

Factors that Contribute to the Improvement of the Sense of Self-Efficacy of Special Educators in Inclusive Settings in Greece

Sotiria Tzivnikou, Dimitra Kagkara

Abstract—Teacher's sense of self-efficacy can affect significantly both teacher's and student's performance. More specific, self-efficacy is associated with the learning outcomes as well as student's motivation and self-efficacy. For example, teachers with high sense of self-efficacy are more open to innovations and invest more effort in teaching. In addition to this, effective inclusive education is associated with higher levels of teacher's self-efficacy. Pre-service teachers with high levels of self-efficacy could handle student's behavior better and more effectively assist students with special educational needs. Teacher preparation programs are also important, because teacher's efficacy beliefs are shaped early in learning, as a result the quality of teacher's education programs can affect the sense of self-efficacy of pre-service teachers. Usually, a number of pre-service teachers do not consider themselves well prepared to work with students with special educational needs and do not have the appropriate sense of self-efficacy. This study aims to investigate the factors that contribute to the improvement of the sense of self-efficacy of pre-service special educators by using an academic practicum training program. The sample of this study is 159 pre-service special educators, who also participated in the academic practicum training program. For the purpose of this study were used quantitative methods for data collection and analysis. Teacher's self-efficacy was assessed by the teachers themselves with the completion of a questionnaire which was based on the scale of Teacher's Sense of Efficacy Scale. Pre and post measurements of teacher's self-efficacy were taken. The results of the survey are consistent with those of the international literature. The results indicate that a significant number of pre-service special educators do not hold the appropriate sense of self-efficacy regarding teaching students with special educational needs. Moreover, a quality academic training program constitutes a crucial factor for the improvement of the sense of self-efficacy of pre-service special educators, as additional for the provision of high quality inclusive education.

Keywords—Inclusive education, pre-service, self-efficacy, training program.

I. INTRODUCTION

TEACHER'S self-efficacy is the confidence teachers hold about their efficiency to influence student learning and is considered one of the fundamental motivation beliefs influencing teacher's professional behaviors and student learning [1]. Teacher self-efficacy is a teacher's anticipation that he or she will be able to bring about student learning. Reviews of research demonstrate that teachers with high self-efficacy beliefs generate stronger student achievement than

teachers with lower self-efficacy [2]. Teachers with higher self-efficacy measures are more likely to try out new teaching ideas, particularly techniques that are difficult, involve risks and require that control be shared with students [2]. The use of such strategies conduces to increased achievement. In addition to this, they are able to use classroom management approaches that stimulate student autonomy and reduce custodial control. Student achievement is higher because these management strategies are more effective in keeping students on task. Also, they are more successful because they respond more closely and carefully to the needs of lower ability students. Finally, teacher self-efficacy leads to changes in teacher behavior which change students' perceptions of their academic abilities [2].

As it was mentioned before teacher self-efficacy is the confidence teachers have about their individual and collective ability to affect student learning and is considered one of the basic motivation beliefs influencing teacher's professional behaviors and student learning [1]. The sense of self efficacy that special educators have is associated with desired outcomes of student involvement and learning for students presenting with special educational needs or difficult behavior [1]. Apparently, teacher's self-efficacy is one of the most important factors affecting student's with or without special educational needs academic achievement [3].

Pre-service teachers' self-efficacy is associated with the level they participate in teacher training programs [4]. According to research findings, significant differences have been found between Taiwanese and U.S. pre-service teachers' self-efficacy beliefs at the beginning and ending levels [4]. In addition, studies have found significant differences in self-efficacy between the beginning and the end of student teaching training program [5]. For measures from a previous study both PTE and GTE, the changes from the beginning of the teacher program to the end of student teaching appear to have significant increases in efficacy [5]. It was revealed that ending-level pre-service teacher's beliefs regarding the personal teaching efficacy and professional knowledge efficacy factors had higher scores than the beginning-level and there were significant differences between the groups [5]. So, the findings showed that teacher training programs have a positive impact in gaining the adequate ability on how pre-service teachers apply professional knowledge. The results of studies revealed that training program is comparatively effective in improving and developing pre-service teacher's efficacy beliefs. It can be said that it contributes to improve

Sotiria Tzivnikou and Dimitra Kagkara are with the University of Thessaly, Department of Special Education (e-mail: sotitzivi@hotmail.com, dimitrakagkara8@gmail.com).

the ability to plan teaching and perform teaching during teacher training program, and this improves student teachers' efficacy beliefs [3].

