



The development and validation of the Emotionality in Teaching Scale (ETS)

Felicidad T. Villavicencio

*Bulacan State University, Philippines
De La Salle University, Manila*

Abstract This study aims to develop and refine an instrument assessing teachers' emotions in teaching. The 120-item initial instrument was pilot tested from a sample of 547 teachers and the revised version was administered to a sample of 275 teachers. The dimensions of this construct were assessed through exploratory and confirmatory factor analyses. Confirmatory Factor Analysis was conducted to test the factor structure of the final version of the scale. The Emotionality in Teaching Scale (ETS) consists of five factors and 43 items which assess teachers' emotions in the context of teaching: Enjoyment, anger, boredom, guilt, and annoyance. The validity and reliability of this instrument in the two samples were found to be psychometrically adequate (Cronbach's $\alpha = .92$ and $.88$). This scale was designed to assess teachers' emotions that may influence motivation and teaching performance.

Keywords: *Emotions, teaching, emotionality in teaching*

Introduction

Teaching is an emotionally charged activity and changing the way teachers teach is extremely difficult (Scott & Sutton, 2009). As Nias (1996) noted, teaching involves human interaction and therefore has an emotional dimension. Emotions frequently shape cognitions, and some emotion theorists include changes in cognitive functioning as part of their definition of the emotion process (Mesquita, Frijda, & Scherer, 1997). Specifically, emotions can affect memory of teachers, their categorizing, thinking, and problem solving (Isen, 1993). Moreover, emotions may affect teachers' intrinsic motivation, attributions, efficacy beliefs, and goals. Negative emotions often reduce teachers' intrinsic motivation as "negative emotions tend to be incompatible with enjoyment as implied by interest and intrinsic motivation" (Pekrun, Goetz, Titz, & Perry, 2002, p. 97). Emotions may influence teachers' adoption of mastery versus performance, and approach versus avoidance goals (Kaplan, Gheen, & Midgley, 2002).

Although teachers may often hide their feelings, still students are often aware of and influenced by teachers' expression of both positive and negative emotions. Emotions may be expressed in several ways involuntarily and voluntarily (Sutton & Wheatley, 2003).

Literature suggests that empirical scales with good psychometric properties are not available particularly about teachers. Some available instruments that may be intended for teachers are: Maslach Burnout Inventory (MBI, Maslach & Jackson, 1981), Teacher Job Satisfaction Questionnaire (TJSQ, Lester, 1982), and Purdue Teacher Opinionnaire (PTO, Bentley & Rampel, 1980) but there is no existing instrument that would assess emotions of teachers. The Achievement Emotions Questionnaire (AEQ; Pekrun, Goetz, & Frenzel, 2005) however, was intended to assess students' emotions. Thus, the purpose of this study was to construct and validate appropriate scales with which to measure this important construct. The scales measuring emotionality in teaching developed in this study represent a contribution to the literature on academic motivation in general and to emotions in particular. The emotional experiences of teachers are of paramount importance to teachers themselves and students with whom they interact.

Dimensions of Emotions

Frijda (2004) considered the kinds of emotion to represent discrete emotion categories. They are often referred to as basic emotions (Izard, 1977). A typical set of such categories is the one found by Shaver, Wu, and Schwartz (1992): Anger, disgust, sadness, fear, joy, surprise, love, and pity. The sets of basic emotions found by such methods show considerable similarity between studies although languages do, however, exist, and some words (e.g., hope and jealousy) shift greatly from one cluster to another, and do not really belong to any one of them.

Mesquita and Frijda (1992) reviewed the psychological and anthropological literature on cultural variations in emotions. The literature has been interpreted within the framework of a cognitive-process model of emotions. They found that cross-cultural differences or similarities depend on an important degree on the level of description of the emotional phenomena. Furthermore, cultural differences in emotions appear to be due to differences in event types or schemas, in culture-specific appraisal propensities, in behaviour repertoires, or in regulation processes. Differences in taxonomies of emotion words sometimes reflect true emotion differences, but they may also just result from differences in which emotion-process phase serves as the basis for categorization.

Lutz (1988) argued that although most emotions are viewed as universally experienced "natural" human phenomena, emotions are anything but natural. Emotion, she contended, "can be viewed as cultural and interpersonal products of naming, justifying, and persuading by people in relationship to each other. Emotional meaning is then a social rather than an individual achievement—an emergent product of social life" (Lutz, 1988, p. 5).

As discussed (Scott & Sutton, 2009), many measurements of emotion are based on research in social psychology and rely on experiments with college and university students that may not be applicable to teachers.

