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English as Foreign Language (EFL) Teachers' Efficacy and Positive Achievement Emotions: Relations to Instructional Changes After Attending a Study Abroad Program

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ARTICLE INFO	ABSTRACT
	Due to government policy, the number of study abroad professional development program for EFL teachers increased greatly in China during recent years. Study abroad program aims to help EFL teachers improve their knowledge and teaching practices, which requires them to make adjustments to their traditional teaching styles accordingly. Hence, teachers may experience strong emotional reactions when they are faced with different modes of teaching methods. From the perspective of "emotion", this study used control-value theory of achievement emotions as the theoretical framework to examine the relationship between teacher efficacy, positive achievement emotions, and instructional changes among 386 Chinese EFL teachers who attended study abroad programs. Purposive sampling was used in data collection. Data analysis was conducted using Structural Equation Model (SEM). The results showed that teacher efficacy correlated positively with positive achievement emotions (enjoyment, hope, and pride) and instructional changes. Positive achievement emotions mediated the relationship between teacher efficacy and instructional changes. Findings showed the impact of teacher efficacy and positive achievement emotions on changes in teachers' thinking and instructional practices. Based on the findings and limitations of this study, implications on teacher education and professional development program, directions and suggestions for future studies are discussed.

1. Introduction

Study abroad programs for teacher professional development attempt to help teachers improve their knowledge, skills, and perspectives, as well as incorporating a cross-cultural awareness into their teaching [1]. Therefore, study abroad programs often emphasize on changing teachers' teaching practices and developing more open-mindedness to alternative teaching approaches by exposing teachers to new ideas and skills [2]. However, making substantial changes to teachers' teaching practices may trigger their emotional reactions because their pre-existing teaching beliefs are challenged [3]. When teachers study in other countries, their emotions may be challenged more intensively because they need to adapt to the linguistic, social, and cultural context [4].

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Achievement emotions are important in teacher development in that emotions have been proved to influence cognition, decision-making, problem-solving and teaching approaches [5]. Since positive emotions are generally considered to promote learning [6], it is necessary to examine emotions in teacher education and their antecedents for obtaining satisfactory training outcomes. Yet, research on positive emotions in EFL teachers' education and the relationships with their efficacy and instructional changes has only received limited attention in literature.

The present study aimed to address the deficits in literature. Based on Pekrun's [7] [8] control-value theory (CVT) of achievement emotions, this study examined the effects of teacher efficacy on three types of positive achievement emotions, including enjoyment, hope, and pride. Besides, the mediating role of positive emotions in relations between teacher efficacy and instructional changes were also examined. As noted, it suggests that teachers with high levels of efficacy will experience more positive emotions, which in turn, will be more willing to improve their teaching practices.

1.1 Teacher Efficacy and Instructional Changes

Self-efficacy is generally considered as a powerful motive of behavior. When individuals hold the beliefs that what they act will lead to the results they want, they will have the motivation to take actions and persist when encountering difficulties or challenging tasks [9]. Since changing instruction is a challenging task for teacher, the present study explains the impact of teacher efficacy on their instructional changes based on Bandura's [10] self-efficacy theory.

In the educational setting, teacher efficacy refers to a belief of one's capability in affecting students' learning and achieving expected educational outcomes [11]. Teachers with high level of efficacy tend to believe in their ability of affecting students' learning, manage class discipline better, be more supportive of students' autonomous learning [12], implement more alternative teaching methods, and use more innovative teaching resources [13]. While encountering different or challenging tasks such as the implementation of new and innovative instruction, efficacious teachers tend to persist rather than avoiding.

Bandura's theory of teacher efficacy is consistently supported by empirical studies indicating that teacher efficacy strongly predicts their behavior, especially their instructional choices and practices [14] [15] [16]. For instance, research showed that teacher efficacy was correlated with their perceptions toward the implementation of new in-structional practices [17]. The findings reported by Ghaith and Yaghi [18] also supported that teacher efficacy is a strong predictor of teachers' attitudes toward instructional changes. In addition, researchers found that teachers with higher levels of efficacy tend to adopt innovative instruction such as constructivist instruction instead of didactic instruction more frequently [19]. Therefore, one purpose of the present study is to testify the connection between teacher efficacy and instructional changes.

1.2 Control-Value Theory (CVT) of Achievement Emotions

Achievement emotions refer to emotions relevant to achievement activities or outcomes [7]. Eight emotions were identified as most commonly experienced in academic settings [20]. Based on the dimensions of valence and activation, three positive activating emotions (i.e., enjoyment, hope, and pride) were examined in the present study.