As most special education intern teachers go into the field of teaching with limited exposure to students with disabilities and with minimal teaching experience, the role of teacher preparation programs becomes more critical. Teacher's self-confidence in skills and knowledge as special education teachers seems to be highly related to their perceived efficacy. The results of previous study highlight the importance of well-designed and effective teacher education programs that provide a high quality education [6].

Teacher's efficacy beliefs are associated with their participation in training programs [3]. This might be due to the extensive verbal and written feedback from the mentors throughout the student teaching experience [7]. The results of a study that was conducted with elementary undergraduate pre-service teachers are consistent with a previous study who found similar outcomes with secondary graduate-level teachers; in both studies the levels of self-efficacy were higher after the training program [5]. In another research it was reported a moderate, positive relationship ($r = 0.37, p < .01$) between efficacy beliefs and student teacher's perception of mentor support [5]. These findings are also consistent with similar study that was conducted in the United Arab Emirates [8]. In that study it was used a pre-post survey to measure elementary student teacher's technology integration self-efficacy beliefs and then selected the top 25% on this measure to participate in a structured interview to identify perceived sources of self-efficacy beliefs. Mastery experiences, support, and positive feedback from supervisors and cooperating teachers were identified as important in developing efficacy [8]. In the case of student teaching, verbal persuasion by the mentors often follows a mastery experience during an observation, has been shown to be significant powerful for developing efficacy [7].

Determining the level of pre-service teacher's self-efficacy belief may contribute to forecast how they will behave during in-service based on self-efficacy feelings. Also, it may be important concerning the efficiency of teacher training programs in determining the effectiveness level of teacher training on pre-service teacher's self-efficacy beliefs [3]. Bandura's theory of self-efficacy suggests that efficacy may be most malleable early in learning, thus the first years of teaching could be critical to the long-term development of teacher efficacy [9]. Pre-service teacher's self-efficacy beliefs are related with the level they attend teacher training programs. Additionally, since a resistance against change is observed as the self-efficacy belief arises [9], this issue is crucial to be investigated on pre-service teachers in several studies [3].

Despite the importance of the training programs there have been few studies reporting the effects of interventions who aimed to increase teacher's sense of self-efficacy [2]. Although findings associate teacher's attitudes and practices with different levels of efficacy, it remains unclear which factors can strengthen efficacy [1]. Taking in consideration the

fact that the importance of teacher's sense of efficacy for quality teaching has been established, more research is needed to understand what specifically leads to its development. One important factor may be elements of teacher preparation, an area recommended as a focus of future research on teacher's sense of efficacy [7].

II. AIM OF THE STUDY

A variety of studies have shown that teacher's sense of self-efficacy is strongly associated with positive learning outcomes and training programs can improve the teacher's sense of self-efficacy, but there is a lack of corresponding scientific data coming from Greek educational research. Moreover, regardless the fact that previous research connects the training programs of pre-service special educators with higher levels of self-efficacy and the fact that have been developed plenty of training programs for special educators in Greece the last years, there is not systematic record regarding the correlation between training programs and special educator's sense of self-efficacy. For that reasons the present study aims to investigate further the factors that contribute to the improvement of the self-efficacy beliefs of the pre-service special educators.

