitor and evaluate the progress of students, set evaluation criteria for students and inform the students about them, and provide feedback to the students. Another decisive factor in effectiveness is a teacher's ability to recognise the diversity of students, to choose the best method possible for each student, and to create incentives for students (Harslett et al.2000).

Yet another important factor is teachers' cooperation not only with the students, but also with the parents of the students, their colleagues and the community at large (Jasman 2002). Lastly, effectiveness, to a great extent, depends on the way problems in the classroom are managed. Research shows that more effective teachers keep all happenings in the classroom in check, that they are constantly on alert, that they swiftly deal with any problem that may arise and that they adopt various ways of working with students (Everston and Randolph 1999, Wang et al. 1999).

A basic qualification, whatever the case, is the acquisition of an extended body of knowledge which contributes to the way the teacher performs in practice (Birman et al. 2000, Hawley & Valli 1999). Generally, a teacher's training is classified into three fields: subject knowledge, pedagogical and didactic studies, and teaching practice. However, what still needs to be defined is what should be taught in these educational fields, especially in pedagogical studies. A way to define the contents of "professional knowledge" is to provide answers to the following questions: "What makes up the pedagogical and didactic work of a teacher?" and "What knowledge type and qualifications are needed for a teacher to cope?"

According to Shulman, pedagogical thought and action go through the following stages: a) understanding / perception; b) modification / transformation; c) teaching; d) evaluation; e) feedback; f) reflection. For a teacher to cope with the above, "professional studies" are required, that is: a) pedagogical content knowledge and b) curriculum studies (Shulman 1986, Shulman 1987: 14-19). Turner-Bisset suggests a course that would instil the necessary qualifications and focus on the following fields (Turner-Bisset 1999: 43-48, Turner-Bisset 2001): "substantive knowledge", "syntactic knowledge", beliefs about the subject, knowledge of curriculum, knowledge of contexts, knowledge of self, didactic training, knowledge of learners, knowledge of objectives and learning outcomes, general pedagogical knowledge, pedagogical-didactic amalgam and learning subject.

This body of knowledge, that can guarantee a teacher's expertise, is determined by existing conditions and contexts, as well as the personal experiences, beliefs and needs of each teacher, a fact that renders an *a priori* definition of this knowledge extremely difficult. Nevertheless, there are knowledge fields that constitute a necessary prerequisite for every teacher, or at least for a large part of them, (Meijer et al. 1999, Meijer et al. 2001), and which form the basic part of "professional knowledge". These include:

a) Subject knowledge: the teaching subject does not coincide with the corresponding science; however, teaching a particular subject requires familiarisation with scientific knowledge. The way each scientific field is approached and studied is strongly defined by the job and duties defined in the job description. For such a specific comprehension of scientific knowledge as a way of teaching, familiarisation with the science and its dimensions is necessary. A classification of the dimensions of scientific knowledge is the following (Kennedy 1990): i) science content (opinions, axioms, facts, etc.). It relates to the "facts" and "principles" of the science being taught, from which the teacher derives appropriate examples, pictures, etc. for instruction; ii) relations, organisation and structure of the contents of a scientific subject. This knowledge on the subject defines the way it is presented to the students, the questions that would pass on the knowledge in a better way, etc.; iii) the research methodology on the scientific field. This knowledge of the methodology contributes to a better choice by a teacher of the methods through which he will approach the subject, the exercises, the questions, etc.; iv) the procedures and ways that contribute to the generalisation of the "truth", explored in every scientific field and now being acknowledged (syntactic knowledge).

