Designing and validating a language teacher attribution scale: a structural equation modeling approach

Afsaneh Ghanizadeh & Behzad Ghonsooly

To cite this article: Afsaneh Ghanizadeh & Behzad Ghonsooly (2015) Designing and validating a language teacher attribution scale: a structural equation modeling approach, Teacher Development, 19:4, 553-572, DOI: 10.1080/13664530.2015.1091785

To link to this article: http://dx.doi.org/10.1080/13664530.2015.1091785

Published online: 13 Nov 2015.

Submit your article to this journal

View related articles

View Crossmark data
Designing and validating a language teacher attribution scale: a structural equation modeling approach

Afsaneh Ghanizadeh\textsuperscript{a}\textsuperscript{*} and Behzad Ghonsooly\textsuperscript{b}

\textsuperscript{a}English Department, Imam Reza International University, Mashhad, Iran; \textsuperscript{b}English Department, Ferdowsi University of Mashhad, Mashhad, Iran

(Received 30 March 2013; final version received 26 September 2013)

Causal attributions constitute one of the most universal forms of analyzing reality, since they fulfill basic functions in motivation for action. As a theory of causal explanations for success and failure, attribution research has found a natural context in the academic domain. Despite this, it appears that teacher attribution, in particular language teacher attribution, is an unchartered territory that awaits further research. Having attributed this gap to the scarcity of a standardized instrument for assessing teacher attributions, the researchers of the present article set out to design and validate a scale for measuring English language teacher attributions with the prospect of initiating further research on teacher attributions. Based on Weiner’s attribution model, a five-factor scale with 50 items was proposed. Confirmatory factor analysis resulted in a more refined version of the scale comprising four attributions and 40 items. The resultant model had acceptable fit indices and satisfactory reliability estimates. To further validate the scale, its association with a closely related construct, i.e. teacher efficacy, was examined using structural equation modeling analysis. The results demonstrated that the proposed model is acceptable. It was concluded that the scale is a valid and reliable tool for assessing language teachers’ attributions.

**Keywords:** confirmatory factor analysis; English language teachers; structural equation modeling; teacher attribution; teacher efficacy

1. Introduction

Humans have a natural disposition to look into the causes of life’s successes and failures. Furthermore, the factors to which people attribute these successes and failures tend to have a substantial motivational role in future action (Graham and Folkes 1990). According to Weiner (2000), the originator of the modern structure of attribution theory, making these attributions is necessary in order for a person to alter the behaviors that have led to negative outcomes and to approach willingly the behaviors that resulted in desirable outcomes. The identification of these attributions provides the individuals with a conception of the current behavior and constructs expectancies for future behavior. Seeking explanations and formulating conceptions of the underlying causes of one’s success enable individuals to predict and control the events that affect them and invest greater effort, with the prospect of subsequent success. On the other hand, the process of ascribing a reason for failure compels the individual so as to avoid future failure.

*Corresponding author. Emails: a.ghanizadeh@imamreza.ac.ir, ghanizadeafsane@yahoo.com

© 2015 Teacher Development
Attribution theory pivots around four causal attributions: ability, effort, task difficulty and luck. Each is characterized by three dimensions: locus (internal vs external), stability (stable vs unstable) and controllability (controllable vs uncontrollable) (Weiner 1986). The merit of these causal properties, according to Weiner (2000), lies in the fact that they correspond with the two aspects of motivation: expectancy (thought) and value (feeling). Expectancy is ‘the subjective likelihood of future success’ and value is ‘the emotional consequences of goal attainment or nonattainment’ (Weiner 2000, 5). Expectancy is connected to the second dimension of the theory, i.e. stability, and value is compatible with the other two, i.e. locus and controllability. In other words, if a person perceives the causes of failure as stable, they will expect the same outcome in the future, whereas unstable attributions cause the person to expect a different outcome in the future. Causes attributed to internal and controllable factors generate feelings of pride, if met with success, or guilt, if met with failure. In a similar vein, causes attributed to internal and uncontrollable factors lead to feelings of shame, humiliation and embarrassment. As Weiner (2000) posited, the amalgamation of an individual’s expectancies and values governs subsequent behavior.

One of the overriding influences of attribution theory has been a consequent increment in attributional applications to everyday problems and affairs. In particular, attribution research has paved the way for studies in the achievement domain. Largely inspired by Weiner’s empirical and theoretical contributions, a substantial body of research has been conducted in examining the association of learners’ attributions with academic achievement (e.g. Graham and Folkes 1990; Graham 1991; Georgiou 1999). What has emerged from almost all these studies demonstrated that academic achievement is improved and enhanced when learners attribute academic outcomes to factors such as effort and the use of appropriate study strategies; in contrast, academic achievement is hindered when learners attribute their failure to factors such as lack of ability or chronic health problems and attribute their success to luck (e.g. Graham and Folkes 1990; Bempechat et al. 1996; Pintrich and Schunk 2002).

Likewise, more recently, the significance of learners’ attributions in explaining behavior and achievement has attracted L2 (second language) researchers and educationalists. One of the early L2-related studies was conducted by Williams and Burden (1999). They sought to investigate the formation and variation of French language learners’ attributions. Results showed that the older learners tend to have more versatile and complicated attributions than their younger counterparts. They also maintained that language learners’ attributions influence subsequent language achievement.

