

# PRE-SERVICE TEACHERS' SELF-EFFICACY AND PERCEPTIONS ABOUT TEACHING

Lucia Balduzzi, Dina Guglielmi, Ira Vannini, Michela Vignoli

*Department of Education Studies, University of Bologna (ITALY)*

## Abstract

In recent years, in Italy, the issue of secondary school teachers' professionalism has been taking an increasingly prominent position in policy-making and academic debates at a national level. This political interest is demonstrated by the fact that, over the past 15 years, the rules and procedures of teachers' recruitment and training have already been changed three times. In fact, until 1999, the recruitment of the secondary school teacher was implemented through competitions requiring teachers to only hold specific qualifications in the subject-matter taught. According to Lisbon Agreement's principles and indications, starting from 1999, the pre-services training of secondary school teachers was provided at a university level (managed by the Faculties of Education) through a two-years Master (SSIS<sup>1</sup>, Specialisation School for Secondary School teacher). In 2010, the Ministry of Education Decree n.249 established a new annual training course at university level (called TFA<sup>2</sup>, Active Educational Learning).

In this context, it is very important to analyze the pre-service teachers' beliefs in order to understand the attitudes with which they will enter school.

Therefore, the aim of this study was to analyze the role of pre-service teachers' self-efficacy (which refers to both efficacy beliefs relating to work with students and efficacy beliefs concerning teachers' management of their work, also considering collaboration with parents or management of changes) and its relationships with socio-demographical variables and the beliefs in their professionalism. Teachers' beliefs have been investigated through two main opposing assumptions: a) natural gifts, meaning that teachers consider students as having natural gifts so it is difficult to help them if they are for example 'listless'; b) Trust in education and didactics, which means that teachers could play a role in helping students to improve their abilities (also the 'listless ones').

Data of this study were collected in March 2015 during the last TFA provided in Italy. At the beginning of the course 303 pre-service teachers participated in this study by answering to an on-line questionnaire. Most of them were female (67.3%) and worked in an education context (73.3%). Results highlighted some differences in self-efficacy and teachers' beliefs between who were working in an education sector compared to who were not working in an education sector. Furthermore, self-efficacy was related to trust in education and didactics and having experience in an education sector played a role in this relationship. These results highlighted the relevance of studying pre-service teachers' self-efficacy and their beliefs before the beginning of the TFA in order to provide suggestions on how to improve the course resulting in better trained teachers.

Keywords: pre-service teachers, self-efficacy, teachers' beliefs.

## 1 INTRODUCTION

In recent years, the initial training of secondary school teachers has been considered one of the central themes both in educational research debates and in policy agenda. The need to reform teachers' professional preparation is related to the challenge of pedagogical and educational innovation, which is a common issue among Italian schools. The core idea is that pedagogical innovation is rooted in teacher's initial training, which lays the foundation and enhances teacher's professionalism.

The Italian teachers' population is one of the oldest in Europe ([1], p.91). Although almost all in-service teachers have completed a University Bachelor's or a Master's Degree (ISCED 5) or – alternatively – completed a specific teacher training programme, their preparation had more of an academic approach, considering pedagogical subjects and disciplinary teaching ([1], p.92). However, social

<sup>1</sup> Italian translation: Scuola di Specializzazione all'Insegnamento Secondario

<sup>2</sup> Italian translation: Tirocinio Formativo Attivo

motivations were the most important features in changing pre-service teacher training. On one hand, we refer specifically to the OECD results (eg. see [2]), which focus their attention on the quality of education and the role of teacher's background in the schools qualification processes. On the other hand, to the OECD-PISA results that reflect on student's outcomes and compare those outcomes at an international level, underlining strengths and weaknesses of each educational system. Not least, school reforms depended on the family demand of a school able to respond to all the most relevant social problems through specific programmes and education activities. Families and public opinion attributed the cause of student's problems, failures and negative behaviours (bullying, drugs or internet addictions,...) above all to the school inefficiency and to teachers, not recognized as sufficiently skilled in regard to class management, pedagogical and psychological areas [3], [1]).