Teachers' Emotionality

Emotionality signals that something has transpired that is important to the individual's self or self system (Markus & Wurf, 1987). More specifically, all emotionality experienced by teachers in their classroom has reference to their primary self and to their occupational selves – the current teaching self, and their "ought" and "ought-not" teaching selves (Higgins, 1987). As discussed, it is through the many facets of these changing psychological structures of selves that the individuals manifest cognitive and affective dimensions in their life. Thus, they claimed that teachers order their teaching lives in regard to who and what they are, their organized selves, and in regard to activities and feelings proper, and improper, for such selves. Thus, centrality of selves in all emotional experience implies that if we want to understand emotionality in teaching, we must understand the conditions of teacher's selves.

What kinds of conditions trigger teachers' emotionality? Previous psychological research (e.g., Frijda, 1993) identifies three major dimensions of emotionality: (1) Emotions proper, as reactions to particular, non-routine events; (2) emotions of relations, that is, sentiments of liking-hating, trusting-mistrusting; and (3) moods, like pessimism or optimism about what or where one is in life. Aligned with the foregoing discussion, this study considered these dimensions in the initial survey with teachers, which was conducted through the narratives of their emotional experiences.

Sutton and Wheatley (2003) reviewed the limited literature on the emotional aspects of teachers' lives. They described a multi-componential perspective on emotions and critiqued the existing literature on teachers' positive and negative emotions. The summary of literature suggests that, emotions influence teachers' and students' cognitions, motivation, and behaviours. Moreover, they recognize that emotions are an integral part of teachers' lives. Along with motivation and cognition, psychologists now recognize emotion as one of three fundamental classes of mental operations (Mayer, Salovey, & Caruso, 2000). Therefore, knowledge of teachers' emotions is essential in understanding teachers and teaching. Sutton and Wheatley (2003) also described the positive (e.g., love and caring, joy, satisfaction, pleasure, pride, excitement) and negative emotions (e.g., anger, frustration, anxiety, guilt, helplessness, and sadness) that teachers generally experience.

Recently, Scott and Sutton (2009) tested the previously-mentioned theories of how emotions relate to changes in practice and found that neither positive nor negative emotions were related to these changes. However, according to Pekrun (2006), emotions are to be viewed as involving sets of interrelated psychological processes (affective, cognitive, motivational, and physiological component processes).

Occurrence and Structure of Academic Emotions

In a series of exploratory studies, Pekrun and colleagues (2002) analyzed the emotions of school and university students by means of qualitative interviews and questionnaires. They used exploratory findings as an empirical basis for constructing theoretical taxonomies of the internal structures of different academic emotions. Their participants reported a broad range of affective, cognitive, physiological and motivational elements of their emotional experiences that were used for creating these taxonomies (Pekrun et. al., 2002, p. 94). As discussed, academic emotions are defined as emotions that are directly linked to classroom instruction, academic learning, tests and exams, and students' achievement in these academic situations (Pekrun, 2006; Pekrun, et. al., 2002).

Whereas, quantitative measures are needed to emotions, however, they are tailored to measurement of student emotions like the Achievement Emotions questionnaire (Pekrun, Goetz, & Frenzel, 2005). Minimal research has examined teacher emotion within the framework of an explicit theory of emotion (Sutton & Wheatley, 2003).

In Pekrun's (1992) model, discrete academic emotions are assumed to have specific effects on learning and achievement based on how they are classified within the conceptual schema. This model distinguishes between emotions that are positive-activating (enjoyment, pride, hope), positive-deactivating (relief, relaxation), negative activating (anxiety, anger, shame/guilt), and negative deactivating (boredom, hopelessness, disappointment). In addition to the valence and activation, academic emotions are also categorized according to the aspects of the situation (task- and self-related vs. social). The task-related emotions are further separated into process-related, prospective, and retrospective emotions (Goetz, Zirngibl, Pekrun, & Hall, 2003).

Anchored on Pekrun's theory (1992; 2006) and Sutton and Wheatley (2003) research (2003), the Emotionality in Teaching Scale has a valence of positive and negative emotions. Positive emotions consist of enjoyment, and pride which are activating. Negative emotions consist of irritation, anger, shame, guilt, annoyance (activating), and boredom (deactivating).

The objective of this paper was to develop a multi-item scale of self-report on emotionality in teaching as perceived by the teachers themselves. Defining emotions, distinguishing them from other states or traits, and more so measuring emotions in a comprehensive and meaningful way are indeed very challenging for researchers over a long period of time (Scherer, 2005). Without consensual conceptualization of exactly what phenomenon is to be studied, measurement of emotionality in teaching could hardly be realized.

