Teachers' Motivation to Teach, Teacher Credibility, Metacognitive Awareness, and Students' Motivation and Affective Learning: A Structural Equation Modeling Analysis

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Abstract

This study aimed to investigate the possible relationships among teachers' metacognitive awareness, their motivation to teach, students' perceptions of teacher credibility and students' affective learning, and motivation to study. Three hundred sixty-five English as a Foreign Language (EFL) students and seventy-four EFL teachers participated in the study. Three questionnaires were administered to students and two questionnaires were administered to teachers. The collected data were subjected to Structural Equation Modeling (SEM) to test the significance of the hypothesized paths among variables. The results indicated significant positive paths from teacher metacognitive awareness to teacher credibility and teacher motivation, also from teacher credibility to teacher motivation and students' affective learning, and from teacher motivation and students' affective learning to student motivation. The findings also indicated that teacher motivation could significantly affect students' affective learning. Furthermore, the results revealed that teacher credibility promotes student motivation through full mediation of students' affective learning and the indirect intervention of teacher motivation. Moreover, the path leading from teacher metacognitive awareness to students' affective learning was justified through the indirect effects of teacher motivation and credibility. Implications for teachers and teacher educators are also presented.

Keywords: Structural equation modeling, Student motivation, Students' affective learning, Teacher credibility, Teacher metacognitive awareness, Teacher motivation

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1. Introduction

English as a lingua franca has turned into a vibrant line of thinking over the past decades. Accordingly, English is taught and learnt extensively across the world as people feel the pressing need to be second language literate. For educators in any field, the important point of concern is students' success, which has motivated many researchers interested in EFL teaching and learning to investigate classroom interactions to see how teachers and students work to this end (Pogue & Ahyun, 2006). Teachers' role is very important in successful instruction and because the ultimate outcome of any instruction is learning (Gili, 2013), there is a substantial body of research on learning and the factors influencing it.

In the classroom environment, teachers are not merely providing students with information, but they are also shaping the way students perceive them as individuals (Banfield, Richmond, & McCroskey, 2006). This sense of perception gained by the students towards their teacher is called source credibility which has received extensive research attention (e.g., Henning, 2010; Pogue & Ahyun, 2006; Zhang, 2009).

Source credibility has been defined as the "attitude toward a source of communication held at a given time by a receiver" (McCroskey & Young, 1981, p. 24). However, this attitude is a multidimensional construct which, according to Aristotle, consists of intelligence, character, and good will. According to McCroskey and Teven (1999), if the students think of their teacher as not credible, they may listen to and learn less from that teacher. Research on perceived credibility indicates its importance in students' motivation, attention, and learning (Gili, 2013). However, despite its recognized role in learning, there is little research exploring the factors influencing students' perceptions of their teachers' credibility (Frymier & Thompson, 1992).

Credibility has also been claimed to have a direct impact on students' affective learning (Henning, 2010; Pogue & Ahyun, 2006). As stated in Banfield et al. (2006), the things teachers say and do in classrooms are very influential in stimulating either negative or positive impressions on the part of "the learners (i.e., reduced or enhanced cognitive and/or affective learning) and for themselves (negative or positive teacher evaluations)" (p. 64).

According to Bloom (1956, 1976; as cited in Pogue & Ahyun, 2006, p. 333), student affective learning concerns student attitudes toward the course, content, and instructor, as well as student attitudes toward anticipated classroom behaviors. Fortunately, the importance of affect is clearly recognized (McCroskey, 1994) and research in the area of affective learning has flourished recently (Pogue & Ahyun, 2006). According to Richmond (1990) and Christophel (1990), instructors can be very influential in increasing students' comfort while teaching them, and also they can behave in ways that may result in higher levels of affective learning on the part of the students.

Additionally, although there are many advantages in learning a second language, there is no necessity in learning that in the same way first language is necessary. Therefore, motivation plays a crucial role in learning a second/foreign language (Gardner, 2007), such that, without motivation, it may be somehow impossible for the learners to learn, and even if they start learning, they might stop from continuing when they encounter difficulties in their learning process (Dörnyei, 2001; Gardner, 2007; Palmer, 2009).

In EFL contexts, where motivation to learn English is driven mostly by external sources, teachers can play an important role in enhancing or undermining students' motivation (Bernaus & Gardner, 2008; Dörnyei, 2007). Student motivation is very much dependent on *how* the students are taught, rather than *what* they are taught (Christophel, 1990). As stated by

Dörnyei and Otto (1998), the behavior pattern of the teachers directly influences the behavior pattern of the students. Therefore, teacher motivation as an indicator of the way teachers act in class can be encouraging for the students and as a result, can enhance their motivation and learning. However, despite its importance, "motivation did not receive much scholarly attention until recently, so that teachers were forced to rely on unsystematic 'bag-of-tricks' approaches or on advice coming from questionable theorizing" (Good & Brophy, 1994; as cited in Dörnyei & Ottó, 1998, p. 212).