Moreover, a teacher should be in a position to approach the subject being taught with specific questions, such as which social norms are connected to the subject, what is its relation to social issues and its value in everyday life (Kennedy 1990). He should also be in a position to diagnose misinterpretations of the knowledge offered by the students and fully comprehend the procedures required for the acquisition of the knowledge and skills connected to the subject being taught (Shulman 1987: 9, Perrone & Traver 1996: 395-397, Darling–Hammond & Baratz-Snowden 2005: 14-16). An extra requirement for a teacher would be knowledge on every subject in the curriculum of the grade he teaches, as this allows him to adopt an interdisciplinary approach to the material, i.e. using pictures, analogies and knowledge acquired by students through other subjects (Ernest 1989). Finally, knowledge of the subject taught is related to a teacher's beliefs. Research has shown that teachers' effectiveness is strongly influenced by the opinion teachers have of the subject they teach (Askew et al. 1997, Medwell et al. 1998, Newton & Newton 1998). Moreover, teachers with a more "holistic" outlook on the subjects they teach tend to be more effective (Turner-Bisset 2001: 28-29).

b) Knowledge of learners: this comprises knowledge on the biological, social, psychological and cognitive development of students, on issues related to group dynamics and interaction between students as well as teachers and students, students' behavioural problems, learning motivation, adjustment issues, learning difficulties, etc.

c) Teaching methodology: a way to define the necessary qualifications of a teacher is to give a detailed description of the teaching methodology. A schematic presentation of the specific structural elements of instruction follows: i) lesson planning, i.e. a teacher's pre-lesson activities and actions (for example, organisation of content into thematic units, transformation of teaching material into teachable knowledge, definition of teaching goals, methodological organisation of teaching, time planning, selection of evaluation process). Planning can vary, depending on whether it is short-term (weekly lesson planning or unit planning) or long-term (for the entire semester or academic year); ii) teaching performance, i.e. enforcing the choices made during planning (didactic organisation, teaching path, application of teaching forms, direct actions of the teacher, use of teaching methods and aids; iii) Evaluation of teaching, i.e. evaluating the results mainly by assessing student performance (e.g. goals, forms, basic principles, assessment techniques).

d) Curriculum knowledge: the school curriculum is a tool, which, in a way, determines the didactic choices of a teacher. Teachers should, therefore, know the curriculum, textbooks, the rules and laws of the education system and, as a whole, the state's role in education (Shulman 1986: 10, Shulman 1987: 9-10). At the same time, however, the demands of society today call for a critical approach to the curriculum and its adaptation to the needs deriving from context.

e) General pedagogical knowledge: this field relates to the organisation of the classroom, to motivating and retaining students' attention, pooling resources, learning theories and pedagogical theories. Shulman refers to "principles and strategic classroom management and organization, which exceed the knowledge of specific subjects" (Shulman 1986). This type of knowledge is nonetheless acknowledged, as it secures a framework of mental representations necessary for the comprehension and interpretation of the school classroom. Moreover, this knowledge is absolutely essential for lesson planning, as it guides the teacher's didactic choices (Ernest 1989: 19-20).

f) Knowledge of contexts: a teacher is called upon to evaluate the contexts in which he teaches and act accordingly, as his actions are defined by surrounding circumstances; in other words, there are no predetermined attitudes that would suit every occasion. Still, there are certain outlooks on reality, certain principles, research findings, that a teacher can use to interpret the context, as well as a host of techniques and strategies which can be used, depending on the situation. Hence, knowledge of contexts refers to knowledge of the environment and the circumstances where a teacher is required to work: the school, the region, the state. Specifically, it comprises knowledge of the students and their family background, as well as the entire local community, education system, the organisation and management of the school unit, the history and philosophy of education in every state, the institutional framework and administrative structure of education.

g) Knowledge of "self": a basic qualification of teachers, related to their views on their role, responsibilities, training and qualifications, rights and professional development, working conditions, values, and philosophy, etc. and is mainly connected to their professional development through reflection, to learning through their teaching experience, in relation to their working environment (Lambert 1984, Kagan 1992). The way teachers perceive their role defines not only their options, but also the way they comprehend, interpret and use this knowledge (Clandinin & Connely 1987).

