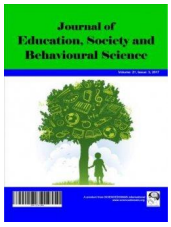

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Teacher Self-efficacy and Its Antecedents among Post Graduate Diploma in Teaching Trainees of Dilla University: Implications for Ethiopian Secondary School Teacher Education

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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ABSTRACT

The purpose of this study was to investigate the level of self-efficacy belief of Post Graduate Diploma in Teaching (PGDT) trainees of Dilla university and identify the factors that affect their belief with the intention of recommending possible improvement strategies to enhance effectiveness of the pre-service teacher education in program. To this end, descriptive survey design was employed because of its suitability for gathering data on attitudes, beliefs and predictions, behavior and experiences both in the past and the present. The study was conducted in Dilla University, Ethiopia on 2017 summer modality prospective graduates of Post Graduate Diploma in Teaching Program. From the total of 568 (161 Female & 407 male) prospective graduates who were attending the program, 112 trainees were selected as a sample using stratified random sampling technique. The results indicated that trainees have marginally average level of efficacy which suggested that they can have only 'Some influence' on their students' learning performance and behavior. It was also found that attitude to teaching (β= .573, t=10.129, p<.01) was the biggest contributor to self-efficacy belief followed by teachers' professional collaboration in

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secondary schools (β= .198, t= 5.276, *p*=.002) and in-campus training practice (β= .146, t=3.201, *p*<.05) respectively. In contrast to popular expectations, no significant mean difference was observed in trainees' efficacy scores in terms of their Cumulative Grade Point Average. Based on these findings, it was concluded that trainees' efficacy with regard to bringing desired impact on secondary school students' achievement and behavior was not adequate and requires immediate attention. Hence, it was recommended that graduates should be given on-job training and teachers' professional collaboration in Ethiopian secondary schools should be further strengthened with more emphasis on the affective dimension of the profession.

Keywords: Post Graduate Diploma in Teaching (PGDT); attitude; teacher self-efficacy; teachers' professional collaboration; Dilla University; Ethiopia.

ABBREVIATIONS

Post Graduate Diploma in Teaching (PGDT): A pre-service secondary school teacher education program by which teacher candidates who have applied Degrees (BA/BSc) in fields relevant to subjects of secondary schools join for a ten months professional training before their deployment as a professional teacher.
Overall Teacher Self-Efficacy (OTE): The belief of PGDT trainees to influence on the behaviors, academic achievement and learning intentions of students (Friedman & Kass, 2001).
Efficacy in Classroom Management (ECM): Trainees' belief in their capabilities to create conducive atmosphere and maintain classroom order in ways that brings about positive (intended) result on the behavior and performance of students.
Efficacy in Instructional Strategies (EIS): Trainees' belief in their capabilities to use instructional strategies effectively in the classroom in ways that brings about positive (intended) result on the behavior and performance of students.
Efficacy in Student Engagement (ESE): Trainees' belief in their capabilities to engage students in the classroom in ways that brings about positive (intended) result on the behavior and performance of students.
MoE: Ministry of Education of Ethiopia
REBs: Regional Education Bureaus
ZEBs: Zonal Education Bureaus
WEBs: Woreda (District Level) Education Bureaus

1. INTRODUCTION

Quality teacher education program warrants the functioning of effective schools and this is mainly possible through producing competent and highly efficacious teachers. Teachers are highly essential for successful operation of the education system and key to educational development. In other words, education quality cannot be thought without having teachers with relevant skills and disposition. And, one of these essential qualities of effective teachers is teacher self-efficacy. Teacher self-efficacy refers to teachers' judgment of their ability to succeed with teaching strategies, challenging school situations and intended growth of their students [1]. More specifically, it refers to their beliefs regarding the positive effect they can have on student outcomes [2].

Teacher self-efficacy has emerged as a key concept in teacher education over the past few decades [3] because it is an important construct that shapes teachers' classroom effectiveness [4]. It is the strongest predictor of teacher enthusiasm, commitment to teaching profession, career satisfaction, and superior performance. Teachers with high self-efficacy were found to be more resilient in their teaching responsibilities [5]. Thus, supporting the development of teachers' self-efficacy is essential for producing effective, committed and enthusiastic teachers [2].

Being a key component of social cognitive theory, self-efficacy describes underlying interrelationship among environmental events, personal elements, and behavior [6]. According to Bandura [6], for success to occur, people must believe in their ability to exercise control over events that affect their lives. In the context of teaching, a teacher must believe in his/her ability to impact learning so as to be effective in his/her profession. Self-efficacy, therefore, influences thought patterns and emotions that determine classroom actions of teachers.

Teacher self-efficacy in itself is influenced by four factors: Mastery experiences (One's own experiences of success and/or failure); verbal persuasion (feedback from significant others); vicarious experiences (modeling and observation of ideal person and/or performance); and emotional arousal (associated with perceived capability that influence the process and outcomes of the attempted task). These four sources undergo a form of cognitive processing that determines how the source of information will be weighed and influence the desired teaching task. In relation to this, Tschannen-Moran et al. [1] proposed an integrated and cyclical teacher efficacy model. According to their model, the sources of efficacy information, cognitive processes of a teacher, analysis of the teaching task and teaching competence, teacher efficacy beliefs, and performance interact and work in a cyclical nature. Although these four sources have influence on efficacy beliefs, the assessment of their effects on efficacy beliefs depends on individual's cognitive process. Cognitive process interacts with teaching tasks and its context and self-perception of teaching competence. Teaching tasks, the context and self-perception of teaching competence shape a teacher's efficacy beliefs. When teaching tasks and the context change, teacher efficacy may change as well. Analysis of teaching tasks includes the factors such as assessment of students' abilities, instructional strategies, resources provided by school, and physical condition of teaching environment. Contextual factors include principal and collegial support and school climate. Especially less experienced teachers use teaching task analysis and teaching competence assessment while shaping their efficacy beliefs. Hence, teachers' efficacy has an effect on their performance and serves as new source of efficacy. Lower levels of efficacy cause lower level of effort and performance while low performance and effort lead to lower level of efficacy.