Achievement emotions are of great importance in learning and performance. Positive emotions not only urge learners to explore, but also serve to keep an open mind to target language [21]. Empirical studies identify that positive activating emotions such as enjoyment, hope, and pride help learners extend interest, focus on certain tasks, and adopt more flexible or deep learning strategies [6] [22].

The present study incorporates CVT into the theoretical framework. CVT assumes that control and value appraisals are proximal determinants of certain emotions and afterwards outcomes. Control appraisals are defined as perceived causal impact of an agent on achievement [23], usually operationalized as self-efficacy [24]. If learners can take more control of their learning, it is more likely for them to trigger positive emotions. Together with the impact of positive emotions on learners' learning and performance described earlier, it could be concluded that control appraisals should influence learners' achievement through their emotions. Hence, CVT assumes that positive emotions can play a mediating role between control appraisals and achievement. So far, CVT has been commonly studied from the perspective of students [25] [26] rather than applied to teacher emotions in learning.

However, Pekrun [7] posited that CVT assumptions can be applied to emotions experienced by teachers as well as students. In fact, emotions are crucial in teacher development [27]. Rogers [28] claimed that teachers' own learning experiences enable them to enter into their student' learning experiences by mutual emotional language, and thus understanding students deeply and eventually becoming better teachers. Previous research on teacher emotions primarily focused on anxiety without considering a wide

range of other emotions [29] [30] [31]. Empirical studies concerning the influence of positive emotions on teacher professional development have emerged not long ago [32] [33]. For example, Gu et al. [33] explored the impact of emotions such as love, satisfaction, and happiness on EFL teachers' professional development. Results indicated that these emotions can motivate teachers to make improvement in their instruction. Chen [32] examined the relationships among teacher efficacy, emotions, and their performance. Results showed that love and joy positively predicted their performance as related to teacher efficacy. These studies extend the empirical focus to the role of positive teacher emotions in their achievement.

Only a handful of studies have examined the relations among teacher efficacy, positive emotions and outcomes in teacher education. Based on CVT, a Chinese study was conducted to examine the affecting factor of teacher emotions in online training courses [34]. Findings found that teachers' sense of efficacy is a positive predictor to enjoyment and pride. Also, positive emotions are positively related to teachers' satisfaction and performance scores. When teachers experienced more enjoyment and pride in learning, they tended to perform better and improve the effectiveness of training. Besides of the positive correlation, recent research indicated that teachers' positive emotions (excited, inspired, and confident) can trigger their changes in teaching practices and thinking [2]. Up to present, it seems that no studies have explored the connections between teacher efficacy, positive emotions, and instructional changes in teacher development.

1.3 Research Aims and Hypotheses

In summary, based on the CVT assumption and self-efficacy theory, the present study explored the relations among teacher efficacy, positive achievement emotions (enjoyment, hope, and pride), and instructional changes within the context of the overseas teacher education program. The research question in the current study is proposed as following:

What are the relationships among teacher efficacy, positive achievement emotions, and their instructional changes?

The two hypotheses are listed as following:

Hypothesis 1. Teacher efficacy is positively related to positive achievement emotions and instructional changes.

Hypothesis 2. Positive emotions mediate the relationship between teacher efficacy and instructional changes.

2. Research Method

2.1 Participants and Procedures

Participants were 386 university EFL teachers (256 female, 130 male) from 11 public universities in Southeastern China. Participants were drawn by purposive sampling, who attended a study abroad professional development program. All full-time EFL teachers were invited to participate in an online survey through the URL link sent to them. The age of most participants ranged from 30 to 39 and the majority had 7 to 14 years of teaching experience. 87.0% held a Master degree and 76.2% were lecturer. At the beginning of the survey, teachers were informed of the purpose and a brief description of this research. The participants were guaranteed that their responses would be kept confidential. Three days before the deadline, the researcher sent an email to remind the participants of completing the online survey. The total number of responses was 397 with a participation rate 91%.

2.2 Research Instruments

2.2.1 Teacher Efficacy

Teacher efficacy scale was adapted from Teacher Self-Efficacy Scale (TSES) developed by Bandura [10]. It consisted of 14 items on efficacy to influence decision making (four items; e.g., "How much can you influence the decisions that are made in school), instructional self-efficacy (six items; e.g., "How much can you do to get through to the most difficult students), and disciplinary self-efficacy (four items; e.g., "How much can you do to get students to follow classroom rules). Participants responded by using a five-point Likert scale (1 = nothing to 5 = a great deal; α = 0.93).