Teacher motivation is assumed to be affected by their metacognitive awareness (Efklides, 2011). It is claimed that teacher metacognition affects the procedure of teacher teaching and student learning (Prytula, 2012). In educational contexts, metacognition is used to explain the process through which teachers learn to understand their thinking, considering that if they are able to regulate their thinking effectively, they will be better teachers (Perfect & Schwartz, 2002). Thus, metacognition can facilitate students' learning and within the last decade, there has been a growing body of research on the importance of metacognition in successful instruction (Jiang, Ma, & Gao, 2016).

As established by the background presented, there is growing research on each of these variables; however, the research studies have all taken a modular perspective on them and few studies have thoroughly evaluated student and teacher factors together (Bernaus, Wilson, & Gardner, 2009). Therefore, there is still a need to investigate the interrelatedness of all these factors and examine these interrelations through an all-inclusive approach to see how they work together to affect teachers' teaching and students' learning in EFL settings. In an attempt to investigate these interrelations, this study employed an SEM approach to examine the mediated and unmediated paths among these constructs.

2. Review of the Literature
2.1 Source Credibility

Source credibility is one of the few topics in communication research that has received extensive attention from the scholars and it is claimed to be a very significant factor in the communication process in different contexts, "whether the goal of communication effort be persuasion or generation of understanding" (McCroskey & Young, 1981, p. 24).

In a classroom, a teacher tries to generate understanding in students and therefore, teacher credibility may have a crucial role in students' understanding and learning (McCroskey & Teven, 1999). Teacher credibility has been defined as the attitude of a student toward a teacher regarding the teacher's perceived believability (McCroskey & Teven, 1999), and its importance in classrooms has been established by researchers over the last 30 years (Finn et al., 2009).

There is a vast number of studies in the literature investigating the relationships between this construct and other variables involved in instruction and learning (e.g., Banfield et al., 2006; Frymier & Thompson, 1992; Henning, 2010; Pogue & Ahyun, 2006; Santilli, Miller, & Katt, 2011; Semlak & Pearson, 2008).

For instance, the effects of perceived teacher credibility on students' affective learning and motivation have been investigated by Zhang (2009) who aimed to develop a credibility-learning model and to test it in a multi-cultural context. Taking a hypothesis testing approach through SEM, the researcher concluded that teacher credibility can positively predict the other two variables.

In another study, Pogue and Ahyun (2006) explored the ways teacher immediacy and credibility interact to impact students' motivation and affective learning. They found that there was a significant interactive effect

of teacher nonverbal immediacy and credibility on both students' motivation and affective learning. They also concluded that "effective teaching is a function of both personal communications between teachers and students as well as teacher credibility" (Pogue & Ahyun, 2006, p. 331).

Students' perceptions of teacher credibility were also investigated by Henning (2010) and indicated to have a positive influence on their affective learning. Additionally, teacher credibility has been studied in relation to a number of other variables such as teacher misbehaviors (Banfield et al., 2006; Hsu, 2014; Semlak & Pearson, 2008; Thweatt & McCroskey, 1998), teacher non-verbal immediacy (Pogue & Ahyun, 2006; Santilli et al., 2011; Thweatt & McCroskey, 1998), and teacher affinity seeking (Frymier & Thompson, 1992).

2.2 Affective Learning

Scholars interested in classroom instruction and communication have always tried to study the teacher behaviors that can "either increase or decrease their effectiveness in attaining learning goals in instruction" (McCroskey et al., 2006, p. 403). Positive teacher behaviors may result in positive affect toward the teacher and it may encourage students to work hard to learn the material, and therefore, it results in higher student achievement (McCroskey et al., 2006).

Teachers' role in classroom is important as the goal of education is the students' outcomes. As stated by Toale et al. (2001) and Pierre and Oughton (2007), there are three learning outcomes at the center of interaction among teacher and students known as Bloom's taxonomy: behavioral learning, cognitive learning, and affective learning, all of which have effective roles in the process of instruction. As for the focus of this study, the affective learning dimension refers to the extent to which a student will be eager to

learn more about a subject matter after finishing the course, or take another class with the same teacher, or in the same content (Toale et al., 2001).

As explained by Banfield et al. (2006), if a teacher is able to increase affect in the students, positive instructional outcomes will possibly come by. Therefore, teachers can engage in behaviors which result in students' positive affect for the classroom and themselves (Christophel, 1990) while they can also engage in misbehaviors ending in negative instructional outcomes such as a reduction in students' affect for them (Kearney, Plax, Hays, & Ivey, 1991).

Students' affective learning has been revealed to be highly associated with student motivation (McCroskey, Richmond, & Bennett, 2006). Moreover, the role of teacher credibility as a predictor of these two factors, students' motivation and affective learning, was investigated in other studies (Pogue & Ahyun, 2006; Banfield et al., 2006).

Perceived teacher caring (goodwill), as one dimension of source credibility, was claimed to be influential in generating more positive teacher evaluations and enhancing students' affective learning (Teven & McCroskey, 1997). The results of their study were consistent with the findings of Zhang (2009) and Henning (2010). Zhang (2009), in his credibility-learning model, also established the positive relationship between student motivation and affective learning. Additionally, Henning (2010, p. 61), drawing upon the idea that "students are more likely to form positive impressions of the instructors who know the material and have a positive moral character than they are of those who have an instructor who has little knowledge" or who is unreliable or unfair, revealed that teacher credibility can positively predict students' affective learning.