Mastery experiences are considered the most powerful influence as they provide authentic evidence of one's performance in a teaching situation [7]. The implication is while successful performance by a teacher leads to increased self-efficacy, a failure results in a decline. As teachers develop mastery experience which positively contributes to their self-efficacy, they rely on these as memories and interpretations of similar past teaching experiences [1].

Empirical studies conducted in diverse contexts have confirmed that teacher self-efficacy has been related to student achievement [8], teachers' instructional innovations [9], teachers' commitment to teaching [10], increased job satisfaction [11], greater levels of planning and organization; and working longer with students who are less motivated to learn [12]. Teachers who have high self-efficacy believe that they have the knowledge, skills, and dispositions necessary to positively affect learning outcomes for students of all ability levels [2]. Consequently, they employ varied instructional strategies to teach a new concept or skill, and continue until all students gain understanding.

The literature so strongly suggests that teacher self-efficacy positively affects teachers and their students that it needs to be directly considered in the success of educational reform [13]. The effect works for both pre-service as well as practicing teachers. Among teacher candidates, for instance, high efficacy has been associated with greater use of autonomy practices, higher content knowledge, less use of controlling behaviors, and fewer instances of burnout [14, 15]. On the other hand, Teachers with low levels of self-efficacy experience more difficulties with student misbehavior, are pessimistic about student learning, and experience higher levels of job-related stress and lower levels of job satisfaction [16].

2. PROBLEM STATEMENT

Ethiopian education in general and that of secondary education in particular has been criticized for its poor quality. Equally, the system has been accused for its largely didactic and unresponsive nature to student diversity [17]. The poor quality has been verified by the apparently persistent decline in the academic performance of secondary school students in spite of huge expenditure on education. This could be evidenced by several prior studies conducted on the issue. For instance, the results obtained from National Learning Assessment (NLA) conducted in 2014 indicated that the share of grade 10 students who achieved an average score of 50% across five core subjects (mathematics, English, physics, chemistry, biology) stood at 23%. In the same assessment, though they represent qualified entrants to higher education institution, the scores registered by grade 12 students was not promising either. Only 34% of Grade 12 students achieved an average score of 50% across the five core subjects [18].

These figures tell it all. That is, there remain huge gaps between what was planned and what has been achieved at all levels.

Cognizant of this limitation, the Ethiopian Ministry of Education (MoE) [19] and its allies have undertaken large-scale reviews making substantial changes to the framework of initial secondary school teacher education program a couple of times in the last two decades. The objective of the reviews was to remedy the impediments prevailing in initial teacher education such as the loose linkage between teacher preparation and secondary schools as well as the inadequacy of the program in producing new teachers for the realities of the profession.

Likewise, two of the most recent reforms in secondary school teacher education included: Teacher Education System Overhaul (TESO) and Post Graduate Diploma in Teaching (PGDT). Driven by the same quality problems which led to the initiation of the TESO, the PGDT was given a mission to curb the problems in quality education at secondary schools; a goal which its predecessor failed to realize. Hence, the PGDT envisioned "seeing secondary school teachers who are capable of producing responsible and competent citizens, committed to their profession and ready for lifelong learning, and who respect and behave in accordance with the democratic principles enshrined in the constitution" (p.5) [20]. To this end, the PGDT relied on willingness and competence to recruit candidates for the profession, which is in a sharp contrast to the TESO. This showed the emphasis the Ethiopian Ministry of Education (MoE) paid to recruiting intrinsically motivated candidates who have positive attitude to the profession and committed enough to contribute to the enhancement of quality in secondary schools.

Yet, as prior studies conducted on the PGDT program [20,21] confirmed, the program faced several implementation challenges with regard to trainees' motives for joining the program, their attitude to the profession, mentoring processes; among others. More specifically, the studies showed that the PGDT is entangled with shortage of experienced and qualified mentors [20,21]; trainees' low motivation [22], unorganized program implementation and inadequate collaboration among stakeholders [23]; and shortage of quality training materials [20,21,23]. These local studies had considerably contributed to the understanding of PGDT trainees' professional disposition and the challenges of the program. Nevertheless, as most of these studies and anecdotal reports from teacher-educators and trainees suggested, there were certain areas of the training that still needed further investigation.

One key area to examine, which this study aimed at, was trainees' teacher self-efficacy. Being a construct with several antecedents and multi-dimensional consequences with immense implication to quality education, investigating teacher self-efficacy and ascertaining the relative impact of the factors that contribute to its development is crucial in planning for coursework and practicum experiences that could enhance effectiveness of teacher preparation programs [3]. Because today's teachers are expected to manage a wide range of social and academic processes, the efficacy of their efforts considerably determines their persistence and the quality of their classroom practice. Thus, training programs that attempt to instill appropriate skills and attitudes in prospective teachers are needed to consider the effects of teacher education programs on self-efficacy [24].

As literature review indicated, and to the best of the researchers' knowledge, there were no prior studies which examined teacher efficacy of PGDT trainees and its relationship with gender, teaching experience, attitude to the profession, level of teacher collaboration and principal support in respective secondary schools trainees teach. In a nutshell, the fact that the area is little researched and the absence of prior studies on PGDT training of Dilla University were the underlying reasons for conducting this study. With such rationale, the study aimed at investigating the level of and the factors that affect PGDT trainees' teacher self-efficacy with particular emphasis to Dilla University. To this end, the study was guided by the following research questions:

- What is the level of teacher self-efficacy beliefs of PGDT trainees?
- What factors affect PGDT trainees' teacher self-efficacy beliefs?
- To what extent do these factors predict trainees' teacher self-efficacy beliefs?