In conclusion, the qualities that can ensure a teacher's effectiveness are not the sum of his knowledge, but rather the link between the different types of knowledge he possesses. These types of knowledge do not simply coexist: they should form a complete, inseparable unit of knowledge (Kennedy 1990). The degree of connectivity between these separate types of knowledge sets apart a "competent" teacher from an "excellent" one, as a "competent" teacher manages to combine these knowledge forms in part, whereas an "excellent" teacher uses the knowledge deriving from each separate field most effectively (Turner-Bisset 2001: 131-141).

3. Methodology

One of the aims of this study was to systematically record the qualifications deemed essential by teachers for them to successfully perform their pedagogical and didactic duties. A survey was carried out to analyse the views of teachers. The questionnaires were posted to the respondents.

A six-point Likert scale was used for the closed-ended questions. The open-ended questions were included to expound upon or check the answers given in the closed-ended questions. The sample group of the study comprised teachers of all subjects who work in public secondary schools in Greece; the schools were used as sample units. In order to ensure Pan-Hellenic coverage in the study and proportional representation in the final sample, 10% of the secondary schools were chosen from the regional areas of the country. The final list of schools was put together at random from an extensive list featuring all schools. Thus, the sample comprised respondents with the same characteristics as those of the entire population and consisted of 727 secondary school teachers (50% of the population).

The data collected from the survey were analysed using the "Statistical Package for Social Sciences" (SPSS). Descriptive statistics were used to present the data, including statistical tables, frequency distribution tables, and statistical measures. Correlations were also found and checked against the Pearson correlation coefficient and Kendall's *tau-b*. For the qualitative analysis of the open-ended questions, content analysis was carried out. Specifically, a deductive category application was developed for analytic induction in order to develop subcategories. The material was then indexed. The credibility of the categories and subcategories was checked according to the formula CR=2m/N1+N2 (Holsti 1969: 135-142).

4. Results

An initial finding is that teachers consider their personality traits and their in-depth knowledge of the subject they teach as essential qualifications. At the same time, however, they place just as much importance on their pedagogical and didactic training (Table I). An interesting conclusion was drawn from the answers given by the respondents in the open-ended questions with regard to the exact qualifications that, according to the teachers, contribute to their success in the workplace.

4.1 Which qualities and attitudes of teachers contribute to their effectiveness?

The analysis of the open-ended questions revealed that teachers attribute their effectiveness to their own personality traits and special skills, such as: love of children and love for the profession, personal drive to be effective, consistency, conscientiousness, imagination, creativity, sense of humour, determination, tenacity and enthusiasm. An indicative statement follows:

"Someone who combines virtues such as patience, persistence, imagination, sense of humour, democracy, creativity" (Philologist, under 35, 1-5 years of experience)

According to the assessments of teachers, the attitude they adopt to their role, teaching and learning is an essential factor in their effectiveness. Specifically, they pointed out that high expectations for students, a feeling of responsibility towards students, a sense of commitment to their work, a desire for lasting improvement, willingness for lifelong professional and personal growth and the conviction that they can contribute to the growth of their students render them more effective. Indeed, they had the following to say:

"Increased expectations for students" (Greek Language Teacher, 36-45 years, 16-20 years of experience)
"The conscientiousness of a teacher and his deep-seated desire for near-perfection" (Greek Language Teacher, over 56, more than 21 years of experience)

"The sense that I plant a seed for the development of a student's character" (German Language Teacher, under 35, 1-5 years of experience)"

4.2 What knowledge and skills contribute to the effectiveness of teachers?

Teachers find that "***pedagogical and teaching skills***" – in terms of monitoring behaviour – are also essential if they are to be effective in their jobs. In their opinion, the skills that contribute to their effectiveness – as revealed in the open-ended questions – are the following:

a) Knowledge / Teaching Models: timely preparation and planning of teaching, use of appropriate forms, methods and teaching aids, use of appropriate examples, posing appropriate questions to students and encouraging discussion, experience-based approach, group teaching, individual teaching, planning of outdoor activities, use of the Internet, differentiation of techniques and evaluation criteria for students

b) Curriculum and school textbooks: use of extra-curricular teaching material

c) Understanding learners: understanding their needs and adjusting teaching accordingly, providing information on and recording, in detail, the environment of the students, their experiences, motivating and encouraging mobilisation.
d) Pedagogical content knowledge: interdisciplinary approach to a subject, adapting a subject to students' needs and emphasising its connection to real life.
e) The context where the pedagogical and teaching procedures take place: co-operation with colleagues and students' parents, problem solving and ensuring a happy classroom environment.