Teachers' Emotions and Teaching

When asked, teachers usually share about the joy, satisfaction, and pleasure associated with teaching (Sutton, & Wheatley, 2003). Teachers' satisfaction occurs when students learn and make progress (Sutton, 2000; Hargreaves, 1998). They also find pleasure when their students strive to learn. In addition, teachers find joy

when students are responsive in class. They also find pleasure and pride when students cooperate with no major disruptions (Emmer, 1994; Sutton, 2000). In general, teachers experience positive emotions when they get everything done (Hatch, 1993).

Teachers also reported experiencing negative emotions. Every middle school teacher interviewed by Sutton (2000) talked about frustration or anger or both. As found in Sutton's study, frustration and anger arise from a number of sources related to goal incongruence. These include students' misbehavior and violation of rules (Emmer, 1994; Erb, 2002; Hargreaves, 2000; Sutton, 2000). Teachers are also likely to become angry when they believe that students' poor academic work is due to controllable factors such as laziness or inattention (Reyna & Weiner, 2001). Moreover, anger and frustration are exacerbated by exhaustion and stress (La Porte, 1996; Sutton, 2000) and losing one's temper can make teachers feel ashamed (Lortie, 1975). Interestingly however, some teachers consciously use "fake anger" to manage their students (Woods & Jeffrey, 1996), and some teachers report learning to control their anger with experience (Golby, 1996; Sutton & Conway, 2002).

Furthermore, students' misbehavior that elicits negative emotions in teachers is distracting and diverts attention from instructional goals. High anxiety can reduce limited resources of working memory because it impairs task-relevant processing (Ashkraft & Kirk, 2001). In contrast to the negative effects of anxiety, positive emotions of joy, interest, and pride may broaden the memory capacity, that is, more thoughts and actions come to mind (Fredrickson & Branigan, 2001). This suggests that teachers who experience more positive emotions may generate more teaching ideas and strategies.

The present study was conceived based on the literature reviewed so far which provides an overview of the range of emotions that teachers experience and the conditions under which these emotions are experienced.

Method

Establishing Construct Definition and Content Domain

The content validity is focused in line with its theoretical dimensionality. Literature review clearly identifies the most appropriate definition and theory of emotions, specifically the emotions associated in teaching. A survey was conducted for domain sampling to be able to establish theoretical assumptions about items for emotionality in teaching. Teachers were asked to report their emotions both positive and negative, activating or deactivating in teaching. They were also asked to specify the situations which led them to experience enjoyment, anger, irritation, as well as boredom and annoyance. A total of 154 initial items was generated from the participants.

Generating and Judging Measurement Items

The 154 original items were rephrased in such a way that it will fit the response format. Likert five-point scale was used (1 as strongly disagree to 5 strongly agree). The initial item pool was reviewed by experts to determine if the phenomenon of interest has generated a pool of suitable items and an appropriate response format for these items has been selected. Item critiquing was performed by three experts to further establish its content validity. They were provided with the working definition of emotionality in teaching. The three experts were each provided a copy of the Emotionality in Teaching Scale consisting of 154 items, grouped into five subscales: subscale 1-enjoyment, enthusiasm, fulfilment (43 items); subscale 2- anger, irritation (30 items); subscale 3: boredom, annoyance (25 items); subscale 4- pride (28 items); and subscale 5- shame, guilt, embarrassment (28 items). The items were evaluated by the experts because they were asked to make a decision if the item is to be accepted, rejected, and revised. Some items were eliminated based on a priori criteria, such as lack of clarity, questionable relevance, or undesirable similarity to other items (DeVellis, 1991). A few insightful comments about why certain items are ambiguous, clarified on how items measure the construct. After incorporating the comments given by the experts, 34 items were eliminated. Thus, the *Emotionality in Teaching Scale* consists of 120 items for pilot testing.

Pilot testing

A preliminary form of the ETS consisting of 120 items was administered to a sample of 547 teachers. Teacher participants came from diverse populations. Data were cross-sectional in nature with 414 female and 133 male teachers ranging from 21 to 64 years old ($M = 34.5$; $SD = 9.79$). They were teaching in public ($N=382$) and private ($N=165$) schools in different levels (grade school, high school, college, and graduate school in Manila, Bulacan, Pampanga, and other provinces). Pilot testing was done as an item-trimming procedure and to establish its psychometric properties.

Data Analysis

The data obtained from pilot testing were subjected to a factor analysis using principal factor analysis with iteration and an orthogonal (varimax) rotation. A set of selection criteria was then applied to the items to determine which items would be retained. Items were retained that met all of the following criteria: A factor loading greater than .40 on only one of the five factors, and a high item-total correlation. Aside from eigenvalues, scree plot was used to determine the number of factors that will be retained.