Students' affective learning has also been shown to be affected by teachers' use of communication strategies (Richmond, 1990), teacher

nonverbal immediacy (Chesebro & McCroskey, 2001; LeFebvre & Allen, 2014; McCroskey, Fayer, Richmond, Sallien, & Barraclough, 1996; Plax, Kearney, McCroskey, & Richmond, 1986; Pogue & Ahyun, 2006; Witt & Wheeless, 2001), and teacher misbehaviors (Toale et al., 2001; Banfield et al., 2006) in classroom contexts.

Despite the growing research on students' affective learning, the scholars assert that "the affective is the most-overlooked of the three domains identified by Bloom and Krathwohl's committees" (Pierre & Oughton, 2007, p. 1). And to the best of the present researchers' knowledge, there is no study taking account of the interrelationships among students' affective learning, teacher metacognitive awareness, credibility, and motivation, and students' motivation, a point taken up by this study.

2.3 Motivation

Educational psychologists have long established the importance of motivation for supporting student learning (Richmond, 1990). Generally, motivation can be defined as the force or energy with stimulating properties that arouse and direct individuals to act in particular ways (Brophy, 1983). Motivation has been claimed to be an influential factor in the rate and success of second/foreign language learning (Dörnyei, 1998; Gardner, 2007). When students are not possessed with enough motivation to learn a language, they cannot accomplish long-term goals, despite outstanding abilities.

As for teacher motivation, there was limited research relating teachers' motivation to the effectiveness of their teaching and to the motivation of the students (Dörnyei & Ushioda, 2011). This fact was surprising as Dörnyei and Ushioda pointed out that the teachers' level of enthusiasm and commitment is one of the significant factors influencing students' motivation to learn. They also stated that there had been a lack of attention to teachers' motivation in research on English as a second/foreign language. However, there has been a

surge of interest in the field recently, and a review of some of the studies regarding motivation and specifically L2 motivation of teachers and learners is provided in this section.

The relationship between student motivation and second language learning has been studied extensively. For instance, Christophel (1990) revealed the positive effects of teacher immediacy variables on these constructs. Furthermore, student motivation has been shown to be influenced to a large extent by teacher motivational strategies (Papi & Abdollahzadeh, 2012; Bernaus et al., 2009). Bernaus et al. (2009) stated that both students and teachers need to be motivated, and if teachers are motivated, students are more actively involved in class activities and feel more motivated. Additionally, teacher motivation was found to be related to teachers' use of motivating strategies, which in turn was associated with students' motivation and English achievement (Bernaus et al., 2009).

2.4 Teacher Metacognitive Awareness

Metacognition basically refers to the process of controlling and monitoring one's own cognition, awareness of a person's own knowledge and thoughts, and reflections about actions (Louca, 2003). According to Jiang et al. (2016), for instructional purposes, the ultimate objective is to make students learn well with the contribution of teachers' effective teaching and metacognition playing a significant role in this process (Perfect & Schwartz, 2002).

There is an almost agreed-upon fact that teacher metacognition significantly influences the procedure of teacher teaching and student learning (Prytula, 2012). Therefore, a starting point for a change in professional development of a teacher can be knowing what teachers know about their own teaching (Manning & Payne, 1996; as cited in Jiang et al., 2016).

The literature on metacognition mostly covers research concerning metacognitive awareness of the students. However, given the concern of the study is metacognitive awareness of the teachers, a short review of a number of investigations on teacher metacognition is presented.

In a study conducted by Artzt and Thomas (1998), the researchers attempted to examine how metacognitive awareness of teachers can affect classroom outcomes. They found that teacher metacognition plays a well-defined role in classroom practices and therefore, students get highly engaged in the classrooms with teachers that are more metacognitively aware. This relationship was also investigated by Prytula (2012) who came up with almost the same findings.

Additionally, as claimed by Jiang et al. (2016), there is a significant correlation between teacher metacognition and motivation. It was shown that teachers who are more metacognitively aware have higher levels of motivation to teach. Therefore, metacognitive awareness has been claimed to be related to motivation and affective variables (Efklides, 2006, 2011) and the correlation between metacognition and motivation has been established (Hull & du Boulay, 2015; Vrieling, Bastiaens, & Stijnen, 2012).

Thus, because the relationship between teachers' motivation to teach and students' motivation and learning has also been established in previous studies (Bernaus et al., 2009), it can be concluded that teachers with high levels of metacognitive awareness are more motivated to teach and therefore, they are more likely to enhance students' motivation and affective learning. Additionally, according to Jiang et al. (2016, p. 403), "teacher metacognition can facilitate student learning", and if there is a way to improve teacher teaching and student learning, metacognitive teaching is likely to be more effective.

3. The Hypothesized Model

To explore the interrelationships among the variables of concern in this study, a structural model was hypothesized which covered a number of paths between the variables. The empirical evidence for the effects of source credibility on students' affective learning (Henning, 2010; Pogue & Ahyun, 2006; Zhang, 2009) and the supportive literature regarding the positive outcomes associated with teacher credibility (Finn et al., 2009) resulted in drawing hypothesized paths leading from teacher credibility to students' affective learning and motivation. There is supporting evidence in the literature (Zhang, 2009) regarding the positive effects of students' affective learning on their motivation to learn which resulted in another path drawn from affective learning to student motivation.

