The purpose of this paper is to critically examine the professional identity and professional training of teachers today. These two elements are highly intertwined and must be redefined in light of the deep changes that have been occurring within the school system in recent years. These changes include the pervasive presence of digital media in classrooms, reformed curricula which respect the European standards concerning competences and scholastic editorial reform. Over time these elements have changed the social and organizational order of schools, gradually distancing the teachers from the cultural- and social- disposition of the alumni. Consequently, the gap between the school as an institution and society is growing.

Today’s teachers are frequently forced to face educational situations that they are unable to manage. In particular, digital media have profoundly changed both the way lessons are carried out and the power-based relationships that exist between teachers and their students. For these reasons the professional identity of teachers must undergo a deep redefinition. Running parallel to this is the high importance of training in- and formation and knowledge of up-to-date competences and abilities.

The research presented here has the aim of investigating the aspects mentioned above. An open-response questionnaire was submitted to a sample of 247 teachers and aspiring teachers, as well as members of a professional development course carried out in the University of Bari, Italy. The study uses a mixed-method approach to content analysis, utilising tools such as T-Lab to facilitate statistical information in a fashion complementary to the qualitative elements of the work.

KEYWORDS: Competences, professional identity, content analysis, media education, lifelong learning.
Introduction

The transition from the *information society* to the *knowledge society* characterizes knowledge as a key factor for the economic, social and, undoubtedly, educational future of society as a whole. This process redefines the goals, the structures of roles and personal identities (Alberici, 2002).

Therefore, we are experiencing a paradigmatic shift: from analysing the products of knowledge (in which the outcome is quantitatively assessable) to the study of knowledge as a process of construction, in which the interaction and the relationship between the elements that constitute knowledge itself are fundamental.

This change, together with the large-scale introduction of Information and Communication Technology (ICT) in schools and with the reform of curricula from a competency-based perspective, has initiated deep transformation throughout the entire educational system, as well as within teaching methodologies and educational goals.

As a consequence, the role of being a teacher itself has changed. Technologies have changed the structure of schools, which until now were essentially hierarchical. Teacher authority was completely supported by the social organization of the school itself, in favour of a horizontal organization structure and allocation of knowledge. Under the new paradigm the teacher is a facilitator of learning and relationships, rather than a transmitter of notions. Thus, providing adequate teacher formation, that allows them to face this kind of educational process efficiently, is fundamental to success. (Duhaney, 2012).

In 1998 an ISFOL report praised Italian efforts to upgrade skills for the empowerment of graduates coming out of university who intend to become teachers in the Italian educational system with a higher level of professional competence. (ISFOL, 1989). Legislative efforts also moved in this general direction, although specific implementations differed between national regions and institutions of higher education. This was enabled by the enacting of the DM 166 on the 25th of May 2001. This DM adds regulations to the education system by introducing and establishing the “*Scuola di Specializzazione dell’Insegnamento Superiore*” (SSIS). Today the “SSIS” has transformed into the “*Tirocinii Formativi Attivi*” (TFA).

The evolution of vocational training courses combines synergistically with the innovation of learning paradigms and methods. Future teachers are asked to become highly proficient in matters of pedagogy and flexible enough to integrate technology with the varying demands of educational practices. (Tondeur et al., 2013, p.445). In particular, the emergence of new pedagogical proposals and the availability of ICTs require not only digital literacy, but also expertise and skill in this area, accompanied by a proactive, creative and critical attitude to the use of new educational possibilities. This is the concept of “fluency.” To be fluent, from the digital point of view, implies not only an understanding of how to use technological tools, but also the ability to build meaningful didactics with those tools (Papert and Resnick 1995). It is necessary for the teachers of tomorrow to develop a digital culture if they hope to attain this level of competence.

It is from within the context outlined above that this paper necessarily investigated technological innovation and professional training and, in particular, the profession of being a teacher.
1. Theoretical Background

The theoretical framework of this study draws on various pedagogical disciplines. In particular, the process of introducing digital media into educational contexts (Galliani et al., 2000) and the importance of reflection, which is the basis of a teacher’s professional identity (Baldassarre, 2009). In addition to this, there is a strong reliance on theory from social psychology, with the construct of social identity (Tajfel, Turner, 1986), and from cultural psychology (Bruner, 1997).