The psychometric properties of the scale were determined. Initial item analyses were conducted via exploratory factor analysis (EFA), specifically, the principal components analysis. The EFA retained 45 items with five scales. The internal consistency of the scales was also determined using Cronbach's alpha.

Confirmatory factor analysis (CFA) was conducted with structural equation modelling (SEM) packages that use Maximum Likelihood Estimation (MLE). MLE involves an iterative process in which the observed covariance matrix (among the items) is compared with an implied or theoretical matrix to minimize the differences (or residuals) between the observed and implied matrices. The SEM package iterates until these differences are minimized. When the differences can no longer be reduced further, convergence occurs. Thus, an initial step in model evaluation is to determine if the CFA solution converges without any offending estimates (out-of-range parameter estimates), and to assess the model fit.

Validation of the Scale

In order to obtain confirmatory data for the pattern of factors, the 45-item form was administered to graduate students who were teaching in several schools in Bulacan and Pampanga. Two hundred seventy-five teachers (275) participated, 245 were female, and 30 were male (M age = 33.64; SD = 9.65). These teachers came from public schools (156) and private schools (119) handling pre-school, grade school, high school, and college students.

Results

Descriptive statistics

Means, standard deviations, minimum and maximum values, skewness, and kurtosis values were determined. Examination of the data shows that there were 39 items with poor skewness and kurtosis values. All values greater than 2 were already removed prior to factor analysis, with 81 items left. Five factors emerged on the basis of item pool generation when the 154 items were categorized resulting to five underlying factors.

Exploratory Factor Analysis

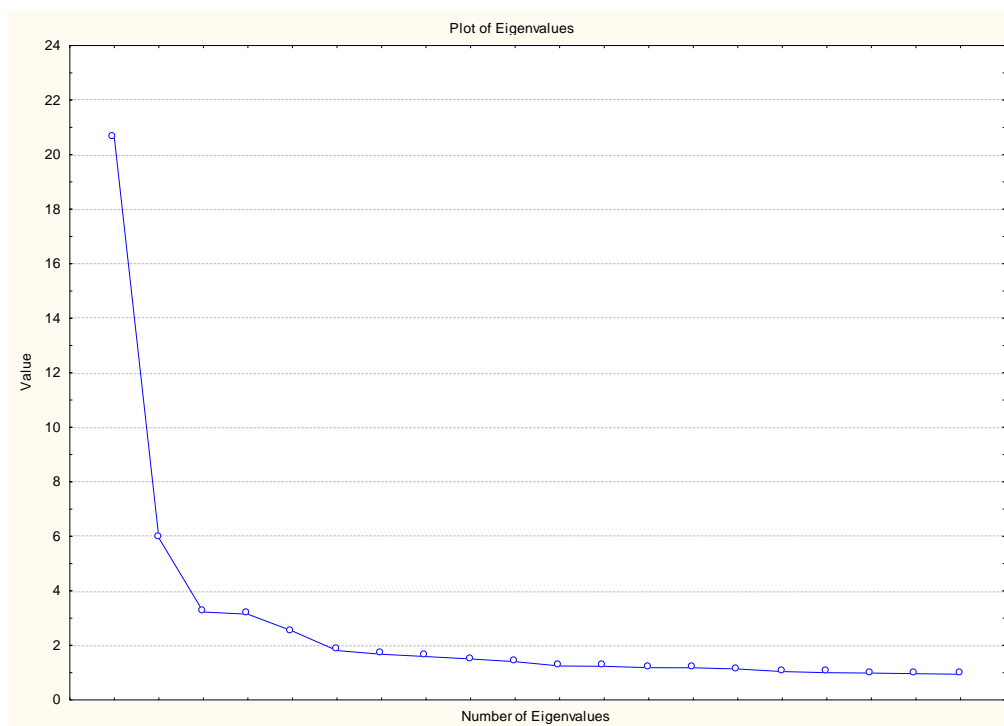
Exploratory factor analysis was conducted in Statistica 7 software. Table 1 presents the eigenvalues of five factors extracted from the scale. Determining the number of factors to retain in any EFA is a critical decision (Thompson, 2004). According to the eigenvalue-greater-than-one rule, the number of factors is equal to the number of eigenvalues greater than one (Netemeyer, Bearden, & Sharma, 2003). If this was observed, over-extraction is possible, wherein various items might load across several factors. Thus, in the present study however, a more robust eigenvalues of 2 and above was considered. After performing the varimax rotation, five factors were extracted. A coefficient value of .40 was used as the cut-off score. Items with coefficient value below .40 were eliminated. The initial five factors extracted consist of: Factor 1 (18 items), Factor 2 (12 items), Factor 3 (9 items), Factor 4 (11 items), and Factor 5 (10 items). A total of 60 items remained after deleting 21 cross-loading items. However, 15 items were eliminated because they seem not to be grouped on the five factors.