III. RESEARCH QUESTIONS

Based on the above-mentioned data, this research aims to answer the following research questions:

- 1) Is it a training program for pre-service special educators a factor that can contribute to the improvement of special educator's sense of self-efficacy;
- 2) Is it possible a training program for pre-service special educators to:
 - a) Improve special educator's self-efficacy for student engagement;
 - b) Improve special educator's self-efficacy for instructional strategies
 - c) Improve special educator's self-efficacy for classroom management;

IV. METHODOLOGY

A. Sample of Research

The research participants were 159 pre-service special educators, who were students at the final year at the University of Thessalia, at the Department of Special Education. All the participants enrolled and completed the six-month training program of the university. None of the participants hold previous teaching experience in inclusive settings.

B. Procedure

The training program for pre-service special educators was separated in two phases. In the first phase which included the theoretical framework of the training program 30-hour lectures were delivered on theoretical topics regarding the design and implementation of best practices and effective interventions for students with various problems and disorders, such as learning disabilities, autism, behavior problems and mild

mental retardation. In this phase reflection and feedback were given to the students regarding their questions on the theoretical framework.

The second phase included a 70-hour practicum, during 10 weeks. More specific, each student was placed in an inclusive classroom and was expected to design and implement an intervention program for a student with learning difficulties. During this procedure, the teachers were provided with consistent supervision/monitoring, support and feedback by the scientific coordinators of the training program. Every week students had an hour meeting with their scientific coordinators in which they were provided with feedback and useful advices regarding the design and the implementation of their teaching program.

The main characteristic of both phases was the fact that students had continuous coaching and they were given feedback and reflections regarding their work. The estimation of the effectiveness of the training-program the participants based on the estimation of their sense of self-efficacy before the training and after the training program. So, the participants filled in the TSES 24-item checklist that was adapted by the first author, based on Tschannen-Moran & Woolfolk questionnaire [10], [11].

In order to investigate the effectiveness of the training-program the participants filled in the TSES 24-item checklist which was translated in Greek [9] estimating their sense of self-efficacy before the training and after the training program.

C. Data Collection

In this study quantitative methods for data collection were used. An instrument from literature was used for data

collection. The teacher efficacy was measured with the TSES 24-item long form (translated in Greek) [9]. All of these items were grouped into the three subscales (8 items for each scale), a) efficacy for student engagement (SE) (8 items), b) efficacy for instructional strategies (IS) (8 items), and c) efficacy for classroom management (CM) (8 items). Participants responded to each of the question using a rating scale, ranging from 1 (nothing) to 9 (a great deal).

D. Data Analysis

Descriptive statistics were used for data analysis. One sample t-test was used to analyze the means between before and after the training program. One-way ANOVA was also implemented in order to investigate if there are statistical significant correlations before and after the training program. And also, the internal consistency was evaluated via the Cronbach's alpha coefficient.

V. RESULTS

The results of the present study regarding the first research question have shown that the training program is an important factor, which can improve the self-esteem of special educator's. More specifically, the mean scores in Tables I and II verify the fact that the training program is a crucial factor for the improvement of special educator's self-esteem, as in all 24 questions of the TSES 24-item long form the mean scores are higher after the training program. It seems that the training program had an impact on the sense of self-efficacy of the pre-service special educators.

TABLE I
 MEAN SCORES OF THE TSES 24-ITEM CHECKLIST BEFORE THE TRAINING PROGRAM. ADAPTED BY THE FIRST AUTHOR, BASED ON TSCHANNEN-MORAN & WOOLFOLK HOY QUESTIONNAIRE [11], [9]

