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IMPACT OF SUMMER TRAINING PROGRAM ON TEACHERS' SELF-EFFICACY: GENDER AND SUBJECT SPECIALIZATION DIFFERENCES

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Abstract
Teachers' self-efficacy is not a new concept in research. Still, it remains an evergreen construct to be studied regularly, allowing teachers' motivation, effectiveness, and practices to be reviewed continuously. The current study was conducted during a summer training program in Faisalabad, where researchers were tasked with delivering various training sessions with faculty members serving as resource persons. The study examined trainee teachers' perceptions (189) regarding self-efficacy. The researchers collected teachers' self-efficacy beliefs using the shorter version of the Teacher Sense of Efficacy Scale (TSES) prepared by Tschannen-Moran & Woolfolk Hoy (2001). Quantitative research was conducted utilizing a post-training survey. Data were analyzed using independent samples t-tests to examine the differences in teachers' self-efficacy beliefs based on gender and subject specialization. There was no significant mean difference in teachers' self-efficacy beliefs based on gender. However, female teachers were found to be more self-efficacious than male teachers. There was a significant mean difference in the self-efficacy beliefs of science and art teachers, while art teachers were more self-efficacious than science teachers. The study highlights the importance of the subject-related specialization initiatives for developing professional teachers to enhance their effective pedagogy and self-confidence. These findings may lead to the development of differentiated professional development plans based on future contextual needs by program designers.

Key Words: *Self-efficacy, perceptions, gender, professional development, subject specialization*

Introduction
The educational landscape is rapidly evolving, and content knowledge alone is insufficient for teachers to teach effectively in the classroom. The days when teachers were viewed as the sole source of information are long gone. Today, teachers' effectiveness hinges on various factors, including confidence in classroom management, engaging students, and employing innovative teaching practices. In this evolving educational landscape, quality has become a buzzword. To enhance teacher quality, professional development activities are continuously planned and implemented to empower teachers to become self-efficacious in their workplace. The quality of education in any country depends on several elements, with one of the most critical being the caliber of teachers within the classroom. In the post-COVID-19 era, the world seeks exceptional teachers to lead the way. Quality education is a global imperative; no one wants to be left behind. Everyone is striving for international standards in educational quality. Achieving quality education is unattainable without quality teachers. Countries worldwide are working to improve teacher education. As human civilization continues to advance, so too do teachers and the art of teaching. Teachers are provided with training throughout their teaching careers to stay up-to-date with the

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JALT

latest developments in their field. Educators are the backbone of any educational system. Throughout human history, teachers have remained answerable to those who paid for their services. In ancient Greece, teachers were held responsible to the parents of the children they were teaching. With the passage of time and developments in educational systems among societies, teachers were held accountable to stakeholders who provided them with butter and bread. From the early days of recorded history, educators have reflected their society's needs and the culture of their time. They taught and trained their students as per the needs of the time and prevailing conditions. Teaching as a profession has endured and is expanding from the local level to a more globalized context, where boundaries are becoming increasingly blurred.

Nowadays, it is universally acknowledged that training teachers is essential, as they work and teach in a diverse environment. Their capacity to teach effectively can be developed through training for the future, so that teaching as a profession not only continues but also flourishes over time. In these circumstances, teachers' self-efficacy is not only very important but also crucial for the survival of teaching as a profession. It not only arouses motivation but also increases efficiency. It is widely observed that teachers who are highly self-efficacious are more likely to adopt state-of-the-art teaching, apply effective classroom management strategies, and achieve positive outcomes for their students (Tschannen-Moran & Woolfolk Hoy, 2001).

As a construct, self-efficacy is embedded in the social cognitive theory of Bandura. It is a context-specific belief, likely to change when changes in the surroundings take place (Tschannen-Moran, Woolfolk, & Hoy, 1998). It was further expanded by Tschannen-Moran and Hoy (2001). Self-efficacy for a teacher can be explained as a teacher's judgment regarding their competence in achieving positive engagement and learning outcomes, even for students who are uninterested and challenging (Tschannen-Moran & Woolfolk Hoy, 2001). Teachers who exhibit higher self-efficacy are more likely to accept innovative teaching ideas and methods. While demonstrating a better prepared level and being more productive in coping with student mistakes, these teachers are more determined in times of strain (Tschannen-Moran, Hoy, & Hoy, 1998).