Table 1
Eigenvalues of Five Factors Extracted from the Scale

	Eigenvalue	Percent Total	Cumulative Eigenvalue	Cumulative Percent Total
1	24.53	20.45	24.53	20.45
2	14.85	12.37	39.38	32.82
3	3.97	3.31	43.35	36.13
4	3.36	2.80	46.71	38.93
5	2.94	2.45	49.65	41.38

According to Thompson (2004), determining the number of factors to extract or retain requires judgment. Scree plot of eigenvalues is illustrated in Figure 1. Although the elbow of the scree plot suggests 3, 4 and 5 factors, 5 factors was considered because deleting a factor well below this elbow will show little loss of explained variance. Factor 1 refers to emotions of teachers related to irritation and anger (12 items). Factor 2 refers to emotions related to pride and enjoyment (12 items). Factor 3 refers to emotions of guilt and shame (9 items). Factor 4 refers to boredom in teaching (8 items). Factor 5 refers to annoyance experienced by teachers (4 items). The five-factor solution for a factor analysis of the 45 items, based on the sample of 547 and using principal factor analysis with iteration plus an orthogonal rotation, is presented in Appendix.

Figure 1
Scree Plot of Eigenvalues for Five Factors



Reliability of the Scale

Cronbach's alpha (α) reliability of the ETS was determined in the initial version of 45 items. The reliability of each factor was also determined. The reliability coefficient suggests that the scale and the five subscales have very good internal consistency. Summary statistics for each scale is shown in Table 2.

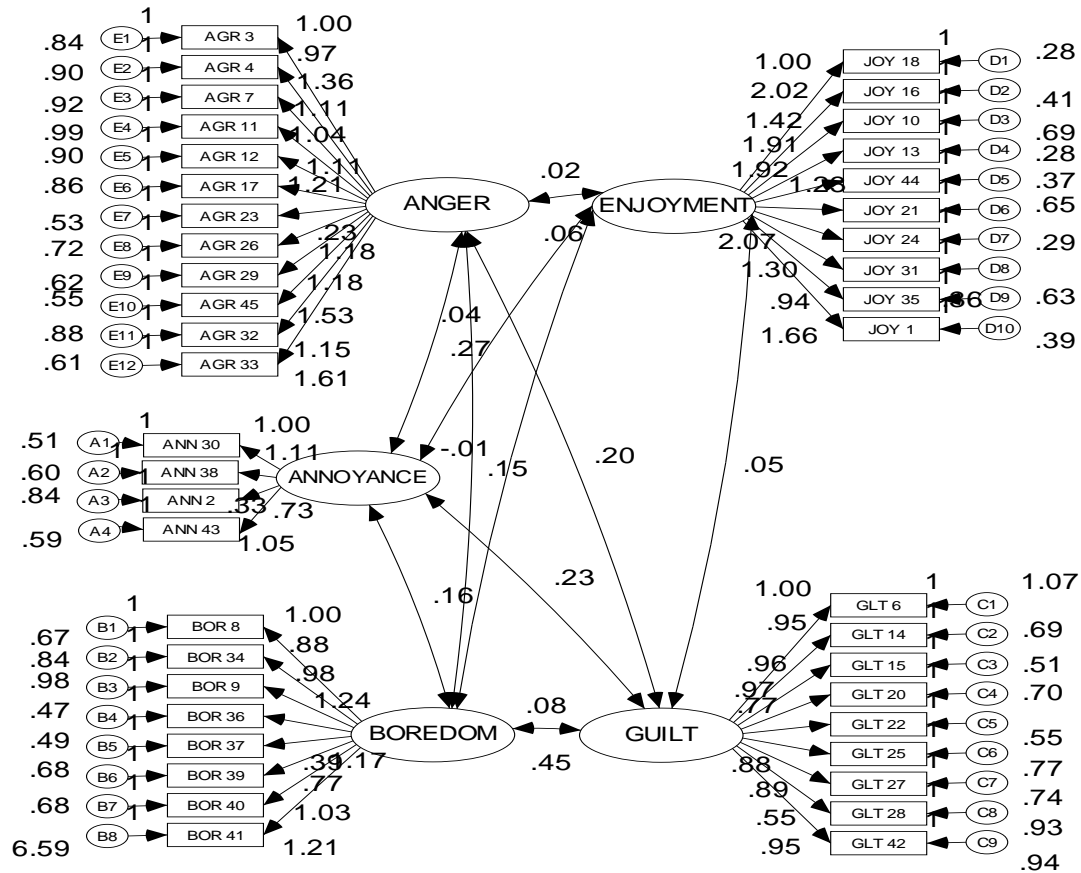
Table 2
Descriptive Statistics of the 45-Item Scale