The social boost to school renewal as well as the benchmark identified in European and international agreements are the most important motives that provoked the three changes, over the past 15 years of the rules and procedures of teachers' recruitment and training. In fact, until 1999, the recruitment of the secondary school teacher was implemented through competitions requiring teachers only to hold specific qualifications in the subject-matter taught. According to Lisbon Agreement's principles and indications, starting from 1999, the pre-services training of secondary school teachers was provided at university level (managed by the Faculties of Education) through a two-years Master (SSIS<sup>3</sup> - Specialisation School for Secondary School teacher); at the end of this specialisation course teachers were qualified to work in secondary schools. The SSIS programme started in 1999 and closed in 2009, after 9 years of activity.

## 1.1 The TFA model

In 2010, the Ministry of Education Decree n.249 established a new one-year training course at university level (called TFA<sup>4</sup>, Active Educational Training). The first TFA programme started in 2014 and so far, Italian universities have organized only 2 editions. The TFA is structured around two main pillars: education and pedagogical subjects (2/3 of the curriculum activities) and training in schools (450 hours which accounts for approximately 1/3 of curriculum activities). Universities provided theoretical courses (such as pedagogy, teaching methodologies, assessment and evaluation practices, history of education, special needs education, subject didactics) while secondary schools hosted trainees for observations, teaching practice and teaching team-group activities under the supervision of a tutor. Universities also organized some workshops where students could analyse and reflect on their training in schools, to help them share and reflect on their learning and experiences.

In this sense, the Italian TFA teaching training model is rooted on a fundamental pedagogical and political value: the necessity of cooperation between schools and universities, at institutional levels as well as at a cultural one. In fact, the TFA curriculum emphasizes the importance of a direct experience, of first-hand competences gained on the field, in schools, working with expert professionals and, at the same time, trying to enhance 'practical learning' through reflection nurtured by the theoretical and epistemological dimension ([4], [5]).

In this context, it is very important to analyze the pre-service self-efficacy and teachers' beliefs in order to understand the attitudes with which they will enter school.

## 1.2 Self-efficacy

The construct of teachers' self-efficacy raised from the theoretical framework of self-efficacy, developed by Bandura [6], which defined self-efficacy as: "belief in one's capabilities to organize and execute the course of action required to produce given attainments" ([6], p.3). Self-efficacy contributes to motivation by influencing the challenges that people pursue, the effort they spend, and their perseverance in the face of obstacles [7]. In fact, self-efficacy represents a self-motivating mechanism: the higher people perceive their levels of competences the more they tend to set themselves goals and are motivated to spend considerable effort and persistence in overcoming obstacles [8].

Specifically, the construct of teachers' self-efficacy could be defined as "individual teachers' belief in their own ability to plan, organize, and carry out activities that are required to attain given educational goals" ([9], p.1059).

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Studies on teachers' self-efficacy showed that it is associated to different constructs both related to teachers' themselves and their students. For example, results of a study conducted in the Italian context by Caprara and colleagues [10] showed that teachers' self-efficacy could influence job satisfaction and students' academic achievement. Moreover, self-efficacy is related to psychological health as the relationship between teachers' self-efficacy and burnout has been widely demonstrated (e.g. [11]). Also, there is wide evidence that self-efficacy may act as an important determinant of different positive work outcomes such as work engagement [12] and life satisfaction [13].

### 1.3 Teachers' beliefs on professionalism

Studies on teachers' beliefs are currently very important in the international debate on *Teacher Change* [14]. These studies have shifted the focus from teacher practices to everything that stands "behind the action", mainly in terms of beliefs and attitudes.

Richardson [15], with other researchers ([16], [17], [18]), analyzed the historical process of enlargement of the objects of study in the field of research on teachers and noted that, in particular, since the mid-seventies (in the United States and throughout the scientific Anglo-Saxon context) a genuine research movement interested in the study of teachers' cognitive processes had begun. Firstly, the focus was on teachers' beliefs concerning school, teaching, profession, student learning ([19], [20], [21], [22]): all thought processes "behind" the educational decisions of the teachers.