The scientific literature of the last few years has highlighted how the introduction of ICT into the school context can support innovative processes in the education system as a whole (Rivoltella, 2012). Nevertheless, the integration of didactics and ICT isn’t always achieved effectively. Sometimes ICTs are introduced as something novel to study in addition to, and separate from, traditional subject areas. No actual integration into the curricula of the various disciplines takes place, nor is there a significant evolution of the pedagogical approaches and behavior in the class (Chiappini & Manca, 2006). Digital innovation should represent an opportunity for schools to go beyond the traditional concept of classrooms in favor of creating “learning spaces”. That is, contexts and environments of constructive and situated learning based on social communication and interaction (Rivoltella, 2013).

An evolution of the learning paradigm is necessary. Internalising information is no longer the main objective of learning. Rather, learning in, through and despite of the noise of information is now rapidly becoming a primary focus. Therefore it has become indispensable to build digital competence. Digital competence can be broken down into the following key aspects (Calvani et al., 2011):

- Exploring and engaging with new technological situations in a flexible way.
- The ability to critically analyse data and information sources.
- The ability to use technologies for problem representation and solving as well as collaborative knowledge building.

A common problem with the various definitions of digital competence is that it is often defined as something static and, at a micro-level, disconnected from other concepts. In truth, an accurate definition of the concept would be systemic and dynamic, presenting different structured levels of inter-dependent abilities.

The following concepts are examples of such inter-dependent abilities, but do not constitute an exhaustive list. The first ability is that of “Technological literacy”. Simply put, this is the skill that allows one to interact with hardware and software. “Informational literacy”, on the other hand, comprises of the competences necessary to work with information through the application of ICT. “Media literacy” describes a group of abilities and competences needed to interact with different media and to integrate them into a strategic design that allows for the construction of an ecosystem of different media. “Digital presence” describes the ability to control and create a digital identity. “E-awareness” is the knowledge of how the world and our position, individually or collectively, can change thanks to digital technologies (Peña-López, 2009).

The last two concepts are fundamental to teacher training. The education of new teachers has to include the definition of a digital identity and, with that, e-
awareness. That is, the awareness of the systemic and strategic implications of living in the knowledge society (Baldassarre, 2012). It is essential to transcend a merely exploitable view of digital technologies and to comprehend their socio-cultural range; to comprehend that media, in the world we live in, can generate and increase meaning. Through the educational paths specifically thought of and designed for teachers, (such as the TFA, DM 249/2010), professional identities are formed and can be described as “positioning oneself in relation to others by differentiating, affiliating, challenging, being, and doing in the world” (Achugar, 2009, p. 65). Becoming a professional means activating an interactive process situated in a given socio-organizational context, in which it’s possible, through dialogue, to experiment with the acquisition of meanings and the acquisition of sensitivity to the environment in which teachers will work. This process of sense-making is structured through conversational activities. These activities, which may be dialogues, monologues, stories or narratives, express the ways reality data are intended. Reality data “are inconsequential until they are acted upon and then incorporated retrospectively into events, situations, and explanations” (Weick, 1995, p. 307).

Text analysis is an inquiry method that allows exploration of professional identities, focusing the attention not on an objective, systematic and quantitative description of the manifest content, but on the subjective, dialogic and qualitative process of communication with the purpose of completely understanding the process of sense-making (Mininni, 1993, 2003).

2. Research

This research represents an initial phase of a larger project aimed at investigating the learning needs of future teachers in terms of digital presence and e-awareness necessitated by the constant evolution of the schooling system.

The purpose of this paper is to observe the professional images developed throughout the training process of TFA (academic year 2012-2013, Bari) in order to understand the status of compliance with the processes of digital innovation in schools.

The research hypothesis is as follows: a difference exists in thought processes and operational parameter of the teaching profession when training is based on a technical rather than humanistic education. The identification of these differences and peculiarities should lead to a practical goal: to “situate” teacher training in a more effective way, starting from the comprehension of their in fieri identity.

Through awareness of the starting point for aspiring teachers and awareness of where institutions wish to lead them, we can achieve the overall goal to individualize the teaching actions aimed towards them. This goal is supported by a further research hypothesis: a difference exists between those who are already teachers and those who are not.

Through the process of data analysis this general goal has emerged as three research questions that guided the process of interpretation.

1. What image is acquired after the training path of a teacher is completed? Does it include aspects related to the digital school? Does it take into account
the transformations in education after the introduction of technology into didactics?

2. Are there significant differences between some sub-samples? Are variables such as “disciplinary class”, “technical vs. humanistic education” and “degree of practical experience reached” noteworthy in terms of explanatory power?

3. How often do themes related to teaching that use new technologies emerge? Has the TFA course held in Bari managed to transmit the value of this important evolution of the entire educative system?