3. LITERATURE REVIEW

3.1 The Concept of Teacher Efficacy

Teacher efficacy or Teacher Self-efficacy is defined as the belief of a teacher to influence on the behaviors, academic achievement and learning intentions of students [25], especially students with low motivation [2]. These beliefs refer to what teachers believe they can do, rather than what they will do. Teachers with strong teacher efficacy tend to be creative, curious, persistent, and resilient go-getters in their classroom approach. Teacher's efficacy has also been found to correlate positively with their expectation level, effort, affective elements within the classroom, classroom management approaches, the way the teacher communicates, levels of job stress, teacher engagement, levels of teacher emotional exhaustion, and instructional methods [12]. When applied to teaching, these sources of efficacy information combine with analysis of the teaching task and personal competence to create a level of teachers' teaching efficacy [1]. This level of efficacy, in turn, affects how teachers deliver instruction to students. Consequently, it can be concluded that self-efficacy is a dynamic construct which is both a cause and an effect within social cognitive theory. Hence there is a constant interaction between behavior, environment, and personal factors including levels of efficacy.

3.2 Domains of Teacher Efficacy

Teacher efficacy can be studied along three domains viz., efficacy for classroom management, efficacy for student engagement, and efficacy for instructional strategies [2]. Efficacy in these domains is decisive because teachers who are efficacious about their skills in instruction, management, and relationships with students may have more cognitive and emotional resources at their disposal to push students towards developing deeper understandings and solving complex tasks [26].

3.2.1 Teacher efficacy in classroom management

Efficacy in classroom management represents teachers' beliefs in their capabilities to organize and execute the courses of action required to maintain classroom order. In particular, it includes teachers' perceived ability to manage and respond to disruptive student behavior, and to establish expectations and rules to guide classroom behavior [2]. Perceived self-efficacy for classroom management also comprises of teachers' belief and practice related to classroom organization, classroom routines and expectation, student participation and attention, cooperative learning and classroom order. Efficacy in classroom management is a prerequisite for teachers to create an effective communication atmosphere and positive learning environment in classroom. Accordingly, efficacious teachers exhibit a classroom management system that supports good behavior and weakens the undesirable ones. Teachers' classroom management style is a reflection of their instructional strategies [27].

3.2.2 Teacher efficacy in instructional strategies

One of the very crucial tasks of teachers is their skill in using instructional strategies that suits the diverse needs of classroom realities. In this sense, a teacher must have adequate knowledge of and confidence to apply a wide array of instructional techniques. Teacher efficacy in instructional strategies refers to ability of a teacher to create classroom environment which promotes student learning by employing instructional strategies that engage students in meaningful learning. Teachers' efficacy in this dimension impacts their decisions about the nature and structure of classroom activities, as well as students' evaluation of teachers' subject matter expertise [16]. Teachers with high efficacy in this regard invest more time teaching than controlling students who struggle with learning and/or behavior difficulties and adapt instruction to engage students in meaningful learning, when circumstances demand it.

3.2.3 Teacher efficacy in student engagement

This domain of teacher self-efficacy represents teachers' confidence in their capacity to develop smooth relationships with all students so as to enable them think creatively, value learning, have in-depth understanding, and develop academic self-efficacy. Highly efficacious teachers come up with innovative techniques to maintain students' engagement in learning, and are confident in their abilities to assist students to sustain their motivation, engagement and personal investment in learning [28].

3.3 Factors Affecting Teacher Efficacy Belief

Reviewed literature showed that teacher self-efficacy is affected by various factors. The

following is discussion of the relationship between the independent factors considered in the study and teacher efficacy.

3.3.1 Gender and teacher efficacy

Studies conducted on teacher efficacy in relation to gender showed variation in their findings. Some studies; for instance, Yeo et al. [29] found no significant differences between males and females regarding their teacher efficacy beliefs. Other studies, for instance Riggs [30], reported that males are more efficacious about their science teaching abilities when compared to females who also taught elementary science. In a more or less similar manner, the findings of Klassen and Chiu [31] supported the results reported by Riggs [30]. The two studies reported that male teachers held stronger efficacy beliefs than females in classroom management, but not in instructional strategies and student engagement. In contrast, Cheung [32] reported that female teachers had significantly stronger efficacy beliefs than males. Though it might require adequate knowledge of the context where the studies were conducted, it can be hypothesized that the differences of these studies might be due to socio-cultural variables. Another contributing factor might be the different types of instruments used by the researchers.

3.3.2 Content knowledge and teacher efficacy

Studies regarding content knowledge measured by Cumulative Grade Point Average (CGPA) and self-efficacy levels of teachers showed a positive relationship. A longitudinal analysis by Newton, Leonard, Evans, and Eastburn [33] for instance found that pre-service content knowledge delivered through the means of a university pre-service methods course significantly and positively related with gains in personal teaching efficacy, but not in outcome expectancy [34]. Similarly, a study by McCoy [35] on pre-service elementary school teachers found significant positive correlations between personal teaching efficacy levels and possession of specialized mathematical knowledge.

3.3.3 Teaching experience and teacher efficacy

The literature on the relationship between teaching experience and teacher efficacy seems cloudy to arrive at conclusive evidence regarding the matter. Some studies [34,36] reported absence of significant relationship between teacher efficacy and teaching experience. In contrast, others [8,28] suggested efficacy beliefs strengthen as teachers accumulate teaching experience. For instance, the study by Tschannen-Moran and Hoy [8] indicated that experienced teachers had significantly higher efficacy than novices. This might be because confidence increases as the mastery experiences and successes of experienced teachers widens as a result of experience with students [28]. In contrast, Klassen and Chiu [31] asserted that teacher efficacy beliefs weaken through the latter years.

3.3.4 Principal support and efficacy beliefs

Principal support has been found to be a significant predictor of school effectiveness which has been linked to collective efficacy [37], which has, in turn, been linked to individual teacher efficacy beliefs [38]. More precisely, if teachers enjoy the principal's support, they are more likely to have stronger self-efficacy. Intellectual stimulation, inspirational influences, and individualized consideration of principals were often cited to be related with novice teachers' efficacy beliefs [39]. Such support for novice teachers with in a school promotes their efficacy and reduces the stress they feel while struggling with the demands of the profession. This is because a quality relationship with an effective principal may lessen the influence of emotional and physical demands such as work overload. In this connection, teachers who received more effective principal support often reported greater efficacy beliefs [2,10,40]. In contrast to this, some studies [8,41] concluded that there was no relationship between the supportive behaviors of the principal and teacher efficacy. Tschannen-Moran and Woolfolk-Hoy [8] concluded that "Teachers form beliefs about their capability to impact student learning whether support from administrators is available or not" (p.954).