	N	Mean	Std. Deviation	Std. Error Mean
1. How well can you cope with the most difficult students	158	6,38	1,104	,088
2. To what extend can you offer help to your students to think critically	158	6,37	1,279	,102
3. How well can you manage disruptive behavior in the classroom	158	6,42	1,130	,090
4. Can you increase motivation of students who appear with low interest in school work	158	6,88	1,186	,094
5. To what level is it possible for you to explain your expectations about student behavior	158	6,89	1,203	,096
6. In what level can you help students to believe they can do well in school work	158	7,51	1,014	,081
7. Are you well prepared to answer to difficult questions from your students	158	6,80	1,133	,090
8. Is it possible for you to create routines to keep activities running smoothly	158	6,63	1,403	,112
9. In what level can you help your students to appreciate learning	158	6,51	1,235	,098
10. To what level can you asses student understanding of what you have teach	158	6,82	1,244	,099
11. To what level can you design good questions for your students	158	6,81	1,206	,096
12. To what level is it possible for you to empower student creativity	158	7,03	1,137	,090
13. To what level can yo make children to stick with the classroom rules	158	6,26	1,232	,098
14. To what extent can you increase the understanding of a student who is failing	158	6,49	1,198	,095
15. To what level can you manage a student who is uncontrollable or noisy	158	6,46	1,295	,103
16. To what level can you manage each group of students	158	5,94	1,573	,125
17. How well can you regulate your lessons to the appropriate level for individual students	158	6,70	1,300	,103
18. How well can you apply a big range of assessment strategies	158	6,66	1,296	,103
19. To what level can you manage a number of problem students from destroying the lesson	158	7,05	1,008	,080
20. To what level can you give a different example when students do not understand	158	7,13	1,240	,099
21. How well can you respond to defiant students	158	6,47	1,198	,095
22. How much can you assist families in helping their children do well in school	158	6,35	1,392	,111
23. How well can you implement alternative strategies in your classroom	158	6,61	1,128	,090
24. How well can you provide appropriate challenges for very capable students	158	6,90	1,169	,093

TABLE II
MEAN SCORES OF THE TSES 24-ITEM CHECKLIST AFTER THE TRAINING PROGRAM ADAPTED BY THE FIRST AUTHOR, BASED ON TSCHANNEN-MORAN & WOOLFOLK HOY QUESTIONNAIRE [10], [11]

	N	Mean	Std. Deviation	Std. Error Mean
1. How well can you cope with the most difficult students	142	6,68	1,257	,105
2. To what extend can you offer help to your students to think critically	142	7,02	1,088	,091
3. How well can you manage disruptive behavior in the classroom	142	7,08	1,062	,089
4. Can you increase motivation of students who appear with low interest in school work	142	7,44	1,146	,096
5. To what level is it possible for you to explain your expectations about student behavior	142	7,32	1,082	,091
6. In what level can you help students to believe they can do well in school work	142	7,92	1,004	,084
7. Are you well prepared to answer to difficult questions from your students	142	7,51	1,090	,091
8. Is it possible for you to create routines to keep activities running smoothly	142	7,05	1,572	,132
9. In what level can you help your students to appreciate learning	142	7,06	1,168	,098
10. To what level can you asses student understanding of what you have teach	142	7,58	1,093	,092
11. To what level can you design good questions for your students	142	7,62	1,050	,088
12. To what level is it possible for you to empower student creativity	142	7,65	1,066	,089
13. To what level can yo make children to stick with the classroom rules	142	7,20	1,082	,091
14. To what extent can you increase the understanding of a student who is failing	142	7,20	1,049	,088
15. To what level can you manage a student who is uncontrollable or noisy	142	7,23	1,041	,087
16. To what level can you manage each group of students	142	6,89	1,096	,092
17. How well can you regulate your lessons to the appropriate level for individual students	142	7,51	,987	,083
18. How well can you apply a big range of assessment strategies	142	7,38	1,077	,090
19. To what level can you manage a number of problem students from destroying the lesson	142	7,61	,995	,084
20. To what level can you give a differrent example when students do not understand	142	7,65	,931	,078
21. How well can you respond to defiant students	142	7,10	1,087	,091
22. How much can you assist families in helping their children do well in school	142	6,89	1,300	,109
23. How well can you implement alternative strategies in your classroom	142	7,27	1,039	,087
24. How well can you provide appropriate challenges for very capable students	142	7,27	1,342	,113

The comparison of the mean scores also revealed that the training program improved special educator's self-efficacy for student engagement. More specifically, in question 4 the mean was higher after the training program (mean=7,44). Meaning that after the training program pre-service special educators have better sense of self-efficacy regarding how much they can do to increase motivation of students who appear with low interest in school work. Another important difference in mean score is in question 6 (mean=7,92). After the training program, pre-service special educators believe that they can do better to help students to achieve better results in school work.