Self-efficacy varies across diverse backgrounds, including locality, teaching subjects, medium or method of instruction, or any related factors. Widespread research has already been conducted on this construct of importance in different educational contexts and settings, such as the self-efficacy beliefs of teachers and characteristics such as gender & experience in teaching; in organizational climate & level of performance, the behavior of the head teachers, managing classrooms and students, etc. (Fackler & Malmberg, 2016; Coladarci & Breton, 1997; Hoy & Woolfolk, 1993; Emmer & Hickman, 1990).

Self-efficacy is not a simple construct; rather, it is a complex and multifaceted, with a wide-ranging magnitude and diverse levels (Bandura, 1997). One cannot be efficacious in every aspect of life, as these beliefs exist on a continuum from strong to weak. For teachers, self-efficacy beliefs are crucial to their success, as they relate to their self-confidence in performing tasks such as teaching, managing classrooms, and effectively engaging all students (Saloviita & Almulla, 2024).

A person's values, as a teacher, are essential, as they can enhance self-efficacy. Barni & Benevene (2019) examined the relation between self-efficacy and the role of personal values and motivation for teachers within a sample of 227 Italian teachers. A positive correlation was found between the variables of the study.

Teacher self-efficacy (TSE) has been explored within two frameworks of teachers, namely in-service and pre-service contexts. For instance, TSE is linked to the quality of instruction provided by in-service teachers (Holzberger et al., 2013), resilience (Beltman et al., 2011), and job

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JALT

satisfaction (Klassen & Chiu, 2010). Regarding pre-service teachers, TSE is associated with their commitment to successfully earning a degree in teaching (Pfitzner-Eden, 2016).

Many factors can influence TSE, but researchers have grouped these factors into two main types, i.e., demographic and contextual. Teacher self-efficacy is context-specific; TSE always depends on the environment that is specific (Dellinger et al., 2008; Friedman & Kass, 2002) and is influenced by school climate and leadership (Tschannen-Moran & Hoy, 2007). Additionally, one finds the influence of demographic factors like age, gender, teaching experience, designation, marital status, and educational qualifications on TSE.

Literature on teacher self-efficacy describes four significant sources of self-efficacy for teachers (Furtado Nina et al., 2016). The teachers judge their self-efficacy grounded on their past teaching perceptions (experience of mastery or accomplishments); the successes or failures of those teachers who served as models (experiences of vicarious); the verbal encouragement available in the working atmosphere from colleagues, supporting staff and head teachers (persuasion verbally); and the experienced pleasure in practicing teaching (physiological and affective factors) all make up the foundations of self-efficacy for teachers. The mentioned sources have no direct effect on self-efficacy; rather, their impact depends on the interpretation of personal experiences (Bandura, 1997).

Once teachers have established high performance levels of success and a solid sense of self-efficacy, failures are less prone to harm self-efficacy and have a minimal damaging effect on teachers' mastery experiences. Factors such as presumptions of personal abilities, assumed task difficulty, devoted effort, outside backing received, progressive success and failure patterns, and organization of the above factors cognitively boost an individual's self-efficacy.

Performance achievement or mastery experiences refer to the actions of individuals inside the behavioral realm (Morris et al., 2017). These experiences are perceived as the robust foundation for generating the strongest self-efficacy expectations (Bandura, 1977).

Cognitive processing is an important aspect of developing teachers' self-efficacy. Two important cognitive processes are noteworthy in the growth and development of self-efficacy: one is the scrutiny of teaching context, and the other is, an assessment of one's ability to teach.

To enhance self-efficacy, in an individual, mastery experiences are prerequisites and are attributed to an individual's effort, skills, and capabilities.

Teachers not only analyze their teaching tasks, but also identify factors that contribute to making teaching difficult with limited resources. This, in turn, affects the self-efficacy of teachers. This process works cyclically. When teaching tasks are accomplished, it is considered an experience of mastery that boosts the self-efficacy of concerned teachers (Tschannen-Moran et al., 1998). Sometimes, experiences of mastery of the past are not enough in novel situations; one looks to others who are achieving better in their field. This allows for modeling success in the field. Self-efficacy can be boosted through this initiative. Verbal communication is an important source for enhancing self-efficacy. When difficulties arise during teaching, verbal persuasion can marshal individuals to overcome these challenges (Lazarides & Warner, 2020).