3.3.5 Teachers' professional collaboration and efficacy

Professional collaboration plays a decisive role in the efficacy level and easy adjustment of novice teachers to school culture and the demands of the teaching profession. Collaboration often indicates genuine dialogues, collegiality, collective problem solving and supportive relationships among teachers. Tschannen-Moran and Hoy [8] found that verbal persuasion significantly predicted novice teachers' sense of efficacy because "teachers who are struggling in their early years in their careers tend to lean more heavily on the support of their colleagues"

(p.953). Billingsley, Carlson, and Klein [42] noted that teachers who watch and work with each other, especially during initial years of their career, have greater success in managing their job, deal effectively with more difficult students, and feel successful with their job than those who work in isolation. Similarly, Guo et al. [43] also ascertained that teacher collaboration was a significant predictor of teacher's self-efficacy.

3.3.6 Attitude to teaching and teacher efficacy

Attitude, which refers to positive or negative assessment expressions, tells what an individual feels about his profession. Perhaps, the biggest difference of teaching profession from other professions is that the affective dimension directly and significantly affects success [44]. A teacher who holds a positive attitude for the profession performs his/her tasks in the best manner and increases the achievement level of his/her students.

In relation to teacher efficacy, prior studies found that there was a low but positive correlation between teacher candidates' self-efficacy beliefs and attitudes towards the teaching profession [45,46]. Similarly, Denizoglu [47] reported statistically significant correlation between prospective teachers' self-efficacy beliefs and the changes in their attitudes.

4. METHODOLOGY

4.1 Research Design

The purpose of this study was to investigate the level of self-efficacy belief of Post Graduate Diploma in Teaching (PGDT) trainees of Dilla University and identify the factors that affect their belief with the intention of recommending possible improvement strategies to enhance effectiveness of the PGDT program. To this end, descriptive survey design was employed. Descriptive survey is concerned with description and interpretation of conditions or relationships that exist, opinions that are held, processes that are going on, and effects that are evident or trends that are developing [48]. They are useful for gathering factual data on attitudes and preferences, beliefs and predictions, behavior and experiences both in the past and the present [49].

The design was chosen for the reason that it enables to obtain pertinent information on trainees' self-efficacy level, their attitude towards the teaching profession, their level of satisfaction with in-campus training at the university, as well as their perception of principals' support and teachers' professional collaboration in the respective secondary schools they work in. Hence, this design was practical for the following reasons: First of all, the study deals with several variables and intends to determine the extent these variables affect trainees' self-efficacy. Secondly, as the participants were summer (in-service) trainees who come to the University only for Two months Stay, there was a time constraint. Above all, the researchers intended to generalize the results from the samples to the population, and survey was found as the most appropriate design considering the time constraint, the nature and number of variables as well as the number of participants considered in this study.

4.1.1 Target population and sampling procedure

The target population of the study included 568 prospective PGDT graduates of the 2016 summer modality in Dilla University, Ethiopia. From the total of 568 (161 Female & 407 male) prospective graduates, 136 (about 24%) were initially taken as a sample. Yet, only 112 questionnaires were found legit while the rest were not returned or discarded due to inconsistency of responses. Having determined the sample size to be taken from the target population, stratified random sampling procedure was used. Gender was used as the main stratification variable so as to make statistical comparison between the two genders possible. Furthermore, representative samples were taken from the three colleges of the university: College of Natural sciences, social sciences and language. In such manner, out of the 11 departments found in these colleges (i.e. Amharic, English, Civic and Ethical Education, Geography, History, Sport Sciences, Biology, Chemistry, Physics, and Mathematics and Afan Oromo), 3 departments (i.e. Biology, Maths, Chemistry) from natural sciences, and 4 departments (i.e. Amharic, Geography, History, Physics) from social sciences and language colleges were chosen using lottery method. Once again, the number of final respondents to be taken from each department was decided based on the number of students in each department using proportional allocation technique.

4.1.2 Data collection instruments

Questionnaire was used as data collection instrument. Two types of items (questions) were

used in the questionnaire. While most of the items used in this study were prepared by the researcher himself, some of the items were adapted from the works of other researchers. In this regard, Teacher Sense of Efficacy Scale (TSES) developed by Tshannon-Moran and Woolfolk-Hoy [2] was used to collect data about PGDT trainees' teacher self-efficacy belief. The instrument consisted of 12 items that assess the degree to which trainees feel efficacious about their capabilities to deal with issues related to three sub-scales: student engagement (4 items), instructional strategies (4 items), and classroom management (4 items). The instrument was chosen for this study because it has been found to be reliable and valid measurement in various educational and cultural contexts, appropriate to use for both pre-service and practicing teachers [50]. Adaptation was made on the original 9 point scale items to be 5 point scale where 1= 'Nothing'; 2= 'Very little', 3='Some Influence', 4 = 'Quite a Bit', 5='A Great Deal'.

Furthermore, a 5-point Likert scale was used to measure the other variables of the study. The Attitude Scale contained 10 items. In addition, 10 items were used to measure Teacher Collaboration, 9 items were used to measure perceived principal support and 12 items to measure perceived satisfaction of prospective PGDT graduates with in-campus training delivery all measured in five point likert scale. The scale consisted of both favorable and unfavorable statements. In the case of favorable statements strongly agree was scored 5, agree was scored 4, undecided was scored 3, disagree was scored 2, and strongly disagree was scored 1. The values were reversed for negatively worded statements. All the scales were intentionally measured in 5 point scale because the literature suggests that 5 point scales are better understandable to respondents; appear to be less confusing; increase response rate and response quality. This goes along with the fact that respondents were expected to read and answer a reasonably large number of items included in this study. Furthermore, items focusing on socio-demographic and academic characteristics of trainees were included.