Since research has indicated students’ attributional patterns to be critical for academic achievement, it is reasonable to assume that the teachers’ attributions would influence teacher practices. Viewing from a common-sense perspective, it seems plausible to presume that teachers who do not have healthy or realistic attributions will find it difficult or even impossible to construct ideal attributional patterns for their students. In addition, an emerging body of teacher education research demonstrates that teacher thinking and perceptions are influential determinants of teaching effectiveness (Schunk 1995; Pajares 2003). Brophy (1986) recommends teachers to routinely probe attitudes, beliefs, expectations and attributions of their own as well as those of their students (as cited in Giavrimis and Papanis 2009). Nevertheless, a comprehensive review on attribution literature clearly reveals that there are quite
sparse documented studies, and hardly any in the L2 context, exploring teacher attributions. This scarcity can be attributed to the fact that there are hardly any documented and standardized instruments for assessing teacher attributions. A standardized scale measuring teacher attributions would shed light on the issue and offer the prospect of initiating a line of investigations into teacher attribution with much greater scope.

2. Background

The person most often attributed as the originator of attribution models is Heider (1958). He was concerned particularly with ‘causal locus’ of actions and also made a distinction between ‘can’ and ‘try’ (ability vs effort). For him, people are active interpreters of the events that occur in their lives, and they use consistent and logical modes of sense-making in their interpretations. Heider’s initial ideas constructed the logical backbone of attribution theories which were later expanded in a number of ways to account for the complex process of attribution.

Largely influenced by Heider’s ideas, Rotter (1966) conducted a series of experimental studies to identify the determinants of expectancy of success. These studies led Rotter to speculate that some individuals perceive the world as composing of skill tasks, while others tend to perceive world events as determined by chance. To measure individual differences in personal constructions of the world, Rotter (1966) coined the term ‘locus of control’.

Locus of control describes a person’s characteristic way of perceiving the world and indicates the extent of control individuals perceive they have over the expectancies of reinforcement or outcomes in their lives. Rotter (1966) defined locus of control as a generalized expectancy of internal control (self-initiated change orientation) versus external control (change attributed to a source or power outside of the person) over behavior outcomes. In other words, individuals with internal locus orientation believe that the ability to influence outcomes resides within themselves and is the direct result of their efforts, personality strength and intentions. On the other hand, those with external locus orientation attribute outcomes to forces beyond their control (Rotter 1966). These individuals tend to appraise life events by looking for another individual or circumstance to hold accountable for undesirable outcomes.

Weiner (1986) conceptualized the most comprehensive theory of attribution by integrating and complementing Heider’s and Rotter’s ideas. As stated earlier, within this model, there are three facets into which a person’s attributions for causes of events can be classified: locus, stability and controllability (Weiner 2000). Locus refers to causes that a person perceives to be inside or outside of the actor. Internal causes are those that lie inside of the person, such as ability, effort and mood. External causes are those that are outside of the person, such as ease of the task or clear instructions. Stability refers to the duration of a cause. Stable causes, such as ability or aptitude, are those that are typically constant, whereas unstable causes, such as luck or chance, are those that likely change over time. Controllability describes the degree to which a person perceives they are able to control the cause of failure or success. Causes such as effort and strategy are subject to volitional alteration, whereas others, such as luck or aptitude, cannot be willfully changed.

The importance and popularity of attribution theory among psychologists, educationalists and social scientists have fueled intensive research in different directions in the past few decades. For it to survive this length of time, according to
Weiner (2000), indicates that not only has it had strong empirical support, but it has also been responsive to empirical challenges and has been modified in order to accommodate objections and problems. The empirical attribution-related studies encompass many dimensions including affective, cognitive and metacognitive factors. These studies have consistently demonstrated that achievement is positively linked to learners’ internal and controllable tendencies (e.g. Bempechat et al. 1996; Pintrich and Schunk 2002). It also appears that learners’ attributions are associated with self-efficacy (Gaziel 2008; Hsieh and Kang 2010); motivation (Anderson, Hattie, and Hamilton 2005) and attitude (Smith 1997).

Although as a theory of causal explanations for success and failure, attribution research has found a natural context in the L1 (first language) academic domain, it was quite unexplored in the L2 domain until recently. As pointed out earlier, the first documented L2-related study was conducted by Williams and Burden (1999). Following Williams and Burden (1999), Williams et al. (2004) analyzed different attributional patterns demonstrated by students who considered themselves normally successful in learning a language compared with those students who perceived themselves as normally unsuccessful. They reported that effort, ability, strategy use, interest, the contribution of the teacher and the nature of the learning task were the most commonly cited attributions for success while rewards and luck had virtually no role.

Graham (2004), in a study on French learners’ self-perceptions, found that the learners attributed success to effort, high ability and effective learning strategies, and failure to low ability and task difficulty.

Lei and Qin (2009) investigated the success and failure attributions of Chinese tertiary-level English as a Foreign Language (EFL) learners and their relations to achievement in English. They indicated that Chinese EFL learners attribute EFL success to the factors of effort, the teacher, confidence and practical use while they attribute EFL failure to the factors of lack of confidence, lack of effort, test-oriented learning, lack of practical use and lack of external help. They also found that interactive functioning of effort, the teacher, confidence and EFL learning for practical use determines EFL learning success.