In a meta-analysis review, researchers cited that regardless of the type of school (public or private) or service (in-service or preservice), teaching class level or subject, teachers with high self-efficacy do not suffer from burnout, stress or anxiety due to their accomplishments in teaching: rather they are satisfied with their job (Zee & Koomen, 2016). They further discussed teachers' self-efficacy and students' academic outcomes. They concluded that teachers' self-efficacy was closely associated with the motivation, achievement, and academic adjustment of learners. In this regard,

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JALT

the authors suggested that learners' motivation might be the outcome of quality classrooms, and subsequently, a central factor regarding teachers' self-efficacy rather than the students' academic performance.

Teacher self-efficacy develops over time. It is assumed that teachers, in their initial phase of teaching career, undergo a decline in their self-efficacy. Teachers navigate hurdles and challenges in their careers, and once they overcome these challenges, their efficacy boosts.

From early days to mid-career, efficacy tends to increase amongst teachers. Research studies disclosed that experienced teachers are more self-efficacious than novice teachers in classroom management and other aspects of teaching (Freeman et. al., 2014; Klassen & Chiu, 2010; Wolters & Daugherty, 2007; Brouwers & Tomic, 2000).

Teachers are the backbone of education in Pakistan and are provided with teacher training during their teaching careers. The country's public and private sectors cater to the professional needs of their teachers. Pre-service and in-service teacher training institutions in the country remain busy around the clock with prearranged training tasks. Quaid-e-Azam Academy of Education Development (QAED) in Punjab is an example of a teacher training institution where in-service teachers are engaged in professional development. On the other hand, the private sector offers opportunities for professional development as per teachers' needs. High-quality schools in the private sector have established their state-of-the-art departments of professional development (DPD), where teacher training is a key feature. Professional development programs and activities, especially during vacation, have a significant role in molding teachers' confidence and abilities. These activities are effectively planned and conducted professionally. It not only provides an opportunity for bringing teachers up to date with the latest developments, but also guides policymakers in keeping teachers dedicated to the profession. Interventions with specific contexts frame teachers' pedagogical confidence (Saloviita & Almulla, 2024).

Research on teachers in Pakistan is a regular activity, and researchers develop different ideas. Few dominant ideas of research in recent days on teachers in Pakistan are assessing teacher competencies (Kalim & Bibi, 2024), job satisfaction of teachers (Hameed, et.al, 2018), self-efficacy (Sharma, et.al, 2015), teacher self-efficacy, and student performance (Butt, et.al. 2012), etc. As it is not a static construct, TSE evolves with career advancement and professional development. Those who are experienced embrace innovations, effective classroom management, and display resilience while encountering hard times. Despite extensive research on TSE focusing on post-training subject specialization, the research in Pakistan is limited in scope.

Keeping in mind these trends in related literature, the present study was designed to investigate self-efficacy, gender differences, and subject specialization among teachers working in Faisalabad city. The targeted teacher training program aimed at addressing diverse needs, where subject specialization may affect teaching experience due to curricular differences in pedagogy from intended to implemented, yet remains underexplored in professional development.

The Present Study

The study was conducted during a summer teacher training program where researchers were hired as resource persons. It was a two-week in-service training program for teachers that covered topics such as classroom management, body language, assessment techniques, time management, and other relevant areas. The teachers were from a highly reputable semi-government institution, and all the educators at the institution participated in the training. A convenience sampling technique was utilized for sample selection. Altogether, 189 teachers were teaching from Early Years

ISSN E: 2709-8273
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JOURNAL OF APPLIED LINGUISTICS AND TESOL
JALT

Education (EYE) to the SSC level. This group included both newly appointed and seasoned educators. Among those who joined the training were 126 female and 63 male teachers.