Try-out Version of the Scale	No. of items	<i>M</i>	<i>SD</i>	Cronbach's alpha reliability
Factor 1 (Irritation and Anger)	12	44.20	9.38	.92
Factor 2 (Pride and Enjoyment)	10	52.42	5.49	.86
Factor 3 (Guilt and Shame)	9	32.64	6.39	.84
Factor 4 (Boredom)	8	22.00	5.79	.78
Factor 5 (Annoyance)	4	15.02	3.21	.75
ETS (Whole Scale)	45	166.29	20.94	.92

Confirmatory Factor Analysis (CFA)

The validity of the five factors in ETS was examined through confirmatory factor analysis. The measurement model that was tested in the study is presented in Figure 2. In this model, there were five latent constructs (anger, enjoyment, guilt, boredom, and annoyance) and the manifest variables which are the items. The parameter estimates show that the five factors of the scale are interrelated and the items which constitute each factor. The items (manifest variables) were specified as indicators for the five latent variables. Consequently, these five latent factors contribute to emotionality associated in teaching.

Figure 2
Measurement Model of the Study



Results of confirmatory factor analysis (CFA) indicate that the solution has converged normally with the following fit indices: ($\chi^2 = 1862.53$; $df = 935$; $\chi^2/df = 1.99$) In addition, the scale has a Steiger-Lind Root Mean Square Error approximation (RMSEA) index of .06 which suggests an acceptable fit. RMSEA is considered as a stand-alone or absolute measure of fit (Netemeyer, et al., 2003).

Validation of the Emotionality in Teaching Scale

The 45-item ETS was validated by administering to a sample of 275 teachers. The reliability of the whole scale in its second administration shows a Cronbach’s alpha reliability of .88 with subscale reliabilities of .66 to .84. Two enjoyment items were eliminated due to its insignificant correlation with other items. Thus, the validated version of the Emotionality in Teaching Scale consists of 43 items. Table 3 shows the descriptive statistics of the final version of the scale.

Table 3
Descriptive Statistics of the Final Version of the ETS

Final Version of the Scale	No. of items	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	Cronbach's alpha reliability
Factor 1: Irritation and Anger	12	42.22	7.56	-.47	-.07	.83
Factor 2: Pride and Enjoyment	10	41.72	4.45	-.41	-.42	.77
Factor 3: Guilt and Shame	9	31.29	5.92	-.42	.26	.80
Factor 4: Boredom	8	19.91	6.26	1.72	1.57	.71
Factor 5: Annoyance	4	14.38	2.75	-.29	.10	.66
ETS (Whole Scale)	43	149.53	18.29	-.21	.29	.88

Discussion

The results are consistent with theory (Hargreaves, 2001; Sutton & Wheatley, 2003) which suggest that teachers tend to experience different emotions. Moreover, these studies shed light on the nature of the distinction between positive and negative emotions although only one factor corresponding to positive emotions emerged as compared to four factors of negative emotions. The five factors extracted in the analyses further imply that emotionality in teaching is a multidimensional construct.

The items belonging to Factor 1 pertain to irritation and anger generally experienced by teachers. Items in this scale suggest that teachers get angry (e.g., “I get angry when a student cheats during exams”) and get irritated (e.g., I feel irritated when students do not pay attention to the discussion”) in relation to students’ behavior. Aligned with an earlier study, teachers are likely to become angry when they believe that students’ poor academic work is due to controllable factors such as laziness or inattention (Reyna & Weiner, 2001). As claimed by Hargreaves (1998; 2000; 2001), anger is related to teachers’ goals. Teachers tend to get angry when they see that their goals are not attained. Specifically, students who are not prepared, provoke a teacher to anger. In line with Stein, Trabasso, and Liwag (2000), when teachers fail to attain or maintain desired goal in teaching, or when they cannot prevent undesired goal from occurring or continuing, they experience negative emotions like anger or irritation (e.g., “I get irritated when no one knows the correct answer”).