Believing that there is a gap in studies on learners’ attribution towards learning EFL and the origin of these attributions, Peacock (2010) conducted a large-scale study on 505 university students in Hong Kong. The study posed several hypotheses, one of which aimed at examining whether student attributions differ from teacher attributions. Student interviews identified 26 common attributions, which were listed in a questionnaire; students were asked to what they attributed EFL success or failure (such as, I did well in English because 1: My teacher was a good teacher. 2: I paid attention in class). The questionnaire was slightly modified to collect opinions of 40 EFL teachers. The questionnaire listed the same items and asked to what teachers attribute student success and failure (such as, the students did well in English because 1: They loved/were interested in English. 2: They paid attention in class). The results demonstrated that most attributions were internal, unstable and controllable. Furthermore, 15 statistically significant differences were identified between teacher and student explanations about student attribution, for instance teachers strongly attributed failure to anxiety plus a lack of confidence, while students did not; teachers attributed both success and failure to student love/enjoyment of or interest in English, while students did not; students were significantly more likely to attribute both success and failure to luck than teachers were.
To examine the interrelationship between EFL college students’ attributions, self-efficacy, language learning beliefs and achievement, Hsieh (2004) administered self-report questionnaires about language learning beliefs, attitudes and motivation towards foreign language learning to 500 undergraduates enrolled in Spanish, German and French classes. Results indicated that self-efficacy correlated positively with internal, personal and stable attributions, and negatively with external attributions. It was also found that students making internal attributions received higher grades than students making external attributions, and the same was true for students making personal as opposed to non-personal attributions.

Despite the increasing evidence that beliefs and attributions strongly influence ways of understanding and acting in the classroom setting (Tollefson and Chen 1988; Davis and Samara 1997; Peacock 2010), little attention has been paid to teacher attributions. Indeed, there are only a few documented studies seeking to explore teacher attributions. These studies are generally small-scale research reports studying teacher attributions of student behavior by using case studies, interviews or slightly modified learner attribution questionnaires. One such study was conducted by Bibou-Nakou, Stogiannidou, and Kiosseoglou (1999) which investigated teacher attributions and practices regarding school problem behavior. To examine teacher attribution, they asked the teachers to ascribe three modes of explanations – teacher-related explanations; external student-related explanations; internal student-related explanations – for each behavior problem. The percentage of variance accounting for factor one ranged from 34 to 40%, factor two: 16 to 18, and factor three: 12 to 14.

A number of studies investigated teachers’ attributions of students’ behavior problems in terms of specific factors such as family, student, teacher or school (Mavropoulou and Padeliadu 2002; Arbuckle and Little 2004; Ho 2004; Ding et al. 2008, 2010). These studies did not employ any standardized teacher-specific instrument for determining teacher attributions. For example, Ding et al. (2008) conducted interviews with 244 Chinese teachers to assess teachers’ perceptions of students’ classroom misbehavior. The interviews focused on teachers’ general concerns about classroom management, teachers’ perceptions of the most frequent and troublesome types of misbehavior and teachers’ perceived needs for help with improving classroom management. A total of 244 responses were collected, which were categorized under 11 items as follows:

1. low intelligence;
2. lazy, not making enough effort;
3. not interested in learning;
4. bad learning habits;
5. students in a special physical and psychological developmental period;
6. busy parents with the child being spoiled by grandparents;
7. parents’ low expectations of the child;
8. family environment with parents’ poor academic background;
9. previous teacher did not educate students well;
10. teacher’s own instructional methods or classroom management approaches need to be improved;
11. overlooking students’ affect because of ‘teaching for testing’ resulting from the high pressure of students’ achievement accountability and school entrance rate.
These items fell into four classes: student (items 1–5), family (items 6–8), teacher (items 9–10) and school (item 11). The results indicated that the majority of Chinese teachers did not think that classroom management is a great concern. In contrast with prior studies in Western settings, where ‘talking out of turn’ has been reported as the biggest concern, their study reported that Chinese teachers perceived ‘daydreaming’ to be the most frequent and troublesome misbehavior. In a related study, Ding et al. (2010) utilized the above categories and correlated these attributions with teachers’ coping strategies for classroom misbehavior. The results indicated that Chinese teachers attributed misbehavior first to student characteristics such as being ‘lazy, not making enough effort’, and second to ‘bad learning habits’. Across different grade levels, elementary teachers first blamed student learning habits while secondary teachers blamed student effort. With regard to coping strategies, inconsistencies were found across grade levels and between teachers’ perceptions and actions. The majority of sampled elementary teachers tended to choose ‘praising good students’ as the most effective and often-used strategy, while secondary teachers believed in ‘talking after class’. In fact, ‘talking after class’ was viewed to be more effective as the grade level increased. However, teachers reported that they did not actually use the strategy of ‘talking after class’ very often when coping with misbehaviors.

A recent L2 teacher-related attribution study carried out by Peacock (2010) did not employ any teacher-specific scale for examining teacher attributions in order to see if teacher attributions corresponded with those of students. Peacock utilized a student attribution scale constructed from students’ interviews and then slightly modified the statements to make it fit for teachers. As an example, the attribution ‘I paid attention in class’ was altered to ‘They paid attention in class’.

Taken together, it can plausibly be argued that the scarcity of research on teacher attribution can be attributed to the fact that there are hardly any documented and standardized instruments for assessing teacher attributions. The present study aimed at designing and validating a teacher attribution scale for English language teachers.

3. Method

The present study was designed in two major phases. The first phase included an array of different steps to design and validate the teacher attribution scale. This phase started by designing the scale, and proceeded by administering the scale and determining the reliability and validity, accordingly. The second phase aimed at further validation of the scale by examining its association with a closely related construct, i.e. teacher efficacy.