2.2.2 Positive Achievement Emotions

The scale of positive achievement emotions was adapted from Pekrun et al.'s [24] achievement emotions questionnaire (AEQ) to assess three positive emotions, including one activity emotion (enjoyment) and two outcome emotions (hope, pride), which are proved as relevant to learning. It comprised 18 items on achievement emotions for enjoyment (seven items; e.g., "I look forward to studying"), hope (six items; e.g., "I feel confident when studying"), and pride (five items; e.g., "I am proud of my capacity"). Participants responded by using a five-point Likert scale (1 = not at all to 5 = very much; α = 0.92).

2.2.3 Instructional Changes

Instructional changes survey was adapted from Pop et al.'s [35] to assess teachers' changes to teaching practices after attending an overseas training program. The 12-item scale measured teachers' changes to teaching style (four items; e.g., "I adopted a more student-centered approach in teaching"), changes to class instruction (four items; e.g., "I made use of more collaborative activities in teaching"), and changes to thinking (four items; e.g., "I am more excited about attending other programs to enhance English expertise"). Participants responded by using a five-point Likert scale (1 = strongly disagree 5 = strongly agree; α = 0.90).

2.3 Data Analysis

The Structural Equation Modeling (SEM) was used in the present study to analyze the relationships among teacher efficacy, positive achievement emotions, and instructional changes. SEM makes it possible to test a number of hypotheses about the relationship among manifest variables, latent variables, and other variables [36]. Meanwhile, it is widely used because it can simultaneously test the direct and indirect correlations between variables in a single model [37].

Data analysis was conducted in three stages. First, confirmatory factor analysis (CFA) was conducted to test the factor structure of each construct. Second, direct effects between variables were assessed by SPSS-AMOS (Analysis of Moment Structure) 23.0. Third, SEM was used to estimate mediation. In the model, teacher efficacy served as predictor, positive achievement emotions as mediator, and instructional changes as the outcome. The mediational model tested the direct and indirect effects of teacher efficacy on positive emotions and instructional changes, combined with the direct impacts of positive emotions on instructional changes.

3. Results

3.1 Preliminary Analysis

Table 1 presents the CFA results of factor loadings and model fit indices. The fitness indices of all constructs should satisfy the criteria: (1) Root Mean Square Error of Approximation (RMSEA) < .08; (2) Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI) > .90; (3) Chi-Square/df < 3.0 (Awang et al., 2018).

Based on the criteria above, the 14-item teacher efficacy model presented an acceptable to good model fit (RMSEA = .034; CFI = .989; TLI = .987; Chi-Square/df = 1.455). The 18-item achievement emotions model

presented an acceptable to good model fit (RMSEA = .041; CFI = .975; TLI = .972; Chi-Square/df = 1.648). The 12-item instructional changes model presented an acceptable to good model fit (RMSEA = .047; CFI = .981; TLI = .976; Chi-Square/df = 1.868).

Table 1 Confirmatory Factor Analyses (CFA) Results of Constructs

	Factor loadings	RMSEA	CFI	TLI	Chi-Square/df
Teacher Efficacy	.70-.90	.034	.989	.987	1.455
Positive Emotions	.65-.81	.041	.975	.972	1.648
Instructional Changes	.71-.87	.047	.981	.976	1.868

Note. Factor loadings are standardized coefficients. All factor loadings are significant at $p < .001$.

The mean, standard deviations, and Pearson product-moment correlations of variables are shown in Table 2. Descriptive statistics from the construct of achievement emotions indicated that Enjoyment was rated as the most frequent emotion ($M = 3.71$, $SD = 0.78$), while Pride was ranked as the second most frequent emotion ($M = 3.67$, $SD = 0.79$), followed by the other emotion Hope ($M = 3.52$, $SD = 0.84$). Teacher efficacy, the predictor in the model, correlated significantly and positively with enjoyment ($r = .288$, $p < .001$), hope ($r = .299$, $p < .001$), and pride ($r = .270$, $p < .001$). The predictor is also related to instructional changes ($r = .489$, $p < .001$). Besides, instructional changes correlated significantly and positively with enjoyment ($r = .451$, $p < .001$), hope ($r = .553$, $p < .001$), and pride ($r = 439$, $p < .001$).