So as to ensure validity of the items, the questionnaire was given for two teacher-educators of Dilla University for their comments on content and construct validity of instruments. As a result of the comments, certain amendments were made to some items. To check the internal consistency of the instrument, a pilot study was conducted prior to its actual use in the survey. As a result, each scale was tested for internal consistency using Cronbach alpha coefficient. The scales in the questionnaire satisfied the criterion sufficiently. The Cronbach alpha reliability coefficient of the teacher self-efficacy belief scale was found to be α=0.74. The Cronbach alpha reliability coefficient of the attitude scale was found to be α=0.96. Moreover, the reliability coefficients for Teacher Collaboration, perceived principal support and satisfaction of with in-campus training delivery were found to be α=0.75, α=0.73 and α=0.92 respectively.

4.1.3 Data analysis techniques

The collected data were analyzed quantitatively using frequency, percentage, mean, standard deviation, one way ANOVA, one sample t-test, Pearson's correlation coefficient and multiple linear regressions. One way ANOVA was used to see if there is statistically significant difference in efficacy belief of trainees in terms of their CGPA. One sample t-test was used to check if statistically significant mean difference exists between the expected and the actual level of efficacy belief of trainees. Correlation analysis was used to check the type (Positive or Negative) and strength of relationship the dependent variable has with the independent variables. Finally, multiple regression analysis was run to see the relative impact as well as predictive value of each independent variable (Added). The data were coded, analyzed and interpreted with the help of a Statistical Package for Social Sciences (SPSS) software version 21.

5. RESULTS AND DISCUSSION

5.1 Results

5.1.1 Descriptive results of independent variables

As depicted in Table 1, PGDT trainees had moderately negative attitude towards their profession with the overall mean score of *M*=2.98, *SD*= 1.18 which was below the expected mean of 3. Regarding satisfaction with in-campus training delivery, the mean score was *M*= 2.93, *SD*= 1.12. That is also slightly below the expected mean. This indicates that trainees were not satisfied with the training practices. The overall result for the scale suggests that instructors' use of instructional activities, immediate feedback and opportunities for

reflective teaching practice requires much improvement. The mean score for teacher collaboration is 2.88 with *SD*=1.01 while the score for the principal support scale was *M*=3.25 with *SD*= 1.16. The result suggested that school principals are executing their responsibilities in helping novice teachers, slightly above the expected average. Nevertheless, teachers' professional collaboration was found to be below the expected mean.

Table 1. Descriptive summary of continuous independent variables

Variable	Mean	SD
Attitude	2.98	1.18
Satisfaction with in-campus training	2.93	1.12
Teacher Collaboration	2.88	1.01
Principals' support	3.25	1.16

5.1.2 Level of trainees' teacher efficacy beliefs

Teacher self-efficacy refers to a teacher's belief in his/her own abilities to produce intended result on student learning. Table 2 presents the results.

The findings (As put in Table 2) indicated that trainees' average self-efficacy in classroom management is *M*=2.73, *SD*=1.13. This indicated that trainees believed that they were not capable of managing disruptive behavior in the classroom. The one sample t test analysis also indicated statistically significant mean difference between the actual and the expected mean (t= -2.481, df= 111, *p*=.015). In the second sub scale, efficacy in student engagement, trainees actual mean score (*M*= 2.94, *SD*= .56) was below the expected mean. Though the mean score difference with the expected mean was not statistically significant (t= -1.049, df= 111, *p*= .297), their efficacy in this sub scale falls slightly below the option of "some influence". Trainees' score was relatively better in the third dimension i.e. efficacy for instructional strategy where the mean score was *M*= 3.53 with *SD*= .50. The result was above the expected mean and statistically significant (t =11.141, df= 111, *p*<.01).

5.1.3 Gender differences in trainees' teacher efficacy

Independent sample t-test was computed to see the relationship between the two variables. Table 3 shows the findings.

As depicted in Table 3, independent sample analysis revealed that there are significant gender differences in EIS (*t* = -3.59, *p*= .01), ESE (*t* = -4.58, *p*< .01), ECM (*t* = -5.80, *p*< .01), and OTE (*t* = -6.78, *p*<.01) with males scoring significantly higher than females. The result showed female trainees have low self-efficacy beliefs, compared to their counterparts.

Table 2. Teacher efficacy beliefs of PGDT trainees

Items	Mean	SD	T-Value
Efficacy in classroom management	2.73	1.13	*t*= -2.481, *df*= 111, *p*=. 015
Efficacy in student engagement	2.94	.56	*t*= -1.049, *df*=111 *p*= .297
Efficacy in instructional strategy	3.53	.5	*t*= 11.141, *df*=111, *p*<.01
Overall teaching efficacy	3.07	1.13	*t*= 1.286, *df*=111, *p*= .201

Table 3. Independent sample t-test result of teacher self-efficacy according to gender

	Gender	N	Mean	SD	Levene's test		t	Df	Sig. (2-tailed)
					F	Sig.			
OTE	Female	42	2.67	0.55	3.086	.082	-6.78	110	.000**
	Male	70	3.31	0.44					
ECM	Female	42	2.03	1.08	1.005	.318	-5.80	110	.000**
	Male	70	3.16	0.94					
ESE	Female	42	2.65	0.45	1.496	.224	-4.58	110	.000**
	Male	70	3.12	0.56					
EIS	Female	42	3.32	0.52	1.631	.204	-3.59	110	.001
	Male	70	3.66	0.46					

***Significant at 0.01 level.*

Key: OTE= Overall Teacher Efficacy; ECM=Efficacy in Classroom Management; ESE= Efficacy in Student Engagement; EIS= Efficacy in Instructional Strategies

5.1.4 Content Cumulative Grade Point Average (CGPA) and teacher self-efficacy

Given that CGPA is generally believed to measure academic ability, the PGDT program utilizes as a major criterion for recruiting trainees. Table 4 shows the relationship between CGPA and Teacher self-efficacy.

One way ANOVA was computed for the three sub scales and for the overall teacher self-efficacy belief to see if the mean differences were statistically significant in terms of trainees' CGPA. The results confirmed that the differences were not statistically significant. Overall Teacher Efficacy and efficacies for student engagement, instructional strategy and classroom management did not differ significantly among the five GPA categories (groups). ECE ($F(4, 107) = 1.390$, $p = .242$) , EIS ($F(4, 107) = .410$, $p = .801$), and OTE ($F(4, 107) = 2.022$, $p = .096$) were not statistically significant across the five GPA categories. Though, the ANOVA result for ESE seems significant ($F(4, 107) = 3.426$, $p = .011$) it did not satisfy Levene's test for homogeneity of variance.