On the other hand, items in Factor 2 pertain to positive emotions of enjoyment and pride. Based on these items, the conditions under which teachers often experience positive emotions are related to their performance of duties (e.g., “I am proud of my ability to design lessons that are relevant, meaningful, and fun”) and to student performance (e.g., “I appreciate students who monitor their own thinking during class discussion”). These confirm earlier findings (Sutton, 2003) that teachers tend to experience positive emotions when they see students make progress and students who are responsive in class. Consistent with Lewis (2000),

teachers' enjoyment in teaching is elicited by specific situations identified by teachers themselves. Similarly, pride is elicited depending on cognitions related to the self (Lewis, 2000). Specifically, pride occurs when one makes a comparison or evaluate one's behavior vis-à-vis some standard, rule, or goal and finds that one has succeeded (e.g., "I am proud of my ability to integrate technology in the classroom"). Teachers experience pride in their accomplishments, the pride in being successful in fulfilling a particular goal or activity. These conditions trigger enjoyment and pride in teaching.

Factor 3 consists of emotional experiences of guilt. An examination of the items suggests that guilt experiences of teachers are associated with their performance (e.g., "I feel guilty if I don't achieve all the objectives of the course."). As discussed by Lewis (2000), guilt occurs when an individual's evaluation leads to the conclusion that one has failed. The determination of success and failure in teaching resides within the teacher and on the nature of the standard that is set. Guilt experienced by teachers is not guilt related to the whole self, but rather guilt related to one's action (e.g., "I feel guilty when majority of my students failed in the exam").

Factor 4 refers to boredom experienced by teachers which may be task-related (e.g., "Constructing tests/exams is boring for me") or student-related ("I feel bored in a class of passive students"). Clearly, teachers' boredom is caused by repetitive or routine work. Thus, in teaching, teachers also carry a value judgment. Boredom is elicited when teachers engage in activity for some time that are no longer interesting and fulfilling for them.

Factor 5 pertains to teachers' feeling of annoyance which can be attributed to students (e.g., "I am annoyed when no one could answer my question in class"). Annoyance is evoked when teachers appraise an event as unpleasant, difficult, or they are unable to control the situation. Moreover, teachers get annoyed when they fail in their expectations (e.g., "I am annoyed when students did not do their assignments").

Theoretically, teachers experience a diversity of emotions in teaching. To date, there has been no instrument about emotionality in teaching that was developed which utilized qualitative and quantitative methods in its development. In this research, qualitative method was employed in exploring the occurrence and structure of emotions associated to teaching. Then, a quantitative self-report instrument measuring five emotions experienced by teachers in the context of teaching was developed and validated.

The scale developed in this study has strong empirical qualities which represents a contribution to the assessment and measurement literature specifically emotions associated in teaching. Both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted to determine and confirm the factorial stability of the Emotionality in Teaching Scale (ETS). The five emotions in this scale were stringed together from exploratory factor analysis. Items in the final version of the scale were based on item statistics, reliabilities, and measures of fit obtained from confirmatory factor analysis. The resulting scale integrates primary emotions of enjoyment and anger, self-conscious emotions of pride and shame, as well as less frequently reported emotion of annoyance.

Teaching is an emotionally intense experience encompassing the full gamut from enjoyment to anger. These two emotions have received considerable attention (Lewis, 2000). However, shame, boredom, and annoyance have received little attention. Thus, ETS captures this string of emotions generally experienced in teaching. Emotions of students are categorized according to valence and activation (Pekrun et. al., 2002). In ETS however, emotions are categorized according to valence: whether the emotion is positive or negative, and agency: whether the teacher or the student or both are responsible for the emotion. According to appraisal theorists, emotions are evoked by events that are relevant to the individual's concerns, motives, major goals, or well being (Frijda, 1993; Lazarus, 1991). The five emotions contained in ETS focused on the personal significance and meaning of events experienced by teachers in everyday teaching.

In the Achievement Emotions Questionnaire for students (Pekrun et. al., 2005), emotions are measured in domain-specific ways and was designed to assess college students' academic emotions. In the ETS however, emotions of teachers across domains and levels (grade school, high school, college, and graduate school) can be assessed. The items for each emotion represent the wide range of emotions generally experienced by teachers in academic setting, both pleasant and unpleasant.

A five-factor solution consisting of five different but interrelated emotions in teaching best accounted for the data. The factors had eigenvalues greater than two and are considered subscales of the ETS. The irritation and anger subscale consists of 12 items. The 10 items in the pride and enjoyment subscale describe the positive emotions experienced by teachers. The guilt and shame subscale consists of 9 items, boredom scale has 8 items and annoyance scale has 4 items. For pride and enjoyment subscale, higher mean scores correspond to higher levels of positive emotional experiences. In contrast, higher mean scores of irritation and anger, guilt and shame, boredom and annoyance suggest high levels of negative emotions of teachers. Such a correlation is in accord with theoretical expectations that there are positive and negative dimensions of teachers' emotionality. The five subscales showed good internal reliabilities.