3. Method

Participants

The statistical sample consisted of 247 subjects (mean age 34.53, SD 5.93), equally distributed into the two disciplinary classes: 126 with humanistic education (51%) and 121 with technical and scientific education (49%).

In terms of additional sub-variables: “practical experience” had a distribution of 62% subjects that were teachers and 38% that were not. With regards to gender, 149 individuals were women (60%), while 98 were men (40%).

Data Collection

The professional identity image of teachers was constructed from open answers given to participants. These questions concerned self-perception, the subjective description of core-competences attributed to the profession and the value attributed to new technologies for didactics.

Specifically, a semi-structured questionnaire was realized using key concepts developed in the text Insegnare per competenze by Federico Batini (2013). The 22 questions are designed to elicit self-reflection on initial training and professional development, both received and desired. Educational technology and teaching through competences were also themes present in the questions.

In aid of general analysis standard demographic information was also collected.

Data Analysis

Raw data, comprising of participant questionnaire item responses, were subjected to various analysis methods in aid of answering the three research questions as outlined above. Breaking up the communicative unit (written text) into simpler elements (known as lemmas), we managed to proceed in classifying them into a system of categories and, consequently, into variables suitable for statistical treatments of various types (Amaturo, 2013). A lemma is the citation of a word; or rather the root to which each inflection of the term is conventionally traced.

Content analysis, through statistical means, was conducted with the help of the data-driven software T-Lab (Lancia, 2004). This program offers a large range of analysis tools. Three of these methods were used to respond to the primary research questions.

Initially a thematic analysis of elementary contexts (that is, phrases in a text)
useful for identifying recurring themes within a textual corpus was conducted. The textual corpus, divided into phrases, is organized in groupings based on the homogeneity of the content. These explicitly differentiate the professional identities perceived in the sample. Following this, a cluster analysis was conducted, derived from a correspondence analysis performed for the "expertise" variable. This way it was possible to identify the repertoires of meaning given to the teaching profession in reference to the level of experience gained over time. Finally, some key words referring to technological innovations in didactics were identified and an analysis regarding their recursions and the co-occurring terms related to them was executed.

The analysed corpus is composed of 24,971 forms, traced to 14,713 lemmas (common roots), and has a total of 787,859 occurrences (Figure 1).

1st Research Question

The output of the first research objective, produced by the software package T-Lab, is a two-dimensional space in which four clusters, or lemma groups, are located, balanced by the percentage of text strings (Elementary Contexts – EC) involved in their definition. The clusters express the themes that were traced to a generalized image of being a teacher, according to the questionnaire created for that very purpose. In relation to these images no illustrative variable is significantly polarized and the same is true for the variables "practical experience" and "disciplinary class".

We recognise four distinct professional identities:

- The first identity profile regards the definition of a teacher as a transmitter of knowledge. In other words, describing oneself as a knowledge expert. Their mission consists of shaping educated minds and providing students with concepts. They place themselves above the students, who take on a passive role in the educational process.

- The second identity profile describes the teacher as a facilitator of learning and collaboration. As an expert of interactions, he/she motivates reflection and responsibility in students, who are perceived as members of a working group. He/She respects active participation and encourages alternative thinking.

- The third cluster refers to the teacher as a mentor. He/She interacts with students in a non-hierarchical, equal and emotionally involving relationship. His or her mission is primarily to understand and support students along their personal growth path.

- The fourth identity profile describes the teacher as an individual in training. In this profile, the "technological issue" emerges. There is an acknowledgement that the education system needs to use digital technologies but, for this reason, the need for training and professional development is expressed. This need elicits feelings of inadequacy.

2nd Research Question

The cluster analysis also revealed four clusters, but in this case they are the expression of each of four modalities of the variable “expertise”. This was formu-
lated in relation to teaching practice and education of subjects (technical–experts; technical-novices; humanistic-experts; humanistic-novices). Actually, from the disposition of both the space and the value of the V-Test, it can be seen how the curriculum markedly differentiates these students, as opposed to any practical experience in the classroom. The latter variable (practical experience) is even weaker if we consider the sub-sample of humanistic students.

Clusters 1 and 3 are associated with the technological disciplinary class. The first cluster relates to those who boast practical experience and the second to those individuals with no experience in teaching. For both we can see a task orientation (that is, the importance given to the achievement of results) which can be identified in the development of knowledge and skills. The inexperienced ones, however, talk about the role of being a teacher in abstract terms.