Moreover, previous research has found teacher metacognitive awareness to be a significant predictor of students' affective learning (Prytula, 2012) and teacher motivation to teach (Jiang et al., 2016). Based on this evidence, two other paths were added. Furthermore, previous research revealing the positive influence of teacher motivation on student motivation (Bernaus et al., 2009) led to hypothesizing the next path.

Regarding teachers' actions and students' outcomes, it is stated that what teachers say and do results in stimulating positive and negative outcomes for students such as reduced or enhanced cognitive and affective learning or negative or positive teacher evaluations (Kearney et al., 1991). Based on this evidence concerning teachers' actions and students' outcomes, it can be concluded that teachers' motivation to teach may have some influence on students' affective learning. Thus, in order to investigate this effect, a hypothesized path was drawn leading from teacher motivation to students' affective learning. Moreover, according to the literature, metacognitive awareness of teachers can play a well-defined role in their classroom practices (Artzt & Thomas, 1998). As noted in Jiang et al. (2016), teachers'

metacognition is really influential in becoming effective teachers, and students evaluate the credibility of their teachers based on their behavior and actions in the classroom. Thus, the fact that perceptions of teacher credibility may be affected by teacher metacognitive awareness led to adding another path to be examined leading from teachers' metacognitive awareness to source credibility.

Based on the studies in the literature, it can be argued that when students perceive their teacher as highly credible, this perception may manifest itself through students' behaviors and their interactions with their teacher (Teven & McCroskey, 1997). Therefore, the teacher, being influenced by the effects of this positive perception and feeling a sense of success in his/her teaching procedure, is likely to become more eager to share his/her knowledge with the students and get more motivated to teach in that class. Thus, the final path was drawn from teacher credibility to teacher motivation and the significance of this relationship was examined.

The concluding hypothesized structural model is depicted in Figure 1. As shown in the model, each latent variable is related to two or more observed constructs.
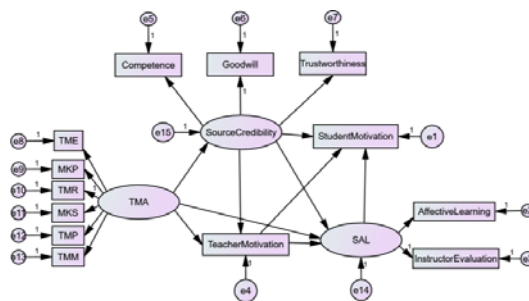

Figure 1. The hypothesized structural model. TMA: Teacher Metacognitive Awareness; SAL: Student Affective Learning; TME: Teacher Metacognitive Experiences; MKP: Metacognitive Knowledge about Pedagogy; TMR: Teacher Metacognitive Reflection; MKS: Metacognitive Knowledge about Self; TMP: Teacher Metacognitive Planning; TMM: Teacher Metacognitive Monitoring.

4. Method
4.1 Participants
The participants were chosen through convenience sampling strategy. A total of 82 English teachers along with 512 students participated in the study. The teachers included both females (47, 57.3%) and males (35, 42.68%) with a range of experience as ELT practitioners from less than 1 to 16 years (M = 6.12, SD = 3.44). It should also be pointed out that there were both certified and uncertified English teachers among the sample. The teachers and students were from different age groups with different English proficiency levels. Table 1 presents a fine-grained account of the participating teachers.

Table 1
Participants' Field of Study and Length of Service

Characteristic	Percentage (of participants)
Field of study	
English Language Teaching (ELT)	29.7
English Literature	18.9
English Translation	25.7
Others	25.7
Length of service	
Less than 1	2.7
2-5	47.3
6-10	37.8
11-15	10.8
16-20	1.4

4.2 Instruments
The data for were collected through questionnaires which are described as follows:

4.2.1 Source credibility measure
In order to measure students' perceptions of their teachers' credibility, the participants were required to complete the *Source Credibility Measure* (McCroskey & Teven, 1999). This is an 18-item questionnaire employing specific bipolar adjectives on a 7-point Likert scale to measure the three components of source credibility: competence, trustworthiness, and goodwill/caring. The participants were asked to evaluate their instructor through circling the number that best represented the way they felt about

him/her. The estimated alpha reliability for The Source Credibility Measure in this study was found to be .91.

4.2.2 The State Motivation Scale

Students and teachers were required to fill *The State Motivation Scale* (Christophel, 1990) in order to evaluate the way they felt about the course. This instrument consists of 12 bipolar 7-point items to measure students' and teachers' motivational attitudes about taking and teaching a specific class, respectively. Directions in the scale asked the students and teachers how they felt about that specific course. As for the current study, an alpha reliability of .96 for Student Motivation Scale and .93 for Teacher Motivation Scale was reported.

4.2.3 The affective learning scale

The Affective Learning Scale (McCroskey, 1994) was employed to measure the rates of students' affect toward the teacher and the subject matter of the course. Each part of this instrument employs eight bipolar 7-point items. In order to check students' evaluation of their teacher, four items address affect toward the instructor directly and the other four items assess whether the students are willing to take another class with the same teacher or not. As for the section concerned with the course content, four items evaluate students' affect toward the subject matter directly and four other items check the students' eagerness to take another course with the same subject matter. As for the current study, an alpha reliability of .94 for The Affective Learning Scale was reported.