Table 2 Mean, Standard Deviation, and Pearson product-moment Correlations

	M	SD	1	2	3	4
1. Teacher Efficacy	3.63	.83				
2. Enjoyment	3.71	.78	.288			
3. Hope	3.52	.84	.299	.596		
4. Pride	3.67	.79	.270	.553	.508	
5. Instructional Changes	3.46	.70	.489	.451	.553	.439

Note. N = 386.

p < .001.

3.2 Hypotheses and Model Testing

As noted in Table 2, the correlations were in line with all hypotheses. Structural equation modeling was used to further test the hypotheses. In accordance with the hypotheses, all possible paths from teacher efficacy to

each positive emotion and instructional changes were tested through standardized estimates. The model-data fit for the hypothesized model was acceptable to good fit (Chisq/df = 1.692, p < .001, RMSEA = .042, CFI = .987, TLI = .980). Standardized coefficients are presented in Figure 1. The results supported Hypothesis 1 that teacher efficacy was positively related to positive emotions (β = .43, p < .001) and instructional changes (β = .37, p < .001). Besides, positive emotions were positively related to instructional changes (β = .60, p < .001). In sum, the results suggested that teacher efficacy had indirect effects on instructional changes through positive emotions. The fit of the overall model is consistent with Hypothesis 2.

3.3 Mediation and Bootstrapping

Furthermore, bootstrapping method was used to confirm the existence of mediation proposed in Hypothesis 2. Table 3 shows the bootstrapping results for estimating indirect effects with 95% confidence intervals. Positive emotions significantly mediate the relationships between teacher efficacy and instructional changes, because their

bias-corrected bootstrap confidence interval did not include zero and the Z values of the total effect, indirect effect, and direct effect are greater than 1.96, supporting mediation effects.

Taking these together, teacher efficacy positively predicts positive achievement emotions and instructional changes, and positive emotions (i.e., enjoyment, hope, and pride) mediate the relationship between teacher efficacy and instructional changes. Therefore, all the four hypotheses proposed in the present study have been confirmed in this structural model.

4. Discussion

The current study investigated relations among teacher efficacy, positive achievement emotions, and instructional changes. In other words, the study assessed the effects of teacher efficacy on positive achievement emotions and instructional changes. Furthermore, the study examined the effects of positive achievement emotions mediating the relations between teacher efficacy and instructional changes.
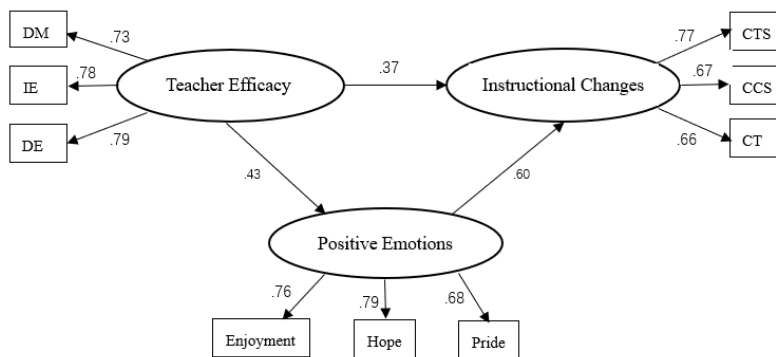

Figure 1. *Structural equation model with standardized coefficients*

Note. All paths in structural model analysis are significant at *p* < .001.

Table 3 Bootstrapping Results for Estimating Indirect Effects with 95% Confidence Intervals (CI)

Variable	Point Estimate	Product of Coefficients		Bias-Corrected 95%CI		Two-Tailed Significance
		SE	Z	Lower	Upper	
Standardized Total Effects						
TSE→IC	0.625	0.056	11.161	0.510	0.727	0.000
Standardized Indirect Effects						
TSE→PEM→IC	0.259	0.054	4.796	0.166	0.382	0.000
Standardized Direct Effects						
TSE→IC	0.367	0.073	5.027	0.215	0.511	0.000

Note. N = 386. *SE* = bootstrap standard error. Point estimate, SE, and 95% CI were obtained from 2,000 bootstrap samples. TSE = teacher efficacy. IC = instructional changes. PEM = positive emotions.

In line with Hypothesis 1, teacher efficacy positively predicted the positive emotions (i.e., enjoyment, hope, and pride). This result is in line with previous research that teachers with higher levels of efficacy are more likely to experience positive achievement emotions [32]. Specifically, teachers' confidence in instruction results in their enjoyment during the learning process, and in turn leads to more energy and vigor, higher sense of enthusiasm and pride, and higher level of concentration and happiness [38]. On the contrary, as the less efficacious teachers do not have much confidence in teaching, when they find their shortcomings in the interaction process, they may experience less enjoyment in the training [39].