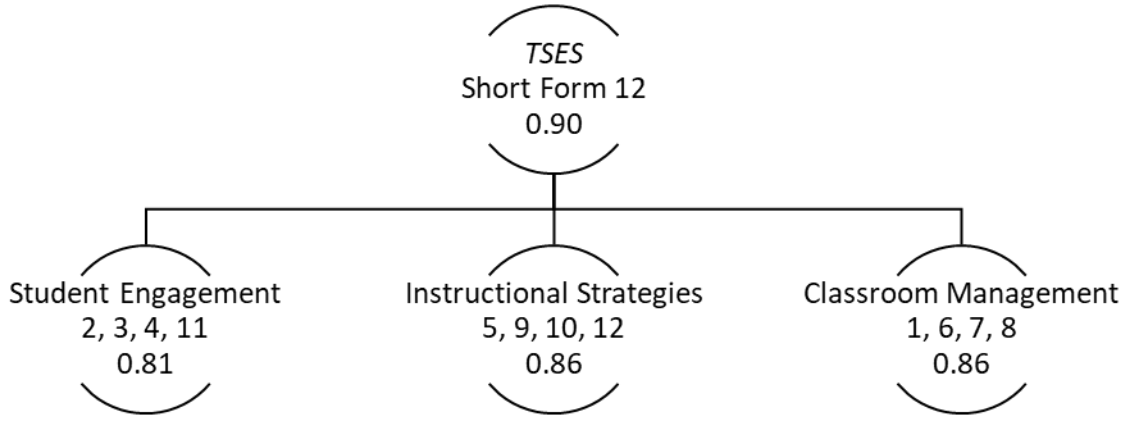
The researchers provided a dedicated space for teachers to enhance their pedagogical skills by sharing the latest knowledge, utilizing new technologies, and encouraging self-efficacy among teachers. Despite comprehensive research on the self-efficacy of teachers, limited research has been conducted on how subject specialization affects teachers' self-efficacy, focusing on short-term post-training programs. To ensure relevance and pedagogical quality, trainers collected ongoing participants' feedback after the conclusion of each session.

The objectives of the study were to determine the current level of self-efficacy among teachers and to investigate the differences in self-efficacy based on gender and subject specialization during summer training initiatives. After completing the training sessions, teachers were instructed to fill out the Teacher Sense of Efficacy Scale (*TSES*). The short form of the Teacher Sense of Self-Efficacy Scale (*TSES*) includes 12 statements. For this study, the scale was adapted to a 5-point format, ranging from "none" (1) to "a great deal" (5). To ensure linguistic clarity and precision, *TSES* was piloted with 10 teachers. The reliability of the scale, Cronbach's Alpha (α), was 0.79.

The teachers' sense of efficacy is evaluated across three distinct domains: student engagement, the use of instructional strategies, and classroom management. Figure 1 illustrates details regarding *TSES*.

Figure 1

Factor structure and reliability of *TSES*



In Tschannen-Moran, M., & Woolfolk Hoy, A. (2001)

Results

Table1

Comparison of Teachers' Self-Efficacy Beliefs Based on Gender

Gender	N	M	SD	*df*	T	*p*	*Cohen's d*
Male	63	4.75	0.58	187	-1.52	0.132	0.26
Female	126	4.95	0.96				

*p<0.05

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JOURNAL OF APPLIED LINGUISTICS AND TESOL
JALT

Table 1 presents a comparison of teachers' self-efficacy beliefs based on gender. No significant mean difference in the self-efficacy beliefs of teachers was observed. Though, females were found to be more self-efficacious (M = 4.95) than male teachers (M = 4.75).

Table 2

Gender-wise Teachers' Self-Efficacy Beliefs on Sub-Scales

Variables		*N*	*M*	*SD*	*df*	*T*	*P*	*Cohen's d*
Student Engagement	Male	63	4.64	0.59	187	-1.84	0.068	0.29
	Female	126	4.88	0.98				
Instructional Strategies	Male	63	4.87	0.71	187	0.22	0.83	0.04
	Female	126	4.83	1.04				
Classroom Management	Male	63	4.76	0.65	187	-2.56	0.011*	0.42
	Female	126	5.14	1.08				

*p < 0.05

Table 2 describes teachers' self-efficacy beliefs regarding student engagement, instructional strategies, and classroom management on the basis of gender. No significant difference was observed in student engagement and instructional strategies. However, female teachers felt more self-efficacious in engaging students (M = 4.88) than their male counterparts (M = 4.64). On the other hand, male teachers (M = 4.87) were more self-efficacious than female teachers (M = 4.83) in their use of instructional strategies during classroom teaching.

Table 2 further describes the subscale of classroom management, where a significant mean difference was observed between male teachers (M = 4.76, SD = 0.65) and female teachers (M = 5.14, SD = 1.08); t (187) = -2.56, p = 0.011*with a medium effect-size d = 0.42. The mean scores indicated that female teachers (M = 5.14) had better classroom management skills than male teachers (M = 4.76).

Table 3

Comparison of Teachers' Self-Efficacy Beliefs Based on Subject Specialization

Gender	N	M	SD	*df*	T	*P*	*Cohen's d*
Science	130	4.77	0.78	187	-2.87	0.005*	0.44
Arts	59	5.15	0.96				

*p<0.05

Table 3 shows a comparison of self-efficacy beliefs of teachers teaching different subjects. A significant mean difference was found in the self-efficacy beliefs of science teachers (M = 4.77, SD = 0.78) and art teachers (M = 5.15, SD = 0.96); t (187) = -2.87, p = 0.005* with a medium effect-size d=0.44. The analysis further indicates that arts teachers were more self-efficacious (M = 5.15) than science teachers (M = 4.77).