However, it is important to analyze how teachers' beliefs are related to teaching professionalism and teachers' training.

Teachers' beliefs have been defined as teacher's convictions about school, the teaching-learning processes, professionalism and the students ([19] [20] [21], [22]).

In general, beliefs – but also motivations, attitudes, representations, convictions – are elements identified by many authors (see [23], [24],[25]; [26]; [27], [28], [29]) as able to affect the change and innovation processes in the schools. On this point, Paquay and colleagues ([30], p.18) indicate within the "skills to teach for a fair and quality school": «the essential attitudes for the profession, such as the belief "on the possibility to be educated", respect for others, the knowledge of their own representations, mastery of their own emotions, openness to collaboration and professional commitment».

These beliefs are extremely important for teachers to structure their vision of reality and to imagine, in practice, the change [15].

In this contribution, we examine some of these important teachers' beliefs in a sample of pre-service teachers who attended the TFA course in 2015 at the University of Bologna.

Specifically, we tried to investigate the closeness/distance of teachers from a belief of school (especially compulsory education) setting clearly democratic, able to bring all students to mastery learning. This level of mastery corresponds to the possession, by each student, of intellectual tools of critical and thoughtful thinking. This is the level of competence necessary to exercise the right to active citizenship.

This conception is structured around a set of beliefs, such as the denial of the ideology of natural talents (from now on called "natural gifts") and the affirmation of the importance of the role of the teacher and his teaching methods on student achievement (from now on called "trust in education and didactics").

Those constructs have already been studied in the Italian context in two previous comparative surveys ([31], [32]). The first survey was conducted during the school year 1999/2000, and involved in-service teachers with an average of about 20 years of teaching. These teachers entered the school after a university program that provided them with only a disciplinary preparation. Later, by a regular contest they became teachers acquiring a teaching qualification. The second survey was conducted during the school year 2005/2006. The participants interviewed were young teachers who entered school after attending the first Italian Master for teacher education (Ministerial Decree of 26 May 1998). This second survey defined different teachers categorized on the attitude to change. Results showed that teachers defined as "responsible and balanced" are more likely to report beliefs of trust in education and didactics, while teachers defined as "confused" are more likely to report beliefs about natural gifts.

Therefore, the aim of this study is to analyze the relationship between self-efficacy and teachers' beliefs (specifically natural gifts and trust in education and didactics) in pre-service teachers.

Furthermore, as in the Italian context people could teach in schools before having the TFA title, therefore, the experience in the education sector has been considered as an intervening variable. In line with this, we also investigated the role played by having experience in the education field in two ways: a) whether there are some differences between who has experience and who has not in the levels of self-efficacy and beliefs about professionalism; b) whether having experience in the education sector could moderate the relationship between self-efficacy and teachers' beliefs on professionalism.

## 2 METHODOLOGY

This cross-sectional study has been conducted in the Italian context and people participated by answering to an on-line questionnaire after giving their consent to participate in the study.

### 2.1 Procedure and participants

A TFA course was organized in 22 groups. During the first day of classes in each group, a participant of the project explained the research to the TFA students and asked for the consent to participate in the study and an e-mail address. After that, an on-line survey was designed and an anonymous link was sent to all participants who gave their consent to participate in the study.

Overall, 394 students gave their consent to participate in the study and 303 people answered the questionnaire (response rate=76.9%). Most of the participants (67.3%) were female. The minimum age was 24 years old, while the maximum age was 56 years old (mean age=32.04; st.dev=6.19).

Considering seniority, 25.1% had never worked before, 14% worked from 0 to 6 months, 15.8% worked from 6-12 months, 21.5% worked from 1 to 3 years, 17.2% worked from 3 to 5 years and 17.2% worked for more than 5 years before starting the course. Furthermore, regarding experience in the educational sector of the participants, 73.3% were teaching or were working in the education sector, while 26.7% were not working or were working in other sectors.