Higher mean scores after the training program also imply the existence of higher special educator's self-efficacy for instructional strategies. For example, in question 17 there is a big difference in mean scores as before the training program (mean=6.76) and after the training program (mean=7.51), showing that special educators had better self-efficacy for instructional strategies after the training program and could better regulate their lessons to the appropriate level for individual students. In addition to this, higher mean score also persists in question 18 (mean=7.38) and in question 20 (mean=7.65), expressing the improved self-efficacy for instructional strategies regarding how well they can use a big range of assessment strategies and to what level they can give a different example when students do not understand.

Same results consist about special educator's self-efficacy for classroom management after the training program. Higher mean scores in question 3 (mean=7.08), question 13 (mean=7.20), question 15 (mean=7.23) and question 16 (mean=6.89), show that after the training program their self-

efficacy for classroom management has risen as it has improved their belief regarding how well they can do to manage disruptive behavior in the classroom, the level that they can make children to stick with classroom rules, the level they can manage a student who is uncontrollable or noisy and how well they can each group of students.

One-way ANOVA was also implemented in order to investigate if there are statistical significant correlations in the perceived sense of self-efficacy of special educators before and after the training program.

The ANOVA results revealed that there is a statistically significant difference between the means of the all subscales of the TSES ($p < 0.05$), estimated before and after the training program. Answering the first research question, the training program seems to play an important role in the improvement of special educator's sense of self-efficacy as in all 24 items ($p < 0.05$).

ANOVA results confirm that the training program can improve special educator's efficacy for student engagement. More specifically, there is statistically significant difference between the two phases (after and before the program) for the all of 8-items student engagement ($p < 0.05$), that means that the special educators can increase the motivation of students who show low interest in school work ($p < 0.05$, $p = 0.000$). Also, statistically significant correlation exists between the training program and the level that special educators can help students to believe they can do well in school work ($p < 0.05$, $p = 0.000$). The training program impacts the level that special educators can get students to believe they can do well in school work ($p < 0.05$, $p = 0.000$) as well as the level of how

much special educators can do to help students appreciate learning ($p < 0.05$, $p = 0.000$).

TABLE III
ANOVA OF THE TSES 24-ITEM CHECKLIST BEFORE AND AFTER THE TRAINING PROGRAM. ADAPTED BY THE FIRST AUTHOR, BASED ON TSCHANNEN-MORAN & WOOLFOLK HOY QUESTIONNAIRE [10], [11]