Table 4

Subject Specialization Teachers' Self-Efficacy Beliefs on Sub Scales

Variables		*N*	*M*	*SD*	*df*	*T*	*p*	*Cohen's d*
Student Engagement	Science	130	4.69	0.84	187	-2.58	0.011*	0.40
	Arts	59	5.04	0.92				
Instructional Strategies	Science	130	4.76	0.86	187	-1.93	0.050*	0.29
	Arts	59	5.04	1.08				
Classroom Management	Science	130	4.86	0.87	187	-3.34	0.001*	0.50
	Arts	59	5.36	1.11				

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JALT

$^{*}p < 0.05$

Table 4 presents a comparison of science and arts teachers on sub-scales of *TSES,* i.e., student engagement, instructional strategies, and classroom management. There was a significant mean difference in students' engagement by science teachers (M = 4.69, SD = 0.84) and art teachers (M = 5.04, SD = 0.92); t (187) = -2.58, p = 0.011* with a moderate effect-size d=0.40. It is observed that arts teachers (M = 5.04) are more self-efficacious in engaging students than science teachers (M = 4.69). Due to the communicative and creative nature of their subjects, Art teachers enrich their self-efficacy through vicarious experiences. Art teachers' enhanced self-efficacy emerges from their artistic command, is due to an effective student-centered approach in their discipline (Bandura, 1997).

As far as the use of instructional strategies is concerned, a significant mean difference was found between science teachers (M= 4.76, SD= 0.86) and art teachers (M = 5.04, SD = 1.08); t (187) = -1.93, p = 0.050* with a moderate effect-size d=0.50. The analysis further highlights that art teachers (M = 5.04) are more self-efficacious in instructional strategies than science teachers (M = 4.76).

The third sub-scale of *TSES* deals with classroom management. A significant mean difference was found in classroom management between science teachers (M = 4.86, SD = 0.87) and art teachers (M = 5.36, SD = 1.110; t (187) = -3.34, p = 0.001*. It is also observed that arts teachers (M=5.36) are more self-efficacious than science teachers (M = 4.86) in the context of classroom management.

Discussion & Conclusions

The findings of the research study at hand highlighted the effect of a summer training program on teachers' perceptions of self-efficacy, specifically regarding differences in their gender and subject specialization. The results indicated that summer training had an impact on the perceptions of teachers' self-efficacy. Both the male and female teachers benefited from the training. Female teachers may have been perceived as more efficacious than male teachers. Reasons can be mentioned in this regard, for example, being more adaptable to the training program, having an interest in professional development activities, or having self-confidence in teaching abilities.

Additional insights emerged when analyzing sub-scales of *TSES.* Although no significant differences were found in the student engagement scale and instructional strategies scale used by both genders, a statistically significant difference was observed in classroom management (p = 0.011*). The female teachers (5.14) were perceived as more self-efficacious than male teachers (4.76). This difference may be due to their self-confidence in classroom management, teaching experience, effectiveness, or the use of other strategies for managing the students' behavior.

On the other hand, subject-wise differences in teachers' self-efficacy are concerned, teachers teaching art subjects (5.15) were perceived to be more self-efficacious than science teachers (4.77). This means art teachers perceive training as more relevant to their subject and the art of teaching.

While analyzing subject-wise differences in self-efficacy, sub-scales of *TSES* revealed that art teachers were more self-efficacious than science teachers on all three sub-scales, verifying the fact that self-efficacy beliefs vary significantly by subject specialization.

This has implications for Punjab's QAED and private school PD models, where similar training modules are offered annually to prepare teachers for workplace effectiveness.

The results align with various studies conducted in the global context.

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JOURNAL OF APPLIED LINGUISTICS AND TESOL
JALT

Future researchers may design professional development training modules relevant to institutional subject-specific domains, customizing personalized learning. Policy makers are recommended to tailor longitudinal professional development with incentives alongside an efficacious follow-up scaffolding design for teacher efficacy enhancement. Post-training PD may take into consideration mentoring and scaffolding approaches for maintaining sustainable, self-efficacious teachers' CPD over time.

The current study is limited in its qualitative approach with lack of control group implementation. The scope of the study comprised one institution only. Future researchers can enhance by adding more institutions to strengthen the generalization of their studies.

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