3.1. Participants

Two different samples of EFL teachers were used in the present study. The data collected from Sample 1 were used for initial validation. The data from Sample 2 were used for cross-validation. The first sample comprised 170 EFL teachers selected according to convenience sampling among EFL teachers teaching English in language institutes in Mashhad and Tehran, two cities of Iran. Yet, an endeavor was made to include teachers from various age groups, with different years of teaching experience, and of both genders to ensure generalizability. Furthermore, the
population was not confined to teachers at any specific level, but teachers teaching English at primary, intermediate and advanced levels were included. The first phase is, indeed, an initial attempt at addressing the validity of the scale. The profile of the teachers is as follows: They were between 20 and 52 years old (M = 31.15, SD = 7.96) with 1 to 21 years of teaching experience (M = 7.40, SD = 5.04). Out of 170 teachers, 113 were females and 52 males, and five participants did not specify their gender. The majority had majored in different branches of English, i.e. English teaching, English literature, English translation plus those teachers who had not majored in English but were qualified to teach it. Fifteen teachers were PhD candidates, 69 held an MA degree or were MA students and the rest had a BA degree or were BA students. There were no requirements other than that the participants be currently teaching an English course during the spring semester of 2012.

The second sample consisted of 200 EFL teachers teaching English in language institutes in the aforementioned cities during the summer semester of 2012. After a brief explanation of the purpose of the research, all participants received the Teacher Attribution Scale and the Teachers’ Sense of Efficacy Scale simultaneously, and then completed them at home and delivered them back to the researchers in the next session. To receive reliable data, the researchers explained the purpose of completing the questionnaires and assured the teachers that their views would be confidential; moreover, both questionnaires were coded numerically and participants were asked not to write a name on them. They were just required to provide demographic information such as gender, age, teaching experience and major.

3.2. Instruments
Two sets of instruments were utilized in this study: (1) Teacher Attribution Scale (discussed in the procedure section) and (2) Teachers’ Sense of Efficacy Scale (see below).

3.2.1. Teachers’ Sense of Efficacy Scale (long form)
To determine teachers’ self-efficacy, the study employed the Teachers’ Sense of Efficacy Scale, designed by Tschannen-Moran and Hoy (2001), owing to its comprehensiveness, integrity and ease of administration. The Teachers’ Sense of Efficacy Scale, also called the Ohio State Teacher Efficacy Scale (OSTES), includes two versions: long form (24 items) and short form (12 items). In the current study the long form was used, which includes three subscales: (1) efficacy in student engagement, (2) efficacy in instructional strategies, and (3) efficacy in classroom management. Each subscale loads equally on eight items, and every item is measured on a 9-point scale anchored with the notations ranging from ‘nothing’ to ‘a great deal’.

The total reliability and the reliability of each individual factor, reported by Tschannen-Moran and Hoy (2001), are shown in Table 1.

In this study, the total reliability of the questionnaire calculated via Cronbach’s alpha was found to be .93.

3.3. Procedure
The present study encompasses three stages as follows:
3.3.1. Designing the scale

The initial version of the scale was designed based on Weiner’s (1986) attribution model, Rose and Medway’s (1981) Teacher Locus of Control inventory and the semi-structured interviews with four teachers in which they were asked to explain the causes of their success or failure. The scale comprised 10 hypothetical situations, half of which described situations of success while the other half illustrated those of failure. The scale required the teachers to consider similar situations from their own teaching experiences and rate the statements on a 6-point scale in the light of their own beliefs, perceptions and understanding of the cause of each situation. The researchers selected these situations based on their extensive experience in English teaching as well as the current models and theories of what makes an effective language teacher. The situations delineated determinants such as: student achievement, interactive and cooperative atmosphere of the classroom, attitudes toward language learning, students’ development of higher-order thinking and learning skills, students’ motivation, classroom organization and students’ development of intercultural competency. For each situation, five attributions were provided as follows: (1) teacher’s teaching competency; (2) teacher’s effort; (3) teacher’s interest in teaching; (4) students’ effort; and (5) institution supervision. This yielded a scale with 50 items.

In this study, causal explanations rather than causal dimensions were measured. The causal explanations assessed in the present study correspond with the three dimensions underlying Weiner’s (1986) attribution theory, i.e. locus, stability and controllability, as indicated in Table 2.

3.3.2. Determining the content validity of the scale

To ensure the content validity of the scale, a group of experts (two educational psychologists, a psychometrician and two English teachers) evaluated the quality of

<table>
<thead>
<tr>
<th>Explanations</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher competence (TC)</td>
<td>Internal Stable Uncontrollable (ISU)</td>
</tr>
<tr>
<td>Teacher effort (TE)</td>
<td>Internal Unstable Controllable (IUC)</td>
</tr>
<tr>
<td>Interest in teaching (TI)</td>
<td>Internal Stable Controllable (ISC)</td>
</tr>
<tr>
<td>Student effort (SE)</td>
<td>External Unstable Uncontrollable (EUU)</td>
</tr>
<tr>
<td>Institution supervision (IS)</td>
<td>External Stable Uncontrollable (ESU)</td>
</tr>
</tbody>
</table>
items in terms of clarity and comprehensiveness. Accommodating the experts’ views and revisions resulted in a more refined and comprehensible version of the scale.