The statements provided read as follows:

"He who understands the needs of his students and easily adapts his lessons to the ever-changing classroom conditions, whilst always keeping the lesson flow in check and sticking to the objectives set" (Greek Language Teacher, under 35, 1-5 years of experience)
"He uses various didactic methods and teaching aids" (German Language Teacher, under 35, 1-5 years of experience)
"Comfortable with students, encourages them to ask questions, gives them room to work independently in the classroom, constantly monitors their work, rewards good performance records and solid efforts by students"(Science Teacher, 46-55 years of age, with more than 21 years of experience)
"[…] to set feasible goals right from the start […] to be aware of the needs of students and their possibilities" (IT Teacher, under 35, 1-5 years of experience)
"Linking lessons to current affairs, stimulating the interest of students, adapting different ways of doing lessons, depending on the subject and didactic unit" (Greek Language Teacher, over 56, with more than 21 years of experience)
"Team work, the project method, drawing upon the singular characteristics of students" (German Language Teacher, under 35, 1-5 years of experience)

Teachers also recognise **pedagogical knowledge** as a significant qualification. The pedagogical subjects they consider important have to do with a better understanding of a student's specific profile and needs, interaction issues, as well as interpreting and solving student problems. Secondly, they feel their training in areas related purely to teaching methodology is essential. It must be pointed out that older and more experienced teachers in particular consider their training in subjects related to their role in the contemporary school to be useful. Curriculum training (understanding, evaluation, use and amendment) is deemed less important, a result that was expected, given that in Greece, the curriculum is decided by the State. Their training in intercultural and special needs education, matters related to school life and educational administration, as well as education and learning theories is considered even less significant (Tables II & III).

4.3 Do teachers apply their pedagogical knowledge and skills in order to improve their pedagogical and didactic work?

At times, teachers' needs are "discernible" and can be expressed, i.e. the teachers themselves are in a position to identify the qualities deemed necessary for their success as teachers, whilst at other times they cannot be discerned or when they are discerned, they cannot be expressed. In this last case, an indirect evaluation of the needs is required (McGehee & Thayer 1961, Knowles 1980) in order to record: a) the aims and demands stemming from school; b) the knowledge, skills and attitudes required as a result of their professional role; and c) an analysis of the way the professional performs his duties along with the qualities he possesses. That is why an indirect recording of teachers' needs was carried out in this research. Specifically, participants were asked to what extent they can carry out the basic duties and activities related to their role, in an attempt to answer the following question: "*Do teachers apply their pedagogical knowledge and skills in order to improve their pedagogical and didactic work?"*

Half of the teachers questioned stated that they rarely organise activities outside the classroom. Moreover, a large percentage stated, with regard to teaching methodology, that they do not make use of indirect forms of teaching, that is the project method and teaching in groups. Generally, the number of teachers using innovative teaching methods barely touched 50%. What is interesting is that teachers do not feel at ease using new technology. From the data, we can assume that there is no significant or regular co-operation between teachers and students' parents.

As far as their relations with students are concerned, teachers often allow students to speak (only 12% refrain from doing so), and 3 in 4 discuss problems arising in the classroom with their students; however, it would seem that they fail to discuss with them either their performance or personal problems. In terms of the curriculum and school textbooks, it emerged that they tend to amend the existing curriculum and textbooks with the addition of extra material, but they rarely seem to incorporate contemporary issues. As far as educational evaluation is concerned, one in three stated that they do not do any form of self-assessment. Moreover, 42% of teachers do not discuss school performance with their students, whereas 65% do not provide a descriptive evaluation of their students (Table IV).