### 2.2 Measures

The questionnaire included socio-demographical variables and scales aimed to investigate the self-efficacy perception and beliefs on professionalism.

#### 2.2.1 *Self-Efficacy*

In order to investigate self-efficacy, the Italian validation [33] of the Norwegian Teacher Self-Efficacy Scale (NTSES, [34]) has been used. Specifically, this scale is composed of 24 items divided in 6 different dimensions all ranged from 1 (not certain at all) to 7 (absolutely certain). For each of the following dimensions an example item has been provided.

1. Instruction: "How certain are you that you are able to answer students' questions so that they understand difficult problems?";
2. Adapting education to individual needs: "How certain are you that you can provide realistic challenges for all students even in mixed ability classes?";
3. Cooperating with colleagues and parents: "How certain are you that you can find adequate solutions to conflicts of interest with other teachers?";
4. Coping with change: "How certain are you to be able to get all students in class to work hard with their schoolwork?";
5. Motivating students: "How certain are you able to arouse the desire to learn even among the lowest achieving students?";
6. Maintaining discipline: "How certain are you able to maintain discipline in any school class or group of students?"

#### 2.2.2 *Teachers' beliefs*

The Likert scale used in order to investigate beliefs on professionalism is divided in two dimensions statistically homogeneous, denominated "natural gifts" and "trust in education and didactics".

The natural gifts dimension is composed of 6 items ranged from 1 (“totally disagree”) to 4 (“totally agree”). One example item is “The ease of learning of a student is linked to its natural endowments”

Trust in education and didactics dimension is composed of 5 items ranged from 1 (“totally disagree”) to 4 (“totally agree”). One example item is “If a teacher, from the beginning of the school year, puts effort in identifying students’ weaknesses and strengths’ on their knowledge, he/she certainly will be able to help students with gaps”.

### 2.3 Data analysis

Firstly, the data analyses used, were descriptive statistics and correlations. ANOVA analyses have been performed in order to analyze whether there were any differences concerning workers with experience in the education sector and participants without this kind of experience. Furthermore, moderation analyses through the Preacher and Hayes approach [35] have been performed, in order to analyze whether having experience in the education sector could play a role in the relationship between self-efficacy and beliefs on professionalism.

## 3 RESULTS

Data provided in table 1 shows that all the Cronbach’s Alpha values of the dimensions investigated were good, as all of them met the thresholds of .70 except for the dimensions of natural gifts and trust in education and didactics [36]. As reported in table 1, self-efficacy is positively related with trust in education and didactics, while there is no relationship between self-efficacy and natural gifts.

Furthermore, correlations showed that sub-dimensions of self-efficacy are all positively correlated between them. Concerning the other variables, we found that gender is related to seniority, while age is related to experience, seniority and the sub-dimension of cooperation. Having experience in the education sector is related to many variables such as seniority, all the self-efficacy sub-dimensions and trust, while no relationship has been found between having experience in the education sector and natural gifts.

Table 1 - Correlation matrix

	Alpha	m	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender <sup>a</sup>	-	-	-												
2. Age	-	32.04	6.19	.073											
3. Experience <sup>b</sup>	-	-	-	.056	.184***										
4. Seniority <sup>c</sup>	-	-	-	.115*	.430***	.599***									
5. Instruction	.854	5.1	.939	-.035	.065	.215***	.217***								
6. Adaptation	.869	4.441	1.051	.030	.075	.222***	.246***	.728***							
7. Cooperation	.858	4.763	1.049	.026	.137*	.200***	.245***	.640***	.635***						
8. Coping change	.810	4.309	.977	.008	.061	.222***	.266***	.729***	.742***	.662***					
9. Motivation	.813	4.460	.926	-.011	.042	.232***	.247***	.757***	.848***	.589***	.754***				
10. Discipline	.920	4.219	1.221	-.064	.102	.236***	.271***	.638***	.671***	.546***	.630***	.700***			
11. Self-Efficacy	.959	4.549	.880	-.010	.096	.259***	.292***	.866***	.897***	.791***	.872***	.898***	.826***		
12. Natural gifts	.691	1.909	.449	-.070	-.015	.066	.064	-.080	-.110	-.002	.027	-.071	-.067	-.059	
13. Trust Educ	.637	3.437	.383	.097	.110	.152**	.045	.159**	.166**	.128*	.094	.147**	.151**	.165**	-.344***