4.24 Teacher metacognition inventory

The *Teacher Metacognition Inventory (TMI)* developed by Jiang et al. (2016) was utilized for this study. This instrument is composed of 28 items with a 5-point Likert-type scale ranging from 1 "*strongly agree*" to 5 "*strongly*

disagree". The participating teachers were required to complete the questionnaire and choose the number which best represented their stance towards the point mentioned in each item. TMI includes 6 subscales regarding teacher metacognition including teacher metacognition experiences, metacognitive knowledge and pedagogy, teacher metacognitive reflection, metacognitive knowledge about self, teacher metacognitive planning, and teacher metacognitive monitoring. The Cronbach's alpha reliability of .93 was reported by Jiang et al. (2016) and the alpha reliability for the instrument was .88 in this study.

4.3 Data Collection/Analysis Procedure

This study is a causal-comparative research because it aimed at exploring the causal and predictive relationships among variables. Considering the design of the study, data were collected through survey questionnaires that teachers and their students were required to complete. The data were collected halfway into the course so that teachers and students were familiar enough with each other, and students were familiar with the content of the course, as well.

To conduct descriptive statistics, SPSS, Version 21, was used to measure reliability of the scales and estimate the inter-correlations between the constructs under investigation. Moreover, Structural Equation Modeling (SEM) technique was utilized by the means of Analysis of Moment Structures (AMOS) software (Version 23). The fit of the proposed model was investigated using various fit indices such as the Chi-square ratio ($\chi2/df$), Goodness-of-Fit Index (GFI), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). All the model estimation procedures were carried out through Maximum Likelihood (ML) estimation.

5. Results

As stated earlier, SEM was employed to analyze the dependency relations among the observed and unobserved variables under investigation. In order to conduct structural equation modeling, there are a few assumptions to be met. The first assumption to check out was the normality of the distribution of data (Kunnan, 1998). After manual deletion of partially completed surveys, the normality of the data was inspected using the Mahalanobis Distance and two more outliers were detected and eliminated from the sample, reducing the number of participating teachers to 74 and the number of students to 365. Additionally, the assumptions of multicollinearity, linearity, and sample size were also met. The mean, standard deviation and correlation matrix for all the observed variables under study are presented in Table 2.

Table 2
Correlation Matrix (n=365)

Variables	M/SD	1	2	3	4	5	6	7	8	9	10	11	12	13
Competence	33.63/5.78	1.00												
Goodwill	30.30/6.90	.62	1.00											
Trustworthiness	35.45/5.20	.73	.66	1.00										
Affective learning	46.41/10.45	.20	.23	.19	1.00									
Instructor evaluation	46.47/12.10	.35	.40	.25	.61	1.00								
TME	18.98/2.82	.10	.10	.17	.08	.06	1.00							
MKP	16.37/2.56	.29	.15	.25	.18	.11	.42	1.00						
TMR	25.71/4.26	.15	.10	.12	.16	.18	.34	.45	1.00					
MKS	16.16/2.53	.21	.11	.18	.33	.25	.40	.54	.60	1.00				
TMP	11.12/2.47	.14	.11	.06	.22	.17	.01	.25	.57	.54	1.00			
TMM	20.85/2.61	.19	.09	.22	.10	.15	.44	.57	.68	.56	.25	1.00		
Teacher motivation	58.87/13.09	.19	.13	.07	.25	.36	.01	.15	.16	.19	.17	.18	1.00	
Student motivation	62.10/13.49	.31	.29	.18	.42	.56	.04	.20	.16	.25	.13	.20	.60	1.00

Moreover, the proposed model was indicated to be over-identified implying that the model examined in this study was suitable for goodness-of-fit analysis. To examine whether the model fitted the data, first, Chi-square ($\chi2$) statistic was checked and was reported to be significant ($\chi2 = 346.237$, p <.05), indicating that the model failed the Chi-square test. Thus, other goodness-of-fit measures with the means of AMOS 23 were utilized.

Following the cutoff values for goodness-of-fit indices (GFI > .90, NFI > .90, CFI > .90, $\chi2/df$ < 3, and RMSEA < .80 for acceptable fit and <.60 for

good fit), the model depicted in Figure 1 exhibited not a very good fit to the data set ($\chi2/df$ = 5.97, GFI = .87, CFI = .86, NFI = .84, RMSEA = .11).

In order to improve the initial model, AMOS program suggested drawing a number of covariances among the residuals for TME, MKP, TMR, and TMM dimensions of teacher metacognitive awareness. Since examining the relationships among these dimensions were not a focus of the current study, it was preferred to account for their relationship merely through their residuals without explicitly theorizing about the relationship among the constructs.

Error terms in a model can covary with each other as long as their covariance can be justified based on the collected data and the theory employed in the study (Civelek, 2018). In this study, data collected from 365 students and 74 teachers were analyzed. In other words, every six or seven students had the same teacher. Additionally, the covariance between the error terms among metacognitive awareness components can be justified due to the similarity among questionnaire items. As stated by Kline (2005), the "local independence assumption" which implies that no two endogenous variables share a common omitted cause, and all omitted causes are unrelated to each other, can be both restrictive and probably unrealistic. Thus, covariance between error terms is allowed as long as it does not contradict the purpose of the research and the relations in the literature (Civelek, 2018).