3.3.3. Determining the construct validity of the scale

To substantiate the construct validity of the scale, a confirmatory factor analysis (CFA) using the LISREL 8.50 statistical package was performed. The CFA was selected based on several lines of reasoning. First and foremost, the model adopted in this study for measuring attributions is compatible with the most comprehensive and widely accepted approaches to attribution theory, i.e. a domain-specific, situational approach differentiating success and failure events and capable of measuring both causal explanations and the corresponding dimensions. This entails devising a set of events associated with English teaching followed by recurring explanations which were held constant across the situations. CFA is a special form of factor analysis testing the hypothesis which maintains that a relationship between the observed variables and their underlying latent construct(s) exists. In this type of analysis, the researcher postulates the relationship pattern a priori and then tests the hypothesis statistically. In other words, the objective of CFA is to test whether the data fit a hypothesized measurement model. In this study, the causal explanations (teacher teaching competency, teacher effort, student effort and institution supervision) were selected a priori and held constant across the 10 different situations. CFA examines the model fit and the standardized loading of each factor. Furthermore, the application of CFA for examining construct validity is firmly established within the psychological assessment literature (Distefano and Hess 2005). According to Distefano and Hess (2005), the robustness of CFA for construct validity can be determined in the light of five major categories: (1) theoretical support for model construction, (2) data screening (reported fit criteria a priori), (3) cross-validation stage, (4) multiple fit indices, and (5) model relationship discussion. The presence of three categories is an indication of the adequacy of CFA for providing evidence for construct validity. As it will be seen, in this study an endeavor was made to address all five issues.

The model consisted of the five previously mentioned attributions, each comprising 10 items. A number of fit indices were examined to evaluate the model fit: the chi-square magnitude which should not be significant, the normed fit index (NFI) and the comparative fit index (CFI) with the cut value greater than .95, and the root mean square error of approximation (RMSEA) of about .06 (Schreiber et al. 2006). The acceptable criteria for fit indices are presented in Table 3.

To check which items do not fit the model, the t-values and standardized estimates were examined. To determine the internal consistency of the scale, Cronbach’s alpha was measured.

Table 3. Acceptable criteria for fit indices.

<table>
<thead>
<tr>
<th>Fit Index</th>
<th>Acceptable Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-square χ²</td>
<td>Not significant</td>
</tr>
<tr>
<td>RMSEA</td>
<td>≤ 2 or 3</td>
</tr>
<tr>
<td>CFI</td>
<td>&lt; .06 or .08</td>
</tr>
<tr>
<td>NFI</td>
<td>≥ .90% or 95%</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.3.4. Determining the concurrent validity of the scale

The cross-validation stage, aimed at further validation of the scale, consisted of the concurrent administration of the scale and another instrument assessing a closely related attribute, i.e. the Teachers’ Sense of Efficacy Scale. There is general consensus in the literature that self-efficacy correlates positively with internal, personal and stable attributions, and negatively with external attributions (Bandura 1986; Hargrove 1990; Hsieh 2004; Hsieh and Kang 2010). According to Bandura (1986), the relationship between attribution and self-efficacy is reciprocal. An individual’s self-efficacy can be influenced by his or her explanations of the outcome, and, in turn, one’s attributions for an outcome can be influenced by their sense of self-efficacy beliefs in carrying out a given task (Bandura 1986).

A structural equation modeling (SEM) analysis was performed to examine the relationships between teacher attributions and a set of teacher self-efficacy variables.

4. Results

4.1. Results of the first phase

The designed scale comprising 50 items was administered to the participants of Sample 1. The proposed model was tested using the LISREL 8.50 statistical package. The chi-square statistic was significant ($\chi^2 = 946.81, p < .05$) and the ratio of $\chi^2/df$ was 4.24, indicating the rejection of the model. The CFI, NFI and RMSEA values were found to be .86, .84 and .048, respectively. These indices demonstrated that the model is not acceptable. The initial structural model is presented in Figure 1. The indices on the lines indicate the standardized estimates and $t$-values, respectively. The first one, the standardized coefficient ($\beta$), explains the predictive power of the independent variable and presents an easily grasped picture of effect size. The closer the magnitude to 1.0, the higher the correlation and the greater the predictive power of the variable. The second measure is the $t$-value ($t$); if $t > 2$ or $t < -2$, we call the result statistically significant. As demonstrated by the figure, six items had a $t$-value lower than 2 and did not fit the model.

It was also revealed that these items did not demonstrate good factor loading. Table 4 indicates the standardized loading of each factor.

All these six items belonged to the third factor, i.e. teacher interest. Since there was no way to modify or revise these items, the researchers decided to discard them. Discarding these six items entails eliminating the attribution of teacher interest, on the grounds that the misfit of six out of ten items is an indicator of the overall poor fit of the factor. Accordingly, this resulted in a refined version of the scale comprising 40 items and four attributions. The resultant model was tested again to ensure that the above modification resulted in improvement of the model. As demonstrated by the fit values ($\chi^2 = 139, \chi^2/df = 2.9, \ CFI = .96, \ NFI = .95 \ and \ RMSEA = .06$), the model was acceptable. (See Appendix 1)

The total Cronbach’s alpha estimate of the scale was found to be .88. The Cronbach’s alpha estimates for each factor ranged from .86 to .92 (TC = .86, TE = .87, SE = .92, IS = .87).

The correlations among the four factors were then computed. As indicated in Table 5, the internal attributions (TC & TE) had positive correlations with each other and were negatively correlated with the external ones (SE & IS). It was also revealed that external attributions were positively and significantly correlated.
\[ \chi^2 = 946.81, \text{ df} = 223, \text{ CFI} = .86, \text{ NFI} = .84, \text{ RMSEA} = .048. \]

Figure 1. Schematic representation of the five attributions and the corresponding items.
Note: TC: teaching competency; TE: teacher effort; TI: teacher interest; SE: student effort; IS: institution supervision.
4.2. Results of the second phase

To further validate the scale, the relationship between teacher attributions and teacher self-efficacy was examined. As stated earlier, it was hypothesized that teachers with internal attributions have higher self-efficacy beliefs. Given that self-efficacy theory typically concerns individuals’ beliefs in their capabilities to successfully perform given tasks (Bandura 1997), in our analysis we decided to take into account teacher attributions of the situations of success. This is also manifested in the definition of teacher efficacy put forward by Tschannen-Moran, Woolfolk Hoy, and Hoy (1998, 222) that teacher efficacy is ‘the teacher’s belief in his or her capability to organise and execute courses of action required to successfully accomplish a specific teaching task in a particular context’. The proposed model is illustrated in Figure 2.