5.1.5 Relationship among continuous variables and trainees' self-efficacy

Correlation analysis was computed to see the relationship between continuous independent variables and trainees' efficacy levels. As depicted in Table 5, there was statistically significant positive relationship between attitude and teacher self-efficacy belief, $r = .929$, $p = .01$. The result revealed that as the attitude of the trainees becomes increasingly positive, their self-efficacy belief also improves. A strong positive correlation was also found between satisfaction level of trainees with their in-campus training and their self-efficacy with $r = .793$, $p < .01$. Hence, improvements in satisfaction with the quality of in-campus training were strongly and positively correlated with increases in self-efficacy score. Moreover, strong positive relationship was identified between teacher collaboration and self-efficacy ($r = 0.702$, $p < .01$), while a moderate yet positive relationship was identified between support from principals and teacher self-efficacy beliefs ($r = .506$, $p < .05$). Surprisingly, negative yet moderate correlation ($r = -.579$, $p < .01$) was found between years of teaching experience of trainees before starting the PGDT training and teacher efficacy score.

5.1.6 Predictors of trainees' self-efficacy

Multiple regression analysis was computed to identify the relative impact of the factors that influence PGDT trainees' teacher self-efficacy beliefs. Six predictors (i.e. Gender, principal support, Teacher Collaboration, attitude, satisfaction with in-campus training and teaching experience) were considered in this model. Using the enter method it was found that the six independent variables explain a significant amount of variance in self-efficacy level of trainees. The results indicated that the model was a significant predictor of teacher self-efficacy, $F (6, 105) = 194.34$, $p < .01$). All necessary checkups were made to make sure that the data satisfies major assumptions such as normality, linearity and multicollinearity.

Table 4. Trainees' efficacy beliefs in terms of CGPA of their applied degree

		Sum of squares	df	Mean square	F	*P*
ECM	Between Groups	7.038	4	1.760	1.390	.242
	Within Groups	135.497	107	1.266		
	Total	142.535	111			
ESE	Between Groups	3.998	4	.999	3.426	.011
	Within Groups	31.216	107	.292		
	Total	35.214	111			
EIS	Between Groups	.427	4	.107	.410	.801
	Within Groups	27.839	107	.260		
	Total	28.266	111			
OTE	Between Groups	2.583	4	.646	2.022	.096
	Within Groups	34.174	107	.319		
	Total	36.758	111			

Key: OTE= Overall Teacher Efficacy; ECM=Efficacy in Classroom Management; ESE= Efficacy in Student Engagement; EIS= Efficacy in Instructional Strategies

Table 5. Correlation analysis of continuous variables and trainees' teacher efficacy

Variables		1	2	3	4	5	6
1. Principal support	Pearson correlation	1					
	Sig. (2-tailed)						
2. Attitude	Pearson correlation	.448**	1				
	Sig. (2-tailed)	.000					
3. Teaching experience	Pearson correlation	-.314**	-.579**	1			
	Sig. (2-tailed)	0.001	.000				
4. Teacher collaboration	Pearson correlation	.468**	.593**	-.438**	1		
	Sig. (2-tailed)	.000	.000	.000			
5. Training satisfaction	Pearson correlation	.324**	.573**	-.517**	.552**	1	
	Sig. (2-tailed)	0.001	.000	.000	.000		
6. Overall teacher efficacy	Pearson correlation	.506**	.929**	-.609**	.702**	.793**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	

*** Correlation is significant at the 0.01 level (2-tailed)*

Table 6. Regression analysis of predictors of trainees' teacher efficacy

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.
	B	Std. error	Beta(β)		
(Constant)	1.052	.114		9.257	.000
Gender	.115	.041	.097	2.824	.006**
Attitude	.333	.033	.573	10.129	.000***
Teacher Collaboration	.191	.036	.198	5.276	.000***
Principals Support	.051	.024	.068	2.079	.040**
Teaching Experience	-.034	.017	-.070	-1.995	.049**
In-campus Training	.096	.030	.146	3.201	.002**

*Dependent Variable: Overall Teaching Efficacy; N=112; R Square= 91.7; Adjusted R^2 = 91.3; ***,**, * Significant at 0.01, 0.05 and 0.1 respectively*

As clearly shown in Table 6, the 6 independent variables were found to be significant predictors of trainee's teacher self-efficacy. Gender (*β*= .097, *t*= 2.824, *p*= .006), attitude (*β*= .573, *t*= 10.129, *p*< .01), teacher collaboration (β= .198, t= 5.276, *p*<.01), principal support (*β*= .068, *t*= 2.079, *p*= .040) and satisfaction with in-campus training (*β*= .146, *t*= 3.201, *p*=.002) were found as positive predictors of teaching efficacy of PGDT trainees. Interestingly, teaching experience was found to negatively contribute to trainees teaching efficacy belief (*β*= -.070, *t*= -1.995, *p*=.049).

The total variance in the dependent variable that is explained by the six independent variables together as expressed in the R-square (R^2) is 91.7%. When the relative influence of each predictor variable is considered, trainees' attitude to the teaching profession explained more than half of (53.2%) of the variance. The other five predictors together explained 38.5% of trainees' self-efficacy; of which 13.9%, 11.6%, 5.3%, 4.3%, and 3.4% of trainees' efficacy was predicted by teacher collaboration, in-campus training, gender, teaching-experience and principal support respectively. The remaining 8.3% of the variance in the trainees' self-efficacy beliefs was explained by other factors not included in this study.

5.2 Discussion

The purpose of this study was to examine the level of PGDT trainees' self-efficacy belief and identify the factors that contribute to its development with particular reference to Dilla University. Accordingly, the result in the overall efficacy scale indicated that PGDT trainees were not prepared enough to the extent they can influence the behavior of their students and influence the same to value learning irrespective external factors. This is more concerning because the main reason behind the introduction of the PGDT program in Ethiopia was to improve secondary school teachers' commitment to follow and support students [19]. This result; however, suggested that PGDT falls short of achieving its ultimate goal in this regard.