Legend: N=303; <sup>a</sup>Female=1; <sup>b</sup>Having experience=1; <sup>c</sup>No Seniority=1

In addition, having experience in the education sector has been studied in order to analyse whether there were differences in the variables investigated between who has experience in respect to who has not.

Results obtained through the ANOVA analysis (Table 2) showed that generally, participants who already have experience in the education sector reported higher levels of self-efficacy, both measured as the overall construct and all the sub-dimensions. Concerning teachers’ beliefs on professionalism, results showed that there are no differences between participants who have experience compared to who does not have experience in believing ideology of natural gifts. Whereas, participants who already have experience in the educational sector reported higher levels of trust in education and didactics.

Table 2 – Differences between having experience or not in the education sector and perceived self-efficacy and teachers' beliefs on professionalism

Variables	Experience (N=222)		No Experience (N=81)		F	p
	mean	sd	mean	sd		
Instruction	5.222	.890	4.765	.992	14.647	.000
Adaptation	4.582	1.007	4.056	1.079	15.627	.000
Cooperation	4.890	1.012	4.417	1.077	12.525	.000
Coping change	4.440	.920	3.951	1.045	15.623	.000
Motivation	4.590	.854	4.105	1.023	17.088	.000
Discipline	4.393	1.159	3.744	1.266	17.708	.000
Self-efficacy	4.686	.815	4.173	.942	21.574	.000
Natural gifts	1.927	.472	1.860	.380	1.323	.251
Trust Education	3.472	.368	3.341	.410	7.105	.008

Furthermore, we investigated whether there was an interaction between self-efficacy (considered as an overall construct) and having experience in the educational sector on the teachers' beliefs investigated (natural gifts and trust in education and didactics).

Results showed that an interaction effect existed only when the belief on professionalism considered is trust in education and didactics (Table 3). Specifically, results showed that both self-efficacy and experience positively influence beliefs about trust in education and didactics.

Table 3 – Interaction effect between self-efficacy and experience on trust in education and didactics

Variables	B	SE	t	p	LLCI	ULCI
Constant	3.264	.117	27.930	.000	3.034	3.49
Gender <sup>a</sup>	.089	.046	1.949	.052	-.001	.180
Age	.008	.004	2.100	.037	.005	.016
Seniority <sup>c</sup>	-.045	.017	-2.658	.008	-.078	-.012
Self-Efficacy	.077	.026	2.985	.003	.026	.128
Experience <sup>b</sup>	.201	.063	3.197	.001	.077	.325
Self-efficacy x Experience	.116	.054	2.134	.037	.001	.016
Model	R	R <sup>2</sup>	$\Delta R^2$	MSE	F	p
Model Summary	.291	.085	-	.137	4.579	.000
Interaction	-	-	.014	-	4.556	.034

Legend: N=303; <sup>a</sup>Female=1; <sup>b</sup>Having experience= 1; <sup>c</sup>No Seniority=1

Furthermore, as illustrated in Fig 1., pre-service teachers who have work experience and high self-efficacy report higher levels of trust in education and didactics, while in pre-service teachers who do not have work experience, there is no difference between different levels of self-efficacy in the effect on trust in education and didactics.