The indices of the proposed model were acceptable and the obtained chi-square was not statistically significant ($\chi^2 = 13.33$, $\chi^2/df = 1.66$, CFI = .98, NFI = .98 and RMSEA = .063). The results of the standardized coefficient ($\beta$) and $t$-value ($t$) indicated that teacher self-efficacy was positively predicted by teaching competency and teacher effort (TC: $\beta = .41$, $t = 5.06$; TE: $\beta = .39$, $t = 4.06$) and was negatively predicted by institution supervision (IS: $\beta = -1.15$, $t = -2.08$).

### Table 4. Summary of the standardized loading.

<table>
<thead>
<tr>
<th>Observed variable</th>
<th>Latent variable</th>
<th>$B$</th>
<th>Observed variable</th>
<th>Latent variable</th>
<th>$B$</th>
<th>Observed variable</th>
<th>Latent variable</th>
<th>$B$</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC1</td>
<td>TC</td>
<td>.85</td>
<td>TE1</td>
<td>TE</td>
<td>.75</td>
<td>TI1</td>
<td>TI</td>
<td>.87</td>
</tr>
<tr>
<td>TC2</td>
<td>TC</td>
<td>.85</td>
<td>TE2</td>
<td>TE</td>
<td>.84</td>
<td>TI2</td>
<td>TI</td>
<td>.12</td>
</tr>
<tr>
<td>TC3</td>
<td>TC</td>
<td>.65</td>
<td>TE3</td>
<td>TE</td>
<td>.73</td>
<td>TI3</td>
<td>TI</td>
<td>.72</td>
</tr>
<tr>
<td>TC4</td>
<td>TC</td>
<td>.78</td>
<td>TE4</td>
<td>TE</td>
<td>.71</td>
<td>TI4</td>
<td>TI</td>
<td>.73</td>
</tr>
<tr>
<td>TC5</td>
<td>TC</td>
<td>.65</td>
<td>TE5</td>
<td>TE</td>
<td>.73</td>
<td>TI5</td>
<td>TI</td>
<td>.18</td>
</tr>
<tr>
<td>TC6</td>
<td>TC</td>
<td>.33</td>
<td>TE6</td>
<td>TE</td>
<td>.38</td>
<td>TI6</td>
<td>TI</td>
<td>.03</td>
</tr>
<tr>
<td>TC7</td>
<td>TC</td>
<td>.37</td>
<td>TE7</td>
<td>TE</td>
<td>.48</td>
<td>TI7</td>
<td>TI</td>
<td>.14</td>
</tr>
<tr>
<td>TC8</td>
<td>TC</td>
<td>.39</td>
<td>TE8</td>
<td>TE</td>
<td>.51</td>
<td>TI8</td>
<td>TI</td>
<td>.21</td>
</tr>
<tr>
<td>TC9</td>
<td>TC</td>
<td>.46</td>
<td>TE9</td>
<td>TE</td>
<td>.49</td>
<td>TI9</td>
<td>TI</td>
<td>.15</td>
</tr>
<tr>
<td>TC10</td>
<td>TC</td>
<td>.38</td>
<td>TE10</td>
<td>TE</td>
<td>.51</td>
<td>TI10</td>
<td>TI</td>
<td>.10</td>
</tr>
<tr>
<td>SE1</td>
<td>SE</td>
<td>.84</td>
<td>IS1</td>
<td>IS</td>
<td>.45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE2</td>
<td>SE</td>
<td>.79</td>
<td>IS2</td>
<td>IS</td>
<td>.38</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE3</td>
<td>SE</td>
<td>.76</td>
<td>IS3</td>
<td>IS</td>
<td>.41</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE4</td>
<td>SE</td>
<td>.78</td>
<td>IS4</td>
<td>IS</td>
<td>.47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE5</td>
<td>SE</td>
<td>.73</td>
<td>IS5</td>
<td>IS</td>
<td>.45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE6</td>
<td>SE</td>
<td>.75</td>
<td>IS6</td>
<td>IS</td>
<td>.46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE7</td>
<td>SE</td>
<td>.76</td>
<td>IS7</td>
<td>IS</td>
<td>.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE8</td>
<td>SE</td>
<td>.76</td>
<td>IS8</td>
<td>IS</td>
<td>.94</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE9</td>
<td>SE</td>
<td>.57</td>
<td>IS9</td>
<td>IS</td>
<td>.94</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE10</td>
<td>SE</td>
<td>.70</td>
<td>IS10</td>
<td>IS</td>
<td>.40</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 5. Correlation coefficients among factors of TAS.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. TC</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. TE</td>
<td>.72**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. SE</td>
<td>-.031</td>
<td>.078</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>4. IS</td>
<td>-.217**</td>
<td>-.198**</td>
<td>.488**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.05 level.
The correlation coefficients among teacher attributions, teacher self-efficacy and its comprising factors are presented in Table 6.

As indicated in Table 6, the highest correlations were found between teachers’ teaching competency, teachers’ effort and their sense of self-efficacy beliefs. No significant correlation was found between student effort and self-efficacy and a negative correlation was obtained between teachers’ attribution of their success to institution supervision and their level of self-efficacy beliefs.