Then, the goodness-of-fit measures were reanalyzed for the revised model ($\chi2/df$ = 2.98, GFI = .94, CFI = .95, NFI = .92, RMSEA = .07). Four out of five indices indicated good fit and one indicated acceptable fit of the model to the data. Table 3 shows the changes in fit indices after adding every covariance to the model.

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Table 3
Modification Process of the Structural Model

Model	Df	χ2/df	GFI	NFI	CFI	TLI	RMSEA
Initial model	58	5.97	.87	.84	.86	.81	.11
Modified model 1	57	4.83	.89	.87	.89	.86	.10
Modified model 2	56	3.74	.92	.90	.92	.90	.08
Modified model 3	55	3.69	.92	.90	.93	.90	.08
Final revised model	54	2.98	.94	.92	.95	.92	.07

Note. Modified model 1: with the covariance between e12 and e13; modified model 2: with the covariance between e8 and e12; modified model 3: with the covariance between e9 and e10; final revised model: with the covariance between e9 and e12.

The overall results of SEM analysis indicated a significant path leading from teacher metacognitive awareness to source credibility ($\beta=0.40$) and an insignificant path to student affective learning ($\beta=0.23$). Teacher metacognitive awareness exhibited the greatest impact on teacher motivation ($\beta=0.65$) and teacher motivation demonstrated the most predictive power for student motivation ($\beta=0.44$). The results also revealed positive significant effects of students' perceptions of source credibility on teacher motivation ($\beta=0.28$) and student affective learning ($\beta=0.74$). A significant effect of students' affective learning on student motivation ($\beta=0.53$) was also reported. Additionally, the hypothesized path leading from teacher motivation to student affective learning ($\beta=0.27$) turned out to be significant. Finally, the path leading from students' perceptions of source credibility to student motivation ($\beta=0.17$) was reported as nonsignificant. The schematic representation of the final structural model with standardized path coefficients is presented in Figure 2.
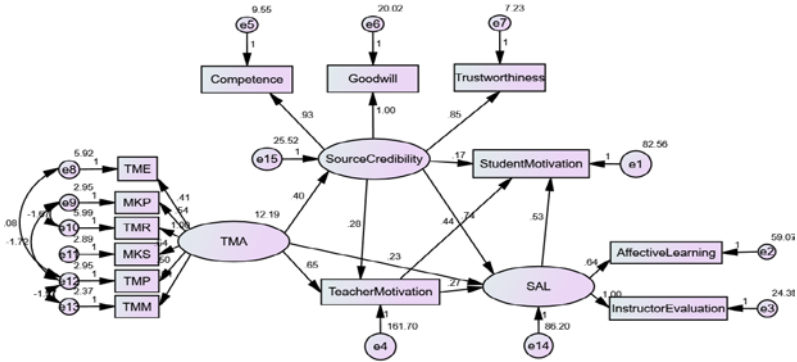
Figure 2. Revised model after assuming covariances between residuals.

Baron and Kenny's (1986) four-step approach to establish causality among variables was utilized in order to examine the mediation effects among some of the investigated constructs. As Baron and Kenny (1986) held, in order to test for the mediation, we have to test the estimates for paths a, b, c, and c′ **as** depicted in Figures 3 and 4.
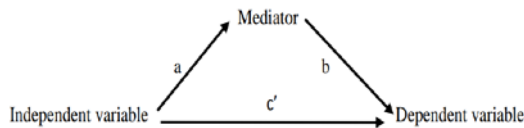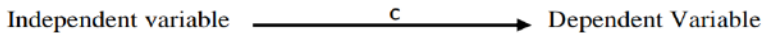

Figure 3. Mediation model

Figure 4. Direct effect

Therefore, following Baron and Kenny's four-step approach, all the possible mediation paths in the proposed model are presented in Table 4, along with their estimates of a, b, c and c′ **and the results of the mediation test.**

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Table 4
Testing of the Mediation Paths

Mediation paths	c	a	b	c'	Results
TMA→ TM → SAL	0.27 (.080)	0.67 (.000)	0.27(.000)	0.21 (.079)	Indirect relationship
SC→ TM→ SAL	0.73(.000)	0.28 (.048)	0.27 (.000)	0.74 (.000)	Partial mediation
TM→ SAL → SM	0.46 (.000)	0.27 (.000)	0.52 (.000)	0.43 (.000)	Partial mediation
SC→ SAL → SM	0.22 (.026)	0.73 (.000)	0.52 (.000)	0.16 (.167)	Full mediation
TMA→ SC → SAL	0.27 (.078)	0.41 (.000)	0.74 (.000)	0.22 (.163)	Indirect relationship
SC→ TM → SM	0.16 (.167)	0.28 (.048)	0.42 (.000)	0.23 (.025)	Indirect relationship
TMA→ SC → TM	0.67 (.000)	0.40 (.000)	0.28 (.048)	0.65 (.001)	Partial mediation

Note. TMA: teacher metacognitive awareness; TM: teacher motivation; SAL: student affective learning; SC: source credibility; SM: student motivation.