Besides, teacher efficacy was a positive predictor of instructional changes. In other words, when the level of teachers' sense of efficacy increases, they are more willing to change their teaching practices and thinking. The results were consistent with several previous studies [40] [41]. Teachers with high level of efficacy exert more efforts on innovating new instructional strategies to make a difference in their students' learning [40]. Besides, teachers with less control over students' disruptive behaviors tend to use less innovative teaching methods to avoid dealing with a noisy class [42] [43]. Within the Chinese context, when teachers have low efficacy in affecting school decision making such as a lack of autonomy in adopting teaching resources, the large-size classes, and the examination system, they are less likely to make changes and innovation [44].

Consistent with Hypothesis 2, the findings suggest that the effect of teacher efficacy on instructional changes was mediated by enjoyment, hope, and pride. The control-value theory of achievement emotions is fully supported by the results of the present study. This finding is in line with the findings from the literature that teachers who believe they have the ability to organize their class and foster students' achievement will experience more positive emotions and implement more effective teaching strategies in class [43]. Specifically, positive achievement emotions predicted instructional changes. The findings of the present study implied that although positive emotions act as mediating variables, they are also important variables affecting teachers' instructional changes. The results supported the existing research that teacher emotions are either hindering factors or driving forces of their self-transformation [45] [46]. When teachers experience positive emotions, they tend to regard their activities as meaningful, self-fulfilling, and inspirational, and become more concentrated and devoted. The positive emotions such as enjoyment, enthusiasm, and satisfaction enable teachers to be more open-minded in accepting new goal-setting, and to achieve the related

goals more actively [47] [48]. Enjoyment and happiness encourage teachers to seek for unconventional teaching strategies, while excitement and enthusiasm inspire them to integrate new teaching methods into daily teaching practices. The feeling of pride and satisfaction increases teachers' desire to learn new knowledge and skills and enables them to believe that their efforts are worthwhile, as well as strengthening their positive attitudes toward teaching.

5. Implications

The present findings may add values to relevant theories, as well as educators involved to contemplate and act upon. First, this study extends the theory of teacher efficacy and the theoretical model for the outcome of teachers' overseas training. Also, it confirms that CVT can be applied to teacher studies. Besides, it also contributes to the current findings on the role of positive emotions in further education for teachers.

Second, the results of the present study are helpful for teacher education. Although study abroad program aims to improve teachers' traditional teaching practices, it may not result in successful instructional changes. This study informs that teacher efficacy is a key antecedent of positive emotions and instructional changes in the eyes of in-service EFL teachers. In the past, training program is viewed as an abstract, mechanistic, and dispassionate process that teachers make progress through a series of steps. The present study indicates that teachers' growth and changes are highly personized, which needs to be driven by their sense of efficacy and emotions toward the people and process around them. The training programs for teacher education might provide relevant guidance in emotional strategies and regulation as well as fostering teachers' sense of efficacy. For example, school could organize collaborative activities with useful resources provided by the returnees from the training program, which acts as a kind of vicarious experience and social persuasion [10], to promote teachers' instructional changes directly through increasing teachers' control of teaching, and then cultivate positive emotions as well.

6. Limitations and Future Research

A few limitations need to be taken into account and may provide directions for future research. First, it is hard to confirm any firm causality among variables in the present study. learners' emotions can influence their performance and academic achievement, while in turn will reciprocally impact their control appraisals that shape their emotional experiences in future [22]. The shortcoming

of the existing literature is the lack of consensus regarding the direction of causal relations and which pathway is more significant. The theoretical and empirical research on the bidirectional and multi-directional relations among teacher efficacy, achievement emotions, and instructional changes need to be further studied.

Second, the present study examined three positive activating emotions including enjoyment, hope, and pride. However, the influence of negative emotions when mixed with positive emotions are considered to be important to teacher learning as well. In the future, from the dimensions of valence and activation, negative activating emotions such as anxiety and shame and negative deactivating such as boredom and hopelessness should be taken into consideration as well. Since one single emotion may trigger a constellation of emotions, future research can focus on exploring a network of teacher emotions.

Third, the findings in the present study are based on teachers' self-reporting that may result in inaccurate perceptions toward their efficacy, emotions, and instructional changes. Future studies would be desirable if a richer range of assessment from multiple stakeholders such as peers, superiors, or students could be involved.

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