5. Discussion
Educational scholars posit that the beliefs teachers have about students and their causal attributions for students’ performance have significant implications for manifesting both teacher and student effectiveness (e.g. Rose and Medway 1981; Pajares
It is also contended that studying these attributions should be a compelling priority for educationalists given that they are critical in teachers’ perceptions of their own responsibility for students’ performance as well as their subsequent behavior towards the students (Tollefson and Chen 1988). In accordance with this, an emerging body of teacher education research examined teacher thinking and perceptions as a significant antecedent to teacher practice (Brophy 1986; Pajares 2003). Nevertheless, teacher attribution and its influence on other factors and constructs conducive to effective teaching remain quite unexplored in the field of second language education. This scarcity, largely attributable to the absence of any standardized measure of teacher attributions, inspired the researchers of the present study to design and validate a teacher attribution scale for English language teachers. In so doing, these four steps were followed: designing the scale, determining the content validity of the scale, determining the construct validity of the scale and determining the concurrent validity of the scale.

Through the initial stage, a scale with 50 items and five factors was developed founded on Weiner’s (1986) attribution model and Rose and Medway’s (1981) Teacher Locus of Control inventory. The scale comprised 10 hypothetical situations, half of which described situations of success while the other half illustrated failure. The scale required the teachers to consider similar situations from their own teaching experiences and rate the statements on a 6-point scale. For each situation, five attributions were provided as follows: (1) teacher’s teaching competency; (2) teacher’s effort; (3) teacher’s interest in teaching; (4) students’ effort; and (5) institution supervision. As stated earlier, in this study causal explanations rather than causal dimensions were measured. Nevertheless, juxtaposing the causal explanations with the three dimensions underlying Weiner’s (1986) attribution theory yielded the following classification: teaching competency is an internal, stable and uncontrollable attribution (ISU). Internal, unstable and controllable (IUC) dimensions represent teacher effort. Interest in teaching encompasses internal, stable and controllable dimensions (ISC). Student effort is considered an external, unstable and uncontrollable attribution (EUC). Finally, institution supervision taps the external, stable and uncontrollable dimensions (ESU).

The initial validation process yielded a more refined version of the scale comprising 40 items and four factors. Based on the results of the standardized estimates and t-values, the third attribution, i.e. teacher interest and its corresponding items, was discarded. The resultant scale measured four attributions: teaching competency, teacher effort, student effort and institution supervision. In other words, two internal and two external attributions, two stable and two unstable attributions, and three controllable and one uncontrollable attributions were assessed by the scale.

To provide criterion validity evidence, the validated scale along with the Teachers’ Sense of Efficacy Scale was administered to Sample 2. The results substantiated the researchers’ contention that teacher efficacy is positively and significantly correlated with internal factors. It was found that teachers’ teaching competency and teacher effort positively predicted their sense of self-efficacy beliefs. In other words, teachers who hold stronger beliefs in their capacity to successfully accomplish a teaching task tend to attribute their success to internal factors. This is consistent with previous theoretical and empirical studies (e.g. Bandura 1986; Hargrove 1990; Hsieh 2004; Hsieh and Kang 2010). No significant relationship and a negative correlation were found between student effort and teacher
efficacy, and institution supervision and self-efficacy, respectively. This suggests teachers with external and uncontrollable perceptions tend to have lower levels of self-efficacy beliefs. This attests to the bulk of research in the literature which demonstrates that externally controlled individuals seemed to be less confident in their capabilities (e.g. Rose and Medway 1981; Greenwood, Olejnik, and Parkey 1990; Gaziel 2008).

The findings of the present study can have important implications for second language acquisition research in general, and EFL teacher education in particular. In the first place, the study informs teachers of their debilitative or unrealistic attributions. This information in principle incites them to alter these attributions to more positive and realistic ones which are in turn expected to facilitate the enhancement of their motivation as well as their students’ motivational disposition. As Weiner (1999) contended, attribution theory must come at the core of achievement motivation theories, given that ‘the subjective reasons to which we attribute our past successes and failures considerably shape our motivational disposition underlying future action’ (as cited in Dörnyei 2005, 79). It can conceivably be argued that a standardized scale measuring teacher attributions would shed light on the issue and stimulate future research on teacher attributions and their influence on other factors and constructs conducive to effective teaching.

The present study is, nevertheless, limited in a number of ways. First, owing to feasibility considerations, the participants were chosen according to convenience sampling. Second, the participants of the present study comprised EFL teachers in language institutes. So this study should be replicated with samples from official schools and centers across the country and in different countries, and use procedures that ensure a higher degree of randomization and ultimately more generalizability. This can also set the ground for cross-comparison of the findings. Third, it was not within the scope of the present study to verify the predictive validity of the scale. Further research should be conducted to substantiate that the proposed scale is valid across languages and contexts and over time.

6. Suggestions for further research

In view of the fact that research indicated that attributions individuals make for their success or failure tend to be pancultural and individualized, further research should utilize the validated scale to investigate the role of cultural, social and religious values of teachers in their attributions. This can set the ground for the cross-comparison of the findings among teachers in various cultures, with diverse socioeconomic backgrounds, and with different religious affiliations and beliefs. This instrument should also set the ground for further studies in the realm of teacher motivation and teaching effectiveness. For instance, the role of these attributions in teachers’ pedagogical success, teacher burnout, and other motivational factors which are conducive to effective teaching can be examined by researchers in order to envision a picture of EFL teacher effectiveness.