The second research question was to identify the factors that affect PGDT trainee's efficacy belief. The result revealed that, except content CGPA, all the other independent factors included in the study significantly predicted trainee's self-efficacy belief. In this study, it was found that female trainees were less efficacious than their counter parts. This is in harmony with Klassen and Chiu [31] & Shaukat and Iqbal [51] who reported that male teachers held stronger efficacy beliefs than females. Nevertheless, it was different from Yeo et al. [29] who reported that male and female teachers did not differ significantly in their teacher efficacy. When the context of this study was considered, the difference might be due to cultural influences and/or due to female trainees' meager opportunities to see female models in the university as well as in secondary schools.

Another variable considered in the study was Attitude. Needless to say, attitude towards a profession significantly affects the effort a person exerts to tasks and activities subscribed under that profession. In this study, the descriptive analysis showed that the attitude of trainees is moderately negative. Thus, it is safe to conclude that the major reason trainees joined the teaching profession is due to lack of other job alternatives. This is in concordance with the findings of Koye [22] and Demis et al. [23].

Interestingly, the study showed that there was no significant difference in efficacy beliefs of trainees according to content CGPA. This contrasts with the findings of Isiksal and Cakiroglu [52] who reported a positive relationship between mathematics teaching efficacy levels and academic performance in university coursework. If CGPA truly measures knowledge of subject matter, the result is also in disagreement with that of McCoy [35] who found significant positive correlations between personal teaching efficacy and possession of specialized mathematical knowledge among pre-service elementary school teachers. In this study; however, the result might hint the unattractiveness of the teaching profession in Ethiopia due to poor benefits and low social prestige. Hence, the disagreement between the findings of this study and the above studies might be due to the particular role attitude of PGDT trainees played in explaining more than half (53.2%) of the variation in their self-efficacy. In other words, a trainee who joined the PGDT program only as a fallback career will most likely exhibit low efficacy belief despite his super performance (i.e. high CGPA score) in his applied degree (BA/BSc). For trainees' with lower CGPA in applied degrees, the while the main cause might be attributed to their feeling of inadequacy in subject matter knowledge; the attitude issue still stands as another reason for them too.

In this study, it was also found that efficacy was negatively predicted by teaching experience before PGDT training. In fact, the literature on the relationship between teaching experience and teacher efficacy seems cloudy. For instance, while Wolters and Daugherty [28] suggested efficacy beliefs strengthen as teachers accumulate teaching experience; Page et al. [36] reported absence of such significant relationship. Alternatively, Tschannen-Moran and Woolfolk Hoy [8] underscored that it is not merely teaching experience but satisfaction with ones' own teaching performance that determines efficacy beliefs of both novice and experienced teachers. In light of this study, it can be argued that the efficacy belief of PGDT trainees of Dilla University was negatively predicted with their prior teaching experience because in reality PGDT trainees of summer (*Kiremt*) modality in Dilla as well as in the other Ethiopian universities mostly start their teaching job without having started at least one semester of the PGDT program (a professional training espoused to produce qualified and competent professional secondary school teachers). And, this situation of starting the teaching job with no theoretical and practical understanding of psychological and pedagogical principles most likely might have made PGDT trainees develop low self-efficacy belief during the first year of their teaching career, may be due to distressing experiences. Hence, how novice teachers interpret their performance is as important as the amount of mastery experiences they have. While teaching competence within of the PGDT program is rhetorically expressed as graduates Pedagogical Content Knowledge (PCK), the practice shows secondary schools in Ethiopia are currently populated with novice teachers who are not licensed with professional training (i.e. PGDT certificate).

In relation to this, Tschannen-Moran and Woolfolk Hoy [8] stated, once established, teacher self-efficacy seems to be change-resistant and the individual is more likely to attend to confirmatory experiences which further consolidate his/her initial efficacy. It follows that trainees of Dilla University, though their years of experiences increase, it might be probable that

they were not satisfied with their actual teaching performances. As Tschannen-Moran and Woolfolk-Hoy [8] underscored, it is the teacher's satisfaction with his/her performance, not the amount of years he/she spends in 'teaching' that contributes to his/her efficacy beliefs.

On the other hand, the findings indicated that trainees who were found to have high self-efficacy were those who were satisfied with in-campus training delivery. This result was compatible with Darling-Hammond, Chung, and Felow [53] as well as Knobloch and Whittington [41] who confirmed that teachers who had more positive perceptions of their initial teacher education program were more likely to be more efficacious in their actual teaching responsibilities. In line with this, Erawan [54] also reported training effectiveness as the strongest predictor of teacher self-efficacy among pre-service teachers.

Two school contextual factors namely teachers' professional collaboration in secondary schools PGDT trainees work and the amount of support provided to them by school principals played significant role in shaping their self-efficacy beliefs. This is because teacher self-efficacy is context specific construct [55] and is shaped within a particular environment [1]. In congruence with prior studies such as Guo et al. [43] and Tschannen-Moran and Woolfolk [8], who reported that teachers who receive guidance from their colleagues feel more efficacious, regardless of whether it is in the form of supervision, mentoring, or interdisciplinary teams, the result in this study also confirmed that there was a positive and strong relationship between the level of teachers' collaboration in the respective school of PGDT trainees and their efficacy belief.

In this study, it was also found that there was a moderate and positive relationship between teacher self-efficacy and support from principals. The findings were in agreement with Tschannen-Moran and Hoy [8] and Dale [40] who concluded that if teachers enjoy the principal's support, they are more likely to have stronger self-efficacy beliefs. The result revealed that working environment and school leadership are important factors in the development of trainees' self-efficacy.

6. CONCLUSION

Based on the major findings of the study, the following conclusions were reached.