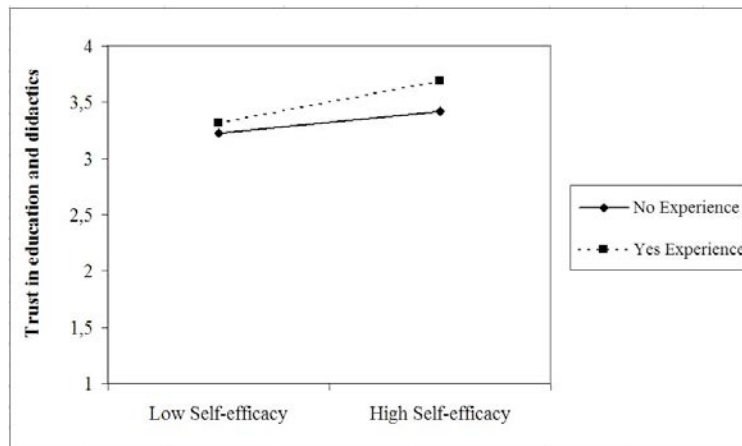


Fig. 1 – Interaction between self-efficacy and Work Experience on trust in education and didactics.

#### 4 CONCLUSION

The main aim of this study was to analyze the relationships between pre-service teachers' self-efficacy, beliefs about their professionalism and having experience in the education sector. Results showed that self-efficacy is related to trust in education and didactics but not to natural gifts. Moreover, we tested whether pre-service teachers who have experience in the education field report different levels on self-efficacy and beliefs compared to their colleagues with no experience in the field.

Results showed significant differences in all the variables considered, except for the beliefs about natural gifts. Specifically, pre-service teachers with experience in the education sector reported higher levels in all the self-efficacy dimensions (except for adapting education to individual needs) and in trust in education and didactics.

Furthermore, we conducted a moderation analysis in order to test whether having experience in the education field could play a role in the relationship between the perception of self-efficacy and trust in education and didactics. Results of this analysis showed that pre-service teachers who already have experience in the education sector report higher levels of trust in teaching compared to their colleagues with no experience. Between pre-service teachers with lower levels of self-efficacy, there is no difference between teachers with experience compared to teachers without experience in the levels of trust in teaching.

Those results highlight the role played by having experience in the education sector in determining the beliefs about trust in education and didactics and perceived self-efficacy. On the contrary, having experience in the education sector seems to not be related to the beliefs about natural gifts.

Teachers' beliefs about natural gifts exist also in the pre-service teachers of our sample, even if there seems to be no difference between pre-service teachers with experience in the education sector in respect to who has not. This is because, beliefs about students' natural gifts could rise before starting the teaching career in life experiences in personal contexts, such as experiences with children or students. On the contrary, pre-service teachers who already have experience in the education sector could have modified their beliefs about trust in teaching through their direct experience on the field. Thus, practice in classrooms could provide evidence for the fact that it is possible to help and support students who have educational gaps and lead all the class' students to similar levels of learning through appropriate teaching methods.

Therefore, as our results highlighted the role played by having experience in the field, it is important to appropriately design the part of apprenticeship included in the TFA course in order to allow future teachers to reflect on the efficacy of the teaching methods used. Also results concerning the interaction effect between perceived self-efficacy and having experience in the education sector on trust in education and didactics are in line with those arguments.

Furthermore, our results support other studies (e.g. [37]), which found that teachers with higher levels of self-efficacy tend to use procedures of training evaluation: they do not stigmatize students' mistakes, they modify their teaching didactics and help students to try again.

In general, our results are based on an Italian context, which could be quite different to other countries. In fact, most of the TFA students are not actually “pure” pre-service teachers as they were already teaching before starting the TFA course. This could probably influence their beliefs about didactics, which could change through first hand experience.

This situation could both represent a bond and at the same time an opportunity to better design a pre-service course, which should rise on an analysis of the pre-service teachers real experiences in order to critically analyse the potential links with the theory and to remodel the future teachers beliefs. This highlights the importance to train future Italian teachers with skills in educational-methodological procedures, with tools to motivate and enhance learning of the students, but also with beliefs on a democratic education and on a school of high quality for all students.

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