		Sum of Squares	df	Mean Square	F	Sig.
1. How well can you cope with the most difficult students	Between Groups	6,882	1	6,882	4,954	,027
	Within Groups	413,955	298	1,389		
	Total	420,837	299			
2. To what extent can you offer help to your students to think critically	Between Groups	31,991	1	31,991	22,503	,000
	Within Groups	423,645	298	1,422		
	Total	455,637	299			
3. How well can you manage disruptive behavior in the classroom	Between Groups	32,622	1	32,622	27,036	,000
	Within Groups	359,575	298	1,207		
	Total	392,197	299			
4. Can you increase motivation of students who appear with low interest in school work	Between Groups	23,782	1	23,782	17,466	,000
	Within Groups	405,764	298	1,362		
	Total	429,547	299			
5. To what level is it possible for you to explain your expectations about student behavior	Between Groups	13,927	1	13,927	10,580	,001
	Within Groups	392,269	298	1,316		
	Total	406,197	299			
6. To what level can you help students to believe they can do well in school work	Between Groups	12,955	1	12,955	12,714	,000
	Within Groups	303,642	298	1,019		
	Total	316,597	299			
7. Are you well prepared to answer to difficult questions from your students	Between Groups	38,406	1	38,406	31,017	,000
	Within Groups	368,991	298	1,238		
	Total	407,397	299			
8. Is it possible for you to create routines to keep activities running smoothly	Between Groups	13,363	1	13,363	6,056	,014
	Within Groups	657,623	298	2,207		
	Total	670,987	299			
9. To what level can you help your students to appreciate learning	Between Groups	23,207	1	23,207	16,011	,000
	Within Groups	431,923	298	1,449		
	Total	455,130	299			
10. To what level can you assess student understanding of what you have teach	Between Groups	43,393	1	43,393	31,422	,000
	Within Groups	411,524	298	1,381		
	Total	454,917	299			
11. To what level can you design good questions for your students	Between Groups	49,018	1	49,018	38,063	,000
	Within Groups	383,769	298	1,288		
	Total	432,787	299			
12. To what level is it possible for you to empower student creativity	Between Groups	29,053	1	29,053	23,855	,000
	Within Groups	362,933	298	1,218		
	Total	391,987	299			
13. To what level can you make children to stick with the classroom rules	Between Groups	66,748	1	66,748	49,304	,000
	Within Groups	403,438	298	1,354		
	Total	470,187	299			
14. To what extent can you increase the understanding of a student who is failing	Between Groups	38,435	1	38,435	30,097	,000
	Within Groups	380,552	298	1,277		
	Total	418,987	299			
15. To what level can you manage a student who is uncontrollable or noisy	Between Groups	44,301	1	44,301	31,737	,000
	Within Groups	415,979	298	1,396		
	Total	460,280	299			
16. To what level can you manage each group of students	Between Groups	67,684	1	67,684	36,153	,000
	Within Groups	557,903	298	1,872		
	Total	625,587	299			
17. How well can you regulate your lessons to the appropriate level for individual students	Between Groups	49,169	1	49,169	36,367	,000
	Within Groups	402,911	298	1,352		
	Total	452,080	299			
18. How well can you apply a big range of assessment strategies	Between Groups	38,991	1	38,991	27,211	,000
	Within Groups	427,009	298	1,433		
	Total	466,000	299			

		Sum of Squares	df	Mean Square	F	Sig.
19. To what level can you manage a number of problem students from destroying the lesson	Between Groups	23,625	1	23,625	23,523	,000
	Within Groups	299,292	298	1,004		
	Total	322,917	299			
20. To what level can you give a different example when students do not understand	Between Groups	20,877	1	20,877	17,112	,000
	Within Groups	363,560	298	1,220		
	Total	384,437	299			
21. How well can you respond to defiant students	Between Groups	29,112	1	29,112	22,130	,000
	Within Groups	392,018	298	1,315		
	Total	421,130	299			
22. How much can you assist families in helping their children do well in school	Between Groups	21,238	1	21,238	11,669	,001
	Within Groups	542,349	298	1,820		
	Total	563,587	299			
23. How well can you implement alternative strategies in your classroom	Between Groups	33,277	1	33,277	28,175	,000
	Within Groups	351,960	298	1,181		
	Total	385,237	299			
24. How well can you provide appropriate challenges for very capable students	Between Groups	10,176	1	10,176	6,477	,011
	Within Groups	468,211	298	1,571		
	Total	478,387	299			

As it concerns the correlation between the subscale of efficacy for instructional strategies and the training program, it appears to be a statistically significant correlation as in 8-items of this subscale ($p < 0.05$). Training program affects the extent that special educators can design good questions for their students ($p < 0.05$, $p = 0.000$) and the level of how much they can do to regulate their lessons to the appropriate level for individual students ($p < 0.05$, $p = 0.000$). It is important that the training program is associated with how well they can provide appropriate challenges for very capable students ($p < 0.05$, $p = 0.011$).