- PGDT trainees have low efficacy beliefs in student engagement and classroom management. They have moderate self-efficacy in instructional strategy. Their overall efficacy level could not be taken as sufficient enough to impact their classroom practices, persistence and commitment to the teaching profession and hence academic achievements of their students to the expected level.
- Compared to males, female have low self-efficacy beliefs in student engagement, instructional strategy and classroom management as well as overall self-efficacy beliefs.
- There is no mean difference in trainees' self-efficacy scores of the three sub scales and overall teaching efficacy based on CGPA of their applied degree. Thus, CGPA has no predictive value in trainees' self-efficacy belief.
- The level of PGDT trainees' teacher self-efficacy is largely determined by their attitude to the profession. The fact that a large amount of variance was explained by attitude suggests any attempt to improve self-efficacy belief of PGDT trainees; by implication quality education in Ethiopian secondary schools, should begin with improving the image of the teaching profession first.
- It is well established that teachers' self-efficacy is strengthened or weakened by the types of experiences encountered in a particular school climate [2]. The quality of support by secondary school principals provided to PGDT graduates significantly impacts their efficacy about their own teaching.
- The quality of training delivery within initial teacher education program significantly influences graduates' teacher self-efficacy. In this study, trainees with high self-efficacy belief were those who were satisfied with in-campus training delivery. Hence, teacher education program needs to offer trainees with authentic teaching opportunities and opportunity to reflect upon their experiences so as to help good foundation for development of high efficacy beliefs becomes solidified.
- Mastery experiences are the most powerful source of efficacy beliefs because these kinds of experiences depend on individual's own experiences [1,7]. In this study, the finding indicated that self-efficacy level of trainees who started the

teaching career before joining PGDT training was lower than those who started teaching having attended PGDT training at least for one summer (*kiremt*). Trainees who start teaching without prior theoretical and practical exposure to particulars of the profession tend to develop low self-efficacy.

- Teacher collaboration in secondary schools positively contributes to self-efficacy beliefs of trainees. This indicates that, as the level and quality of professional collaboration among secondary school teachers improves, it positively contributes to novice teachers' self-efficacy. This might be because in schools where teachers collaborate and help each other, novice teachers may feel free to learn from seasoned teachers of the school. Adding to the point, teachers' professional collaboration was stronger predictor even as compared to in-campus training. This coupled with the negative relationship of teaching experience before PGDT with teacher-efficacy belief hints a pre-service teacher education program which intends to produce highly efficacious teachers must work in close collaboration, even with more focus on key quality parameters located in secondary schools. In other words, concerted effort should be exerted to improve the organizational climate of secondary schools through strengthening teachers' professional collaboration, quality of instructional support by school principals, and building a learning culture. It should also be noted that producing efficacious teachers demands the coordination of concerned stakeholders and close communication among Universities, secondary schools and Regional Education Bureaus (REBs), Zonal Education Bureaus (ZEBs) and district (*Woreda*) Education Bureaus (WEBs).
- It should be noted that only content knowledge and courses were not sufficient in teacher training and that the ideas, expectations and attitudes of teacher candidates should be determined at the stage of enrollment in the program and that how these evolved during teacher training should be analyzed.
- Overall, it seems that while the TESO emphasized professional courses at the expense of subject matter knowledge, the practice of summer (*Kiremt*) modality PGDT implementation in the university seems to give an ad hoc position to professional courses and practicum experience. In this sense, the PGDT is just another equivalent of the TESO, merely different for its focus on the other side of the continuum.

7. RECOMMENDATION

Based on the above listed conclusions, the following recommendations were forwarded:

- PGDT graduates should be provided with follow up trainings through collaboration of the MoE, Regional Education Bureaus (REBs) and the University.
- Course contents on classroom management, student engagement and other affective aspects of the profession should be emphasized during in-campus training.
- The MoE, REBs and Universities need to further consolidate support programs such as mentoring and induction to support novice teachers' professional growth. Induction programs should provide participants with reflective learning opportunities that best emulate authentic classroom experiences.
- The university in collaboration with Zonal, Woreda and REBs should assign mentors to summer PGDT trainees and mentors need to be selected based on standard. Their skill, attitude to the profession, and their commitment should be considered during the selection process. Their capacity should also be further developed through trainings.
- REBs, ZEBs and WEBs should give emphasis to create a culture of collaboration and collegiality among teachers of secondary schools.
- The assignment of secondary school principals needs to be based on their competences as a teacher and transformational leadership qualities. Those who are already in position should be given trainings on transformational leadership by the University in cooperation with REBs, ZEBs and WEBs.
- To recruit, support and retain competent secondary school teachers, it is critical that regional, Zonal and woreda level education officials need to have a working knowledge of effective recruitment. Accordingly, the university in cooperation with REBs

should offer trainings to stakeholders on the issue.

- Due to shortage of secondary school teachers, most trainees of the summer modality start PGDT training only after they started the teaching career. Providing short term training before they start teaching may help them to start teaching with good knowledge.
- So as to minimize the factors that adversely affect the satisfaction and attitude of PGDT trainees towards the program and/or the profession, the university needs to devise strategies to meet the expectations of trainees.
- Teacher Educators should participate in the selection process of PGDT trainees through preparation of instruments that can help identify suitable candidates. The motivation and attitude, as well as competence of trainees should be determined during the selection process. To this effect close collaboration should be created between regional, zonal, woreda education offices and the University.
- The University needs to work on increasing the number of female teacher educators. Equally important is building the capacity of female secondary school teachers who graduated from the PGDT program.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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APPENDIX

PGDT Trainees' Sense of Efficacy Scale

Directions: Please indicate your opinion about each of the questions below by putting a tick mark "√" in any one of the alternatives in the columns on the right side, where the options range from: 1=Nothing; 2= Very Little; 3=Some influence; 4= Quite A Bit; 5= A great Deal.

Items	Options				
	1	2	3	4	5
1. How much can you do to control disruptive behavior in the classroom?					
2. How much can you do to motivate students who show low interest in school work?					
3. How much can you do to calm a student who is disruptive or noisy?					
4. How much can you do to help your student value learning?					
5. To what extent can you craft good questions for your students?					
6. How much can you do to get children to follow classroom rules?					
7. How much can you do to get students to believe they can do well in school work?					
8. How well can you establish a classroom management system with each group of students?					
9. To what extent can you use a variety of assessment strategies?					
10. To what extent can you provide an alternative explanation or example when students are confused?					
11. How much can you assist families in helping their children do well in school?					
12. How well can you implement alternative teaching strategies in your classroom?					

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