It also emerged that 66% of teachers often face difficulties whilst performing their duties. With regard to teaching methodology, 3 out of 4 teachers find it difficult to use new technology when teaching, to organise activities outside the classroom, or to adopt pedagogical theories. They seem to have less difficulty in drawing up homework tasks and assigning them to students, as well as in planning lessons. However, even with these tasks, more than half of them said that they experience some kind of difficulty. In terms of understanding students, their special needs and how to assist with those needs, they seem to encounter many difficulties, the greatest being inciting motivation. They seem to find it easier to cope with behavioural problems, and they cope easily when dealing with students' personal problems, when they co-operate with them and when building solid relations. Even though they seem to enjoy good relations with them, it is quite difficult for them to adapt both teaching content and methodology to their students' special requirements. Also, the study revealed that 1 in 4 teachers find it difficult to co-operate with parents, and a smaller percentage has problems co-operating with colleagues (Table V).

A significant conclusion is that they do not possess the necessary qualifications to manage certain challenges faced in modern schools – for example, lack of homogeneity in the school population, lack of student motivation, behavioural problems, learning difficulties and problems of co-operation with students, parents and colleagues. They therefore opt for actions that are not founded on theories, or they try, through discussions with the students, to overcome these difficulties, a fact that leads certain teachers to failure, disappointment and ultimately, resignation. The information provided in Table VI reveals that only half of all teachers deal with such challenges by making use of pedagogical theories, research, practices, techniques, etc. A slightly smaller percentage deals with these situations intuitively and does not seem to have the relevant theoretical knowledge or the required skills. It should also be mentioned that a large percentage of teachers cite discussion as the only way to deal with these challenges. Nevertheless, the fact that even a small percentage of teachers take on challenges with the help of a variety of pedagogical and teaching techniques should not be overlooked.

5. Discussion – Conclusions

The tools teachers consider essential for their work confirm their holistic approach to the job and the qualifications that make them effective. Similarly, competence presupposes the personal competency of teachers and the knowledge and skills which become necessary as a result of the job (For more information on the holistic approach to teachers' competence, consult Ingvarson 1998 a & b, Conczi et al. 1990, Oser et al. 2006: 1-7). Teachers seem to believe that their effectiveness cannot only be secured through the acquisition of knowledge and skills, but that it also depends on their personality.

What must be underlined is the fact that the teachers themselves cite **personality traits** as being a dominant contributing factor to their effectiveness. Certain traits, such as their commitment to their duties, their love for their students, patience and a sense of humour coincide with the findings of related research (Murphy 2004, White & Roesch 1993, Macconi 1993, Ramsay 1993). When facing modern challenges though, such as classroom heterogeneity, a lack of motivation, behavioural problems, etc., they seem to make little use of their personality traits. This leads to the conclusion that these challenges cannot only be dealt with by means of individual personality traits, but also with the help of specialized knowledge.

A number of teachers recognise both the acquisition of knowledge on the subject taught as well as pedagogy as necessary tools, a conclusion matched in data deriving from other research, according to which pedagogical studies have a significant impact on the way teachers do their work (Ferguson & Womack 1993, Valli with Agostinelli 1993). Indeed, the following conclusion may be drawn: pedagogical studies have a greater impact on the way teachers do their work than simple studies on the subject (Monk 1994). As for pedagogical knowledge, they seem to consider knowledge that contributes to the "better understanding of students" more important.