Finally, there is a statistically significant association of the training program with the third subscale of efficacy for classroom management, as in all 8-item of the subscale of efficacy for classroom management ($p < 0.05$). For example, there are statistically significant associations between the training program and the level that special educators can manage disruptive behavior in the classroom ($p < 0.05$, $p = 0.000$) and the level they can make children to stick with classroom rules ($p < 0.05$, $p = 0.000$). Additionally, there is statistically significant association with the level of how much they can do to manage a student who is uncontrollable or noisy ($p < 0.05$, $p = 0.000$). As a conclusion the ANOVA results indicate that there is a statistically significant association between the training program and the sense of self-efficacy of pre-service special educators in inclusive settings in Greece as in all 24 items of TSES 24-item long form ($p < 0.05$).

V. DISCUSSION

The present study evaluated an in-service training program as a factor that can contribute to the improvement of self-efficacy of pre-service special educators. The program was evaluated from the pre-service educators with pre-post and after-post measures using the TSES 24-item long form for teacher self-efficacy. The findings of the present study were in consistency with the findings of the previous research of the first author, that revealed that there is an amount of pre-service

special educators who do not hold the appropriate sense of self-efficacy when they have to teach students with special educational needs [10]. According to research, significant differences have been found between Taiwanese and U.S. pre-service teacher's efficacy beliefs at the beginning and ending levels of the training program [4]. In addition, significant differences have been found for the GTE and PTE scale between the beginning and the end of student teaching training program [9]. For measures regarding both PTE and GTE, the changes from the beginning of the teacher program to the end of student teaching program represent significant increases in efficacy. It was revealed that ending-level pre-service teachers' beliefs regarding the personal teaching efficacy and professional knowledge efficacy factors had higher scores than the beginning-level and there were significant differences between the groups [9].

The findings also showed that the training program had a significant impact in the improvement of the sense of self-efficacy of pre-service special educators and it could improve special educators' teaching skills in order to provide students with special educational needs higher quality of education. From the mean scores of the questionnaire from pre-post and after-post measurements there is remarkable improvement of the sense of self-efficacy that special educator had after the training program. After the training program there were higher mean scores in all three subscales of the questionnaire that implies that special educators had better sense of self-efficacy regarding student engagement, instructional strategies and classroom management. For example, after the training program pre-service special educators had better sense of self-efficacy regarding the level they can increase the motivation of students who show low interest in school work and they can do better to help students to believe they can do well in school work. Previous studies have found that training programs program had a positive effect on teacher expectations about their ability to handle student management issues [5]. Similarly, it has been reported that preservice teachers who had completed the training program and appeared to have high

levels of self-efficacy were more possible to use effective teaching practices [1].

The pre and post training differences in the self-efficacy were statistically significant, meaning that the training program has a statistically significant correlation with higher levels of self-efficacy of preservice special educators. In all 24 items of TSES 24-item long form ($p < 0.05$) that means that the training program affected the sense of self-efficacy of preservice special educators. There were statistically significant correlations with higher self-efficacy for student engagement, instructional strategies and classroom management. For example, the training program affects the extent that special educators can design good questions for their students and the level of how much they can do to regulate their lessons to the appropriate level for individual students, as well as the level that special educators can increase motivation of students who show low interest in school work and the level they can provide students with different examples when they do not understand. Similar studies have found that training program is relatively effective in improving and developing pre-service teacher's efficacy beliefs [3]. Mastery experiences, training, support, and positive feedback from supervisors and cooperating teachers were identified as important in developing efficacy [7]. Pre-service teacher's self-efficacy beliefs are related with the level they attend teacher training programs [3].