Clusters 2 and 4 by contrast, are an expression of humanistic-oriented future teachers. They show greater reflexivity. That is, a stronger attention to the psychological components of their profession. Having gained practical experience also enabled awareness of unconventional models and teaching tools for these participants.

3rd Research Question

In the textual corpus a limited set of terms occur that relate to the new technologies available in the school. The highest incidence was for the term ‘interactive whiteboard’ (IWB) with 246 instances. The lemma ‘e-book’ occurs only 30 times, while the word ‘simulator’ occurs only 14 times. Even the different social networks are scarcely cited with only 53 occurrences. Specifically Facebook appears a mere 29 times. Regarding digital communication tools “e-mail” (33 occurrences) and “forums” (22 occurrences) are each mentioned. In reference to technology, we found many generic terms such as: “digital”, “internet”, “multimedia”, “web” and “technology”. It is interesting to trace the fields of co-occurrences on these words.

The word ‘digital’ is placed in a time dimension, as a watershed between ‘traditional’ and present-day schools. It is connected to the concept of ‘generation’, most likely in reference to the characteristics of the “net generation” often attributed to the young learners of today. References to teaching are lacking, if not for the term ‘simulate’, which refers to the practical approach of learning by doing in an artificially constructed environment.

Based on the correlations to the term ‘simulate’, we understood that this term and its practical meaning are identified as a useful tool for experimentation in a context that, even if protected as with (for example) a laboratory, is still real.

Only the word ‘experience’ appears associated with the term ‘student’, connected to the opportunities reserved for them if a situated and practical form of education is adopted.

The data shows that the logical connection between simulation and experimentation and between virtual and real is still very weak in the sample. The respondents undergo the legacy of a generation of non-digital natives struggling to develop complete e-awareness.
4. Discussion

In the initial phase of the research, the main goal was to detect and understand the professional identity attributed to teachers in order to create and structure adequate training plans for the TFA.

From a general view of what emerged during our analysis, it is possible to see a balance between traditionalist teaching cultures and innovative ones. The “transmitter of knowledge”, but also the “teacher in training” are professional identities that still refer to a culture that believes in the accumulation of knowledge. While the representations of a teacher as a facilitator and a mentor corroborates innovative thinking, for which interpersonal relationships are a resource and creativity and resourcefulness are the basis of culture. This “sensitivity” is not induced by experience, but is rather promoted by humanistic studies. Indeed, the technical and scientific academic paths are anchored to the rational notion of logic and are task oriented. This approach often neglects insights focused on the relational dynamics that underlie the processes of learning. Therefore, the first groups’ impact is on the “know how” of learners, the second groups is focused mostly on the “how to be” paradigm.

Therefore, the challenge to be taken on through training courses for teachers is the strengthening of teacher identity as that of an educator, which appears to be the educational context Italian schools veer towards.

Specifically defining the research questions was useful in order to focus attention on two important issues. The first issue is the effect that a specific educational path, here distinguished in the dichotomous variable “technical vs. humanistic”, has on the teachers’ degree of awareness concerning their core-competences and the level of preparation in the technological field. This is now necessary due to the continuous evolution of the schooling system. After having observed the influence that a specific educational background has on the construction of a professional identity, we consider the need to overcome disciplinary specialization and strengthening pedagogical training as desirable. This can help in understanding the cogency of instructional design according to such models as cooperative learning, teaching through competences and learning by doing.

Moreover, it is necessary to promote reflection on the syllogism that combines three key words: “technology”, “simulation” and “experimentation”. These words collect, within their conceptual fields, the meaning that the digital school instils in the new generations of teachers. Technology, which uses tools to carry out simulations, is now the most viable opportunity in leading learners to the trial and experimentation of their self, to the autonomous, social, and guided construction of the process of growth and training in service of the people and teachers they will become.

5. Practical implications

The most powerful motivation of lifelong learning is the strong need to learn in order to achieve a clear goal in the context of a particular desired role. In addition to this, motivation may come from a purpose derived from a goal, the desire to overcome challenges or the desire to “win”. For a professional teacher, ICT edu-
cation must represent a goal to reach and not merely a certification that should be obtained. Only in this way, by leveraging motivation, will teachers be able to acquire digital presence and, consequently, full e-awareness.

It's essential that higher education (especially post-lauream) provides future teachers the indispensable tools necessary to face the revolutionary range of technology and competences in learning environments. Only education can provide them with the critical tools to redefine the boundaries of teachers’ professional identities and of their educative roles inside today’s school.
References