It is true that a teacher is called upon to plan his teaching and pedagogical actions according to the way students learn, i.e. students' prior knowledge and experiences, the way students usually receive and organise new information, their cognitive needs, their motivation to learn, the way they learn and interact with their families or in society and the acquisition level of the official linguistic code. Consequently, the mere knowledge of human development is not sufficient; a teacher needs the kind of knowledge that will enable him to observe his students, evaluate their behaviour and performance so that he can choose those techniques and strategies that are most suitable (Darling-Hammond & Baratz-Snowden 2005: 7-14). The participants in the study also emphasised the necessity of a *pedagogical approach to the subject*, as explained by Shulman (1986, 1987).

The fact that the teachers who participated in the study do not seem to consider knowledge on multicultural education and special needs education significant could be attributed to their opinions and ideological assumptions regarding "different" students and their own role in school, or that, given that basic pedagogical training is lacking, more specialised knowledge is considered insignificant. The fact that they do not see the importance of training in matters related to school life and school management possibly stems from the perception they have of their role and the ranking of their duties originating from that role. Finally, the fact that the majority does not deem knowledge on education and teaching theories a must is an indication that they may very well have a technocratic outlook regarding their work and that they do not believe the acquisition of specialised knowledge to be particularly crucial.

With regard to the question "*Do teachers apply pedagogical knowledge and skills in order to improve their pedagogical and didactic work?"***,** we can presume that they rarely develop the pedagogical skills and knowledge that research has proven to be effective teaching tools. Specifically:

a) As for the "knowledge of students", it has been shown that teachers have no problem communicating with their students. However, the majority of teachers do not adapt their teaching methods and content to the needs of their students;
b) With regard to the curriculum and school textbooks, they seem to enrich them with extra material and information, but they do not have the tools to adapt them to the needs of their students;
c) As far as teaching methodology is concerned, they have difficulty adopting indirect teaching methods, making use of modern teaching means, as well as carrying out a detailed performance evaluation on students. Similar facts are revealed in related research, according to which teachers do not seem to intervene, in a significant manner, in the curriculum and the content of school textbooks, they do not seem to adopt indirect teaching methods on a regular basis and opt for a numerical rather than a descriptive evaluation of students' performance (Brower 2005);
d) In terms of the greater context of teaching, teachers do not seem to be familiar with administrative activities and seem to have difficulty working together with students' parents. What is particularly interesting is that teachers struggle to formulate their pedagogical and teaching work and, at the same time, draw upon a variety of knowledge resources – what Shulman refers to as "pedagogical content knowledge", and Turner-Bisset as an "amalgam" of pedagogical knowledge.

The findings of this research verify the conclusions reached in related literature regarding a holistic approach to the tools making up the profile of a "good teacher", as most teachers seem to associate their effectiveness at work with both personal traits and "didactic and pedagogical skills", as well as the possession of certain types of pedagogical knowledge. These particular findings contributed to a systematic and analytical description of the content of professional knowledge and to an indicative classification of the tools required for the successful performance of a teacher's pedagogical and didactic work, based on his needs. These data lay the foundation for interventions at educational reform level, including:

a) Planning of teachers' preparation programmes: the recording of teachers' needs may, to some degree, ensure that the study programmes for initial training are designed according to the needs of the teachers, as these are shaped through their pedagogical and didactic work.
b) Design of in-service training programmes, taking into consideration teachers' specific needs. Findings show that teachers' needs vary according to their personal characteristics (years of experience, age, gender, specialisation). The relevant findings could, therefore, be used for a more effective planning of in-service training programmes on pedagogical matters, based on their diverging needs.
c) Creation of a system of assessment criteria so that the professional competence of teachers can be evaluated.

d) Configuration of a framework for the evaluation, and self-evaluation, of the professional training of teachers. These data contribute to teachers' understanding of themselves, regardless of the context in which they work, because basic qualifications that contribute to their effectiveness are sketched out.