Teacher effectiveness is one of the most important factors affecting student academic achievement which is founded on a personal sense of teaching efficacy. Because teacher's sense of self-efficacy is associated with the quality of the provision of inclusive education and the effectiveness of the educators to teach students with different learning needs, this study provides valuable data for the improvement of special educator's self-efficacy. Quality training program has been proved to be a crucial factor for the development and improvement of pre-service special educator's self-efficacy. The findings of the present study are important first of all because they reveal that training programs could be a crucial element in order to improve special educator's self-efficacy and as a result the quality of special education that is provided in schools. Additionally, they provide important information about the evaluation of the efficiency of teacher training programs in determining the effectiveness level of teacher training on pre-service teachers' self-efficacy beliefs.

VI. LIMITATIONS

The first limitation of the present research is associated with the sample of the research. Perhaps a larger sample would have been better to detect the correlation between the training program and the sense of special educator's self-efficacy. The second limitation of this research is the fact that it cannot be assured that different training programs with different context and quality can lead to the same results in the improvement of the level of self-efficacy. Finally, because in Greece each education department has different training programs, the benefits of a training program regarding the improvement of the level of self-efficacy may not be the same for all the

preservice special educators.

ACKNOWLEDGMENT

The authors gratefully acknowledge the General Secretariat for Research and Technology (GSRT) and the Hellenic Foundation for Research and Innovation (HFRI) for the provision to the author and PhD candidate of full scholarship for the completion of PhD.

REFERENCES

- [1] Klassen, R., Tze, V., Betts, S., & Gordon, K. (2010). Teacher Efficacy Research 1998–2009: Signs of Progress or Unfulfilled Promise? *Educational Psychology Review*, 23(1), 21-43. <http://dx.doi.org/10.1007/s10648-010-9141-8>
- [2] Ross, J., & Bruce, C. (2007). Professional Development Effects on Teacher Efficacy: Results of Randomized Field Trial. *The Journal of Educational Research*, 101(1), 50-60. <http://dx.doi.org/10.3200/joer.101.1.50-60>
- [3] Cerit, Y. (2010). Teacher Efficacy Scale: The Study of Validity and Reliability and Preservice Classroom Teachers' Self Efficacy Beliefs. *Journal of Theory and Practice in Education*, 6(1), 68-85.
- [4] Lin, H.L., Gorrell, J. & Taylor, J. (2002). Influence of culture and education on U.S. and Taiwan pre-service teachers' efficacy beliefs. *The Journal of Educational Research*, 96(1), 37–46.
- [5] Woolfolk Hoy, A. E. (2005). What predicts student teacher self-efficacy. *Academic Exchange Quarterly*, 9(4), 123e127.
- [6] Sharma, U., Loreman, T., & Forlin, C. (2011). Measuring teacher efficacy to implement inclusive practices. *Journal Of Research In Special Educational Needs*, 12(1), 12-21. <http://dx.doi.org/10.1111/j.1471-3802.2011.01200.x>
- [7] Moulding, L., Stewart, P., & Dunmeyer, M. (2014). Pre-service teachers' sense of efficacy: Relationship to academic ability, student teaching placement characteristics, and mentor support. *Teaching And Teacher Education*, 41, 60-66. <http://dx.doi.org/10.1016/j.tate.2014.03.007>
- [8] Al-Awidi, H., & Alghazo, I. (2012). The effect of student teaching experience on preservice elementary teachers' self-efficacy beliefs for technology integration in the UAE. *Educational Technology Research & Development*, 60(5), 923e941. <http://dx.doi.org/10.1007/s11423-012-9239-4>.
- [9] Woolfolk Hoy, A. & Spero, R.B. (2005). Changes in teacher efficacy during the early years of teaching: A comparison of four measures. *Teaching and Teacher Education*, 21, 343–356.
- [10] Tzivinikou, S., Papoutsaki, K. (2016). Studying teaching methods, strategies and best practices for young children with special educational needs. *Early Child Development and Care*, DOI:10.1080/03004430.2015.1071101.
- [11] Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, 17 (7), 783 - 805.