6. Discussion

The relationships among teacher-related and student-related characteristics in EFL classrooms have been the focus of a number of studies so far. Teacher credibility, metacognitive awareness, motivation to teach, students' affective learning and motivation to study are some of the variables investigated. The main purpose of this study was to add to previous research by empirically investigating the interrelationships of these variables. According to Bernaus et al. (2009), few studies so far have thoroughly evaluated student and teacher factors together, and this could be a very influential extension to the existing literature. In other words, this study aimed to test a multifaceted model comprising all the above-mentioned variables. The hypothesized model provided a good fit to the data after some slight modifications.

By taking a closer look at the obtained structural model, we can gain insights into the interrelatedness of the variables of concern in the context of Iranian EFL classrooms and become more familiar with the ways teachers and students interact to improve learning outcomes. Following the evidence put forward in previous studies, the present study could establish the effects of the mentioned variables on each other and the interrelationships among them during a model testing procedure.

The results of the study confirmed the significance of the hypothesized path leading from source credibility to students' affective learning indicating

that students' perceptions of their teacher credibility can promote their affective learning in EFL contexts. Similar result has been reported by Zhang (2009), who, drawing upon Frymier and Houser (2000), stated that since the teachers' primary role is to teach and to provide professional training to the students, and teacher-student relationship is essentially interpersonal, teacher competence and caring as two major components of teacher credibility play a key role in determining students' affective learning. Therefore, the results of the current study were consistent with Zhang's (2009) findings and also with Teven (2007) and Teven and McCroskey (1997) that proved teachers who teach effectively and care about their students and their interests can enhance students' affect for the course and for the teacher.

Source credibility was also reported to contribute to students' affective learning through the mediation of teacher motivation. The findings revealed that teacher motivation partially mediates the influence of teacher credibility on students' affective learning; therefore, this effect may be due to other influential factors as well as a direct effect of teacher credibility on students' affective learning. This mediation implies the fact that even if highly credible teachers tend to increase the levels of students' affect toward the course and themselves, other factors, such as teacher motivation and motivated behavior, are required to improve this effect.

As for the effects of source credibility on students' motivation to study that was established in the literature, this study examined the possible direct and indirect paths regarding the relationships between these constructs. The first path was analyzed considering the interrelationships between teacher credibility, students' affective learning and student motivation. Utilizing Baron and Kenny's (1986) approach, the results indicated that students' affective learning fully mediates the effects of teacher credibility on student motivation. This implies that students' perceptions of their teachers' credibility did not

necessarily result in higher accounts of motivation in themselves, unless they develop high rates of affect towards the teacher and the course content. Therefore, there is a high influence of teacher credibility on student motivation through full mediation of affective learning, indicating that highly credible teachers are likely to have students who are motivated to study and learn the material. Students who are motivated are more likely to get involved in the complex process of learning (Pogue & Ahyun, 2006).

The findings of this study added empirical support to what Martin, Chesebro, and Mottet (1997) and Pogue and Ahyun (2006) established holding a significant interaction between teacher credibility and student motivation indicating that highly credible teachers have students who report high levels of motivation. One reasonable explanation for this relationship is the idea that before entering the teaching and learning environment, students have some expectations. When their expectations are met and they find their teachers competent, caring, and honest as they assumed, they develop higher levels of affective learning and get more motivated to study (Pogue & Ahyun, 2006).

Based on the provided structural model, another mediation relationship regarding the effects of source credibility on student motivation through teacher motivation was analyzed and indicated that teacher motivation did not play a mediating role in this relationship. Since the direct effect of source credibility on student motivation was non-significant and the effects of teacher credibility on teacher motivation and teacher motivation on student motivation were significant, an indirect relationship among these constructs was reported. Considering the full mediating effect of students' affective learning which implies that no other construct mediates the effect of source credibility on student motivation in our model, it can be well justified that students' perceptions of their teachers' credibility has only an indirect relationship to student motivation.

The hypothesized path leading from teacher credibility to teacher motivation revealed significant interactions between the two, indicating that teacher credibility can promote teacher motivation. Therefore, considering all these effects together, it can be concluded that highly credible teachers are probably more eager to teach; and in turn, they have students who are more stimulated and motivated to study and learn in their class.

As for teacher metacognitive awareness, the reported findings extended the literature regarding the impact of teacher metacognition on students' affective learning. The results were to some extent consistent with Prytula (2012) stating that teachers' learning precedes students' learning and metacognitively aware teachers can cause their students to be more willing to take more classes with the same teacher (Prytuka, 2006). However, in our SEM model, the direct path indicating the direct effects of teacher metacognitive awareness on students' affective learning revealed insignificant results, suggesting that the relationship between these two constructs is an indirect one. Therefore, to analyze this effect, other paths leading from teacher metacognition to students' affective learning through teacher motivation and teacher credibility were investigated. The finding, which can be an effective contribution to the literature, revealed that teacher metacognitive awareness had significant effects on teacher motivation, which, in turn was reported to be a significant contributor to students' affective learning. Furthermore, teacher metacognition was revealed to influence students' affective learning indirectly through teacher credibility. Therefore, teacher metacognitive awareness was indicated to indirectly influence students' affective learning through teacher credibility and motivation. This finding implies that teachers with high levels of metacognitive awareness promote better perceptions of source credibility on the part of the students, which in turn results in having students with better attitudes towards their teacher and the course.

Teachers' Motivation …

This study could also add further evidence to Jiang et al.'s (2016) finding suggesting a theoretical perspective regarding the interrelations of teachers' metacognition, students' learning, students' perceptions of their teachers' competency, and the teachers' motivation. The hypothesized path on the contribution of teacher metacognitive awareness to source credibility is somehow consistent with Fathima, Sasikumar, and Roja (2014), holding that metacognitive awareness can enhance teachers' teaching competency. Therefore, teacher competence as one of the three dimensions of source credibility was reported to be affected by teacher metacognition. Additionally, the current study, through analyzing the significance of the direct path leading from teacher metacognitive awareness to teacher credibility, provided support on the effect of the former on teacher credibility, when viewed as a composite construct.

Based on the analysis of the hypothesized paths in our SEM model, a significant positive impact of teacher metacognition on teacher motivation was observed implying that teachers with high levels of metacognitive awareness are more motivated to teach in classes. Therefore, teacher metacognitive awareness was indicated as a significant determinant of teacher motivation both directly and indirectly. In other words, since teacher metacognition was shown to be a determinant of teacher credibility, and the causal path between teacher credibility and teacher motivation was proved significant, this study exhibited that teacher metacognitive awareness can contribute to teacher motivation when partially mediated by teacher credibility. This finding implies that even if metacognitively aware teachers tend to be more motivated to teach, other factors such as students' perceptions of their credibility can partially improve this effect.

With regards to teacher motivation as an influential factor in promoting students' motivation in EFL contexts, our model corresponds to earlier

theorizing. Since long-term language learning is more likely to occur in educational settings that "provide enough enjoyment and encouragement to create motivation in the learners" (Dörnyei, 2007, p. 179), and considering that what takes place in the classroom can influence students' attitudes and motivation (Bernaus et al., 2009), the hypothesized path from teacher motivation to student motivation in our model yielded significant estimates proving the influential effect of the former on the latter

This finding, furthermore, concurs with past studies such as Karimi and Abaszadeh (2017) indicating the positive and supportive teacher behavior and classroom environment as crucial variables in stimulating and encouraging learners to learn English in EFL contexts. Moreover, given the strong impact of teacher motivation on students' affective learning, and the unquestionable effect of students' affective learning on student motivation, the current study extended the literature by revealing that students' affective learning not only has a direct influence on student motivation, but it also mediates the effect of teacher motivation on student motivation. Therefore, teacher motivation can significantly contribute to student motivation when partially mediated by students' affective learning.

The hypothesized path indicating the contribution of students' affective learning to their motivation provided further evidence to what Zhang (2009) had already established indicating a positive influence of students' affective learning on their motivation to study and learn. Since affective learning consists of students' affect toward the instructor and also toward the course content, it stands to reason that when students show high levels of affect toward the course and their teacher, they can be more motivated to study in that class.

The final path of the model was hypothesized indicating a contribution of teacher motivation to students' affective learning. As mentioned, what teachers

say and do in classrooms is influenced by their motivation to teach (Bernaus et al., 2009), and in turn, can be influential in the students' affective learning. This assumption was tested through hypothesizing a path from teacher motivation to students' affective learning in the model and yielded significant results. Therefore, when teachers show high levels of motivation to teach in their classrooms, their students are more likely to get encouraged and more motivated to study in their class, and also more likely to develop positive attitudes toward the class and the teacher.

7. Conclusion

Overall, this study investigated the interrelationships among student-related and teacher-related characteristics together through a hypothesized model testing approach, and also, extended the understanding of the relationships among the examined variables by identifying the mediators among them. The results of this study could add further support to the existing theories in the literature while establishing a number of relationships that have been less investigated. Adding some factors to the Zhang's (2009) credibility-learning model, the results of this study were not only consistent with his findings, but also they extended the literature in the realm of EFL in that they lent support to positive direct, indirect and mediating effects among teacher and student factors that are influential in classroom interactions and students' learning.

The findings of this study could have some implications for researchers, teachers, and teacher educators in the field of EFL teaching. From the methodological perspective, exploiting structural equation modeling to delve into the interrelations of teacher and student features in EFL settings can be an efficient approach.

Moreover, this study can be of help to the second language teacher education researchers willing to develop the field and generate a more profound understanding of the ways that teachers can encourage students' learning. This study can have implications for teachers and teacher educators by helping them to gain an awareness of the importance of some individual

factors like teacher motivation and metacognition about their own knowledge in encouraging positive outcomes regarding the students. Thus, teachers and teacher educators willing to increase the positive outcomes of EFL classes can consider the findings of this study and make improvements in their works.

Considering that this study did not take account of participants' gender, age, and their levels of proficiency in English, one line of research could be exploring the effect of any of these on the hypothesized model to come up with a more precise account of the interrelationships. Another limitation of this study which can be improved in future research is the data collection tools which consisted of questionnaires. Further studies may obtain a more precise account of the findings implementing other data collection methods such as interviews and observations.

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