The fact that those participating in the research remained anonymous guaranteed, to a large extent, sincere and interesting answers from the teachers. However, it is likely that some of these answers do not correspond to reality, in that they do not express the real perceptions of teachers, but are, instead, the result of the respondents' intention to give the answers expected and in the form expected by the academic community. Some data could be investigated further through the systematic and diachronic observation of teachers in the classroom. Also, a different methodological approach to the subject, such as a case study featuring teachers or the biographical method, would enrich the data resulting from this research and would develop further on the conclusions reached.
Apart from a different methodological approach to the same questions, numerous interesting aspects arose which could be analysed further. Firstly, both the related debate and research, as well as the opinions of the teachers who participated in the study, lead to the conclusion that the effectiveness of teachers is an inter-weaving of attributes, pedagogical skills and knowledge. Consequently, what arises is a complex question about the way in which this holistic approach can be used in the education of teachers. That is to say, what pedagogical knowledge and which pedagogical training practices could contribute to the cultivation of those qualifications teachers refer to as a prerequisite for success in their work? By means of which objects and which pedagogical practices can the pedagogical and didactic skills favoured by teachers be guaranteed? Moreover, something else which needs to be examined is to what extent the traits cited by teachers as success factors truly contribute to their effectiveness as teachers.

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Table I: *Factors that contribute to the effectiveness of teachers (How important do you consider the contribution of the following to the success of teachers in their role? / Closed-ended question)*

	N	***Not very / Only slightly %***	***Average %***	***Very important / Quite important %***
	507	0.5	6.5	93
Knowledge of teaching subject	711	0.5	8	91.5
Didactic training	697	1.1	10.5	88.4
Pedagogical training	702	1.5	10.5	88
Continuous Learning	694	1.7	22.3	76
Personality traits	692	2.3	22.8	74.9

Table II: *Pedagogical Knowledge (In your opinion, how important is the contribution of the following to the success of teachers?* / O*pen-ended question,* N= 374*)*

	%
Knowledge / Teaching Models	60
Pedagogical psychology / Knowledge of learners	46.9
General pedagogical knowledge	42.6
Knowledge of contexts	8.9
Knowledge of curriculum and school textbooks	4.6
Knowledge of "self"	4.3
Syntactic knowledge	0.6

***Table III**: Pedagogical Skills and Knowledge (In your opinion, how important is the contribution of the following to the success of teachers? / Closed-ended question)*

	N	*Not at all / Not very %*	*Neutral %*	*Somewhat / Essential %*
Pedagogical psychology	697	1.4	12	86.6
Interpersonal relationships in schools	701	1.6	13.1	85.3
Student problems	693	1.8	15.5	82.7
Lesson planning	707	1.4	18.4	80.2
Teaching methods	699	1.8	19.5	78.7
Teaching goals and aims	697	2.4	19.8	77.8
Teaching evaluation	693	2.5	25.5	72
Teacher's role	680	3.1	25	71.9
Forms of teaching	691	2	26.5	71.5
Student Performance Evaluation	682	2.3	26.7	71
Co-operation between parents and school	696	4.5	27.2	68.3
Use of audio-visual aids	697	3.9	28	68.1
Curriculum	693	4	30.8	65.2
Intercultural education	684	5.3	31	63.7
Special needs education	678	6.2	33.5	60.3
Use of rewards and punishment	690	9.3	36.5	54.2
School life	692	7.4	39.6	53
Education theories	687	8.2	40.2	51.6
School administration	688	11.6	38.6	49.8
Learning theories	690	8.7	44.7	46.6