Disclosure statement

No potential conflict of interest was reported by the authors.
Notes on contributors

Afsaneh Ghanizadeh is an Assistant Professor at Imam Reza International University, Mashhad, Iran. She received her PhD in Teaching English as a Foreign Language from Ferdowsi University of Mashhad. She has published over 35 papers in scientific research journals and about 10 papers in ISI journals. Her research interests include psycholinguistics and psychology of language teaching and learning.

Behzad Ghonsooly is a Professor in Applied Linguistics at Ferdowsi University of Mashhad, Iran. He is also a professor by courtesy in the Psychology Department of Florida State University. He received his PhD from Edinburgh University, UK. He has published widely in the field. His main research interests include language testing, English for specific purposes and psycholinguistics.

References


Appendix 1. Teacher attribution scale

Directions: Please read the following situations. Consider similar situations from your own teaching experiences and rate the statements on a 6-point scale in the light of your own beliefs, perceptions and understanding of the cause of each situation. Your answers are confidential. Thanks in advance for your cooperation.

<table>
<thead>
<tr>
<th>Years of teaching experience:</th>
<th>Degree:</th>
<th>Place of teaching:</th>
<th>Age:</th>
<th>Gender:</th>
</tr>
</thead>
</table>

**Situation 1.**
Suppose the students in your class performed better on a standardized achievement test compared to other students in your school. How would you rate the following causes of this event?

1) your high competence as a teacher (You are a competent teacher.)
   - strongly disagree
   - somewhat disagree
   - somehow disagree
   - agree
   - strongly agree

2) your high effort (You tried hard to encourage the students to do better or because you exerted enough effort to devise appropriate instructional materials.)
   - strongly disagree
   - somewhat disagree
   - somehow disagree
   - agree
   - strongly agree

3) your students’ high effort (The students in your class tried harder than students in other classes.)
   - strongly disagree
   - somewhat disagree
   - somehow disagree
   - agree
   - strongly agree

4) the institution’s proper supervision (The school, institute or university where you teach has properly supervised the institution toward the achievement of instructional aims.)

**Situation 2.**
If your classroom atmosphere is interactive and cooperative, and if your students are actively involved in class activities, discussions and decision-making, this is probably because of:

1) your high competence as a teacher
   - strongly disagree
   - somewhat disagree
   - somehow disagree
   - agree
   - strongly agree

2) your high effort
   - strongly disagree
   - somewhat disagree
   - somehow disagree
   - agree
   - strongly agree

3) your students’ high effort
   - strongly disagree
   - somewhat disagree
   - somehow disagree
   - agree
   - strongly agree

4) the institution’s proper supervision
   - strongly disagree
   - somewhat disagree
   - somehow disagree
   - agree
   - strongly agree

**Situation 3.**
Suppose half a dozen of your students who are continually disruptive or negligent get calm and attentive at the end of the semester. How would you rate the following reasons for this event?

1) your high competence as a teacher
   - strongly disagree
   - somewhat disagree
   - somehow disagree
   - agree
   - strongly agree

2) your high effort
   - strongly disagree
   - somewhat disagree
   - somehow disagree
   - agree
   - strongly agree

3) your students’ high effort
   - strongly disagree
   - somewhat disagree
   - somehow disagree
   - agree
   - strongly agree

4) the institution’s proper supervision
   - strongly disagree
   - somewhat disagree
   - somehow disagree
   - agree
   - strongly agree
Situation 4.
When your students believe that they can do well in schoolwork, and when you can alter your students’ debilitative attitudes toward language learning to more positives ones, it is more likely due to:

1) your high competence as a teacher
2) your high effort
3) your students’ high effort
4) the institution’s proper supervision

Situation 5.
You have a feeling of professional confidence that you are making a difference in the lives of your students by empowering them and equipping them with higher-order thinking and learning skills. Please rate the role of each of the following causes involved in this situation:

1) your high competence as a teacher
2) your high effort
3) your students’ high effort
4) the institution’s proper supervision

Situation 6.
Imagine a number of your students are not getting much from your class. As a result, their performance appears to be continually deteriorating. How would you rate the following causes of this situation?

1) your low competence as a teacher
2) your low effort
3) your students’ low effort
4) the institution’s improper supervision

Situation 7.
Imagine, in a class, you cannot get the students who are not interested in the lesson to follow classroom rules. So they continually misbehave or sit sullenly. How would you rate the following reasons for this scenario?

1) your low competence as a teacher
2) your low effort
3) your students’ low effort
4) the institution’s improper supervision

Situation 8.
When the students in your class appear not to be motivated enough to participate in class activities and you fail to establish rapport between you and your students and among students, it is probably due to:

1) your low competence as a teacher
2) your low effort
3) your students’ low effort
4) the institution’s improper supervision
Situation 9.
Suppose in end-of-term teacher evaluation report, you find yourself rated relatively below in relation to other colleagues or with reference to your previous ratings. Please rate the role of each of the following causes involved in this situation:

1) your low competence as a teacher  1  2  3  4  5  6
2) your low effort  1  2  3  4  5  6
3) your students’ low effort  1  2  3  4  5  6
4) the institution’s improper supervision  1  2  3  4  5  6

Situation 10.
Suppose half a dozen of your students appear to resist using the second language in the class and are reluctant or even hostile to the topics pertinent to the target culture. As a result, their language proficiency and their intercultural competency do not seem to progress at all. How would you rate the following reasons involved in this scenario?

1) your low competence as a teacher  1  2  3  4  5  6
2) your low effort  1  2  3  4  5  6
3) your students’ low effort  1  2  3  4  5  6
4) the institution’s improper supervision  1  2  3  4  5  6