The development and validation of the Emotionality in Teaching Scale was based on the need for an instrument to assess emotionality associated with teaching. Since there is no existing instrument related to this construct, this study provides initial empirical evidence on how emotions of teachers associated with teaching can be assessed. Future studies may allow us to achieve a better understanding of the pleasant and unpleasant emotions commonly experienced by teachers. This can be adopted by future researchers in investigating other motivational constructs or any factors related to teaching performance. An understanding of teachers' emotions in teaching may help future research examine the links between teachers' emotions and their choice of teaching strategies (Hargreaves, 2000); their emotions and goal orientation, as well as their classroom management and discipline, and teaching performance.

In summary, the purpose of this research was to develop and validate the psychometric properties of the ETS among teachers. Taken together, the results represent further evidence that the ETS and its five subscales have adequate levels

of reliability and validity in two samples. Overall, the results of the present study suggest that emotionality in teaching can now be assessed using the present scale.

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Appendix

Factor Loadings of 45 items

	Scale items	Factor 1 Irritation and anger	Factor 2 Pride and enjoyment	Factor 3 Guilt and shame	Factor 4 boredom	Factor 5 annoyance
1	I feel irritated when a student does not listen during discussion and asks questions later because he does not understand.	.71				
2	I feel irritated when my students are talking with their seatmates while I'm discussing.	.77				
3	I feel irritated when students are making noise.	.76				
4	I feel irritated when students ask questions they already know the answer to.	.55				
5	I feel irritated when students do not pay attention to the discussion.	.77				
6	I feel irritated whenever a student asks irrelevant questions.	.57				
7	I get angry if my student is doing something else in class.	.72				
8	I get angry when a student arrives late in class.	.67				
9	I get angry when a student cheats during exams.	.68				
10	I get angry when a student sleeps in class.	.62				
11	I get disappointed when no one knows the correct answer.	.52				
12	I get irritated when students ask questions that I have just answered.	.70				
13	I am proud of my ability and skills in teaching	.	.78			
14	I am proud of my ability to design lessons that are relevant, meaningful, and fun.		.77			
15	I am proud of my ability to incorporate various strategies to address the needs of all students and different modalities.		.76			
16	I am proud of my ability to integrate technology in the classroom.		.71			
17	I am satisfied with the result of student evaluation.		.45			
18	I appreciate students who monitor their own thinking during class discussion.		.55			
19	I enjoy checking the course requirements submitted by my students especially when they did it well.		.46			
20	I enjoy preparing my lesson plan or class activity.		.45			
21	I enjoy talking to intelligent students in my class.		.45			
22	I feel happy when someone compliments my effort to teach.		.48			
23	I think I can be proud of my outstanding teaching performance.		.69			
24	I am so proud that I can teach with maximum proficiency.		.73			
25	I feel ashamed whenever I realize that my classroom is far from ideal.			.43		
26	I feel defeated when a student consistently gets a failing score in the test.			.43		
27	I feel embarrassed when I call my student with another's name.			.46		
28	I feel embarrassed when I could not answer a question of my students.			.49		
29	I feel guilty if I don't achieve all the objectives of the course.			.70		
30	I feel guilty when I arrive late in class.			.78		
31	I feel guilty when I did not perform well in my teaching.			.77		
32	I feel guilty when I give a failing course grade.			.51		
33	I feel guilty when majority of my students failed in the exam.			.59		
34	Constructing tests/exams is boring for me.				.45	

35	I am bored during test administration.	.46
36	I am bored talking to students who communicate poorly.	.52
37	I feel bored in a class of passive students.	.46
38	I feel bored when dealing with difficult students.	.54
39	I feel impatient when students refuse to accept a scientifically proven concept.	.57
40	I feel tired explaining a simple subject matter but too difficult for my students.	.56
41	I get bored teaching the same subject (course) for years.	.46
42	I am annoyed when a student is consistently taking my subject for granted despite constant reminders.	.57
43	I am annoyed when a student keeps on committing the same mistake.	.64
44	I am annoyed when my students did not do their assignments.	.59
45	I am annoyed when no one could answer my question in class.	.49

Author Note

For questions and permission to use the ETS please address correspondence to Dr. Fely T. Villavicencio, e-mail: dr_fely@yahoo.com