***Table IV:** Teaching and Pedagogical Training* (How often do you …? / closed-ended question)

	N	*Very Rarely / Rarely %*	*Occasionally %*	*Frequently / Very Frequently %*
TEACHING METHODOLOGY				
Allow students to speak	705	0.6	11.8	87.7
Adopt innovative teaching methods	693	7.6	45	47.4
Opt for group teaching	673	22.7	42.4	34.9
Give descriptive assessments	647	22.6	42.6	34.8
Use new technology	667	38.1	36	25.9
Use the project method	653	44.5	36.3	19.2
Organise activities outside the classroom	679	45.2	38.3	16.5
CURRICULUM AND SCHOOL TEXTBOOKS				
Add to basic content with new information	693	3.3	25	71.7
Use extra material	695	3.3	28	68.7
Incorporate contemporary issues into the lesson	694	5.3	29.6	65.1
"KNOWLEDGE" OF LEARNERS				
Allow students to speak	705	0.6	11.8	87.7
Discuss classroom problems with students	696	2.4	26.2	71.4
Discuss student performance with students	694	7.3	35.5	57.2
Discuss the personal problems of students with students	689	21.8	41.7	36.5
"KNOWLEDGE" OF CONTEXTS				
Co-operate with colleagues	698	5.9	28.5	65.6
Involve parents in the learning process	686	29.6	45.3	25.1
"KNOWLEDGE" OF SELF				
Do a self-assessment	698	2	23.2	74.8

Table V: *The Difficulties Encountered by Teachers* (How often do you face difficulties in the following activities? / closed-ended question)

	N	*Very Rarely / Rarely %*	*Occasionally %*	*Frequently / Very Frequently %*
TEACHING METHODOLOGY				
Use of new technology	673	27.2	36.5	36.3
Organising activities outside of the classroom	660	32.9	32.7	34.4
Adoption of contemporary pedagogical theories	679	20.8	47.5	31.7
Teaching in multicultural environments	639	39.4	32.7	27.9
Adaptation of teaching to students' needs	676	38.2	36.3	25.5
Formulation and assignment of homework	683	45.2	33.5	21.3
Evaluation of student performance	669	44.8	34.3	20.9
Use of different teaching models	681	32.7	48.3	19
Lesson planning	690	45.8	36.6	17.6
Self-assessment	675	53.2	30	16.8
CURRICULUM				
Relating course content to students' lives and needs	678	38.8	37.7	23.5
Planning and amendment of course content	674	35.8	43.8	20.6
"KNOWLEDGE" OF LEARNERS / CLASSROOM MANAGEMENT				
Promoting motivation amongst students	678	24	49.5	26.5
Adaptation of teaching procedures to students' needs	676	38.2	36.3	25.5
Relating course content to students' lives and needs	678	38.8	37.7	23.5
Promoting co-operation between students	683	38.4	39.8	21.8
Helping students experiencing personal problems	677	48.7	32.3	19
Problem solving in the classroom	675	41.2	40	18.8
Communication and good relations with students	682	61.8	21.7	16.5
Use of rewards and punishment	672	43.2	41.5	15.3
GENERAL PEDAGOGICAL KNOWLEDGE				
Use of pedagogical theories	679	20.8	47.5	31.7
Problem solving in the classroom	675	41.2	40	18.8
Use of rewards and punishment	672	43.2	41.5	15.3
"KNOWLEDGE" OF CONTEXTS				
Co-operation with parents	667	39.3	36	24.7
Communication and good relations with students	682	61.8	21.7	16.5
Co-operation with colleagues	675	55.1	28.9	16
Undertaking administrative duties	650	54.8	30.3	14.9
"KNOWLEDGE" OF SELF				
Self-assessment	675	53.2	30	16.8

Table VI: *How do teachers deal with challenges?*
(If you encounter any one of the challenges below, how do you deal with them?/ open-ended question)

	Classroom heterogeneity	***Lack of learning motivation***	***Behavioural problems***	***Learning difficulties***	***Lack of co-operation***
	%	**%**	**%**	**%**	**%**
Refer to qualities and personality traits	2.8	1.6	12.9	8.7	12.3
Refer to pedagogical and didactic skills and techniques	53	55.1	40.4	41.2	9
Refer to professional development practices	1.4	0.4	4.1	9.2	2.3
Discussions / Conferences	1.8	12.6	55	6.2	24.9
General references, actions with no prior theoretical basis, wrong actions	40.6	31.8	17.3	31.5	46.4
Lack of action / Do not consider to be their problem / Refer problem to others	3.8	3.8	3.1